

HUDSON CAR WASH SITE PLAN

SP# 04-26

STAFF REPORT

June 24, 2026

SITE: 224 Central Street, Map 176/Lot 029-000

ZONING: Business (B)

PURPOSE OF PLAN: to propose redevelopment of the site as an automated car wash facility consisting of one (1) building containing two (2) touch-free wash bays and one (1) wash tunnel, including twenty-one (21) onsite parking/vacuum spaces and associated site improvements.

PLAN UNDER REVIEW:

Hudson Car Wash SP#04-26, Map 176 / Lot 029, 224 Central Street, Hudson, NH; prepared by: Granite Engineering, 150 Dow Street, Tower 2, STE 421, Manchester, NH 03101; prepared for: Klemm Family LLC, 4 Mall Road, Salem, NH 03079, consisting of 20 sheets and general notes 1-28 on Sheet 1; dated May 5, 2026.

ATTACHMENTS:

1. Site Plan Application and associated waiver requests, received May 5, 2026 – Attachment “A”.
2. Project Narrative – Attachment “B”.
3. Department Review Comments – Attachment “C”
4. Wetland Assessment, prepared by Frontier Geoservices, dated November 21, 2025 – Attachment “D”.
5. Drainage Report, prepared by Granite Engineering, Dated May 1, 2026 – Attachment “E”. (Digital Only)
6. Traffic Study, prepared by Vanesse & Associates, dated April 24, 2026 – Attachment “F”. (Digital Only)
7. Peer Review Letter, prepared by Fuss & O’Neill, dated June 12, 2026 – Attachment “G”.
8. Site Plan dated May 5, 2026.

APPLICATION TRACKING:

- May 5, 2026 – Site Plan application received.
- June 24, 2026 – Public hearing scheduled.

COMMENTS & RECOMMENDATIONS:

BACKGROUND

The subject site is approximately 1.2 acres in size and is located within the Business Zone. This parcel was originally home to Burger King, built in the 1980’s. The restaurant now sits empty and is no longer in operation. The site is accessed via Central Street, and is located outside of the urban compact. The site is served by municipal water and sewer services. A portion of the property lies

within a FEMA-designated flood zone to the northwest, however none of the building is proposed to be within this zone. The applicant has submitted no waivers as part of this submission.

Department Comments

DPW provided the following comments:

Sewer inspection manhole to be placed at edge of ROW.

SUGGESTION: If at all possible, utilize the existing sewer service at the property line. The water table is going to make it extremely difficult for a new service tap.

Full comments may be found in Attachment “D”.

DRAINAGE REPORT

The applicant has submitted a Stormwater Management Report dated May 1, 2026. The report concludes that the proposed development design complies with the stormwater NHDES regulations. The full report may be found in Attachment “E” (Digital Only).

TRAFFIC STUDY

The applicant has submitted a traffic study, dated April 24, 2026 and prepared by Vanasse & Associates, Inc. (VAI) to identify traffic impacts associated with the proposed car wash. The following conclusions were taken directly from the study:

- The project is expected to generate approximately 986 trips on an average weekday (two-way, 24-hour volume), with 58 vehicle trips (32 entering and 26 exiting) during the weekday morning peak hour and 94 vehicle trips (47 entering and exiting) during the weekday evening peak hour. On Saturday, the existing site was expected to generate 1,000 vehicle trips, with 125 vehicle trips (62 entering and 63 exiting) during the Saturday midday peak hour.
- Traffic-volume increases related to the project, external to the study, are anticipated to range from 2 to 27 vehicles or 0.8 to 2.5 percent, during peak periods.
- Lines of sight at the project site driveway intersection with NH Route 111 were found to exceed the AASHTO recommended minimum values for SSD, the desirable values for ISD, and meet the NHDOT’s requirements for all-season safe sight distance based on the measured 85th percentile vehicle speeds.
- The project will generally not have a significant impact on motorist delays or vehicle queuing at study area intersections compared to anticipated future conditions without the project (No-Build conditions).

The full report may be found in attachment “F”.

PEER REVIEW

Fuss & O’Neill has completed the first round of peer review, dated June 12, 2026. (Attachment “G”) The applicant has not submitted a response letter at this time.

STAFF COMMENTS

Staff notes that the property is outside of the Hudson Urban Compact, which means that a NHDOT driveway permit will be required. This development has no CAP Fee, as the original development contributed towards off-site improvements.

RECOMMENDATION

For this meeting, staff recommends application acceptance, conduct the public hearing, and deliberation on the site plan and waivers, along with any necessary revisions or studies that may be necessary. The applicant and Board should determine how much time is needed to review revised materials. A motion for continuance is provided below.

MOTION TO ACCEPT:

I move to accept the Site Plan Application for Hudson Car Wash SP#04-26, Map 176 / Lot 029, 224 Central Street, Hudson, NH.

Motion by: _____ Second: _____ Carried/Failed: _____

MOTION TO DEFER:

I move to defer the Site Plan Application for Hudson Car Wash SP#04-26, Map 176 / Lot 029, 224 Central Street, Hudson, NH, to date certain _____, 2026.

Motion by: _____ Second: _____ Carried/Failed: _____

MOTION TO CONTINUE:

I move to continue the Site Plan Application for Hudson Car Wash SP#04-26, Map 176 / Lot 029, 224 Central Street, Hudson, NH, to date certain _____, 2026.

Motion by: _____ Second: _____ Carried/Failed: _____

MOTION TO APPROVE:

I move to approve the Hudson Car Wash SP#04-26, Map 176 / Lot 029, 224 Central Street, Hudson, NH; prepared by: Granite Engineering, 150 Dow Street, Tower 2, STE 421, Manchester, NH 03101; prepared for: Klemm Family LLC, 4 Mall Road, Salem, NH 03079, consisting of 20 sheets and general notes 1-28 on Sheet 1; dated May 5, 2026; 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, together with the Site-Plan-of-Record.

2. All improvements shown on the Site Plan-or-Record, including all Notes, shall be completed in their entirety and at the expense of the applicant or the applicant's 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. 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 Development Services Department, confirming that the site conforms with the Planning Board approved plan.
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 operation shall be limited to 7:00 A.M. to 7:30 P.M. Monday through Saturday, and 8:00 A.M. through 5:00 P.M. on Sunday.
7. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.
8. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.

Motion by: _____ Second: _____ Carried/Failed: _____



*Town of Hudson
12 School Street
Hudson, NH 03501*

SITE PLAN APPLICATION

Revised September 2025

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

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

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

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

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

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

SITE PLAN APPLICATION

Date of Application: May 5, 2026 Tax Map #: 176 Lot #: 29

Site Address: 224 Central Street

Name of Project: Hudson Car Wash

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

Z.B.A. Action: _____

PROPERTY OWNER:

Name: Klemm Family, LLC

Address: 4 Mall Rd

Address: Salem, NH 03079

Telephone # 603-787-3141

Email: tomjr@klemmgroup.com

DEVELOPER:

Marquis Contracting Group

717 Daniel Webster Highway

Merrimack, NH 03054

603-787-3141

dave@marquiscg.com

PROJECT ENGINEER:

Name: Granite Engineering, LLC

Address: 150 Dow St, Tower 2, Ste 421

Address: Manchester, NH 03101

Telephone # 603-518-8030

Email: jchristie@graniteeng.com

SURVEYOR:

Smith & Pospesil Surveying Co., PLLC

240 Quebec Road

Lyman, NH 03585

603-787-3141

eric@splandsurvey.com

PURPOSE OF PLAN:

Redevelopment of site as an automated car wash facility with associated site
improvements

(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 SHEETPLAN NAME: Hudson Car WashPLAN TYPE: SITE PLANLEGAL DESCRIPTION: MAP 176 LOT 29DATE: May 5, 2026

Location by Street: 224 Central Street

Zoning: Business (B)

Proposed Land Use: Car Wash

Existing Use: Restaurant

Surrounding Land Use(s): Retail, Gas Station, Restaurant, Open Space

Number of Lots Occupied: 1

Existing Area Covered by Building: 5,006 S.F.

Existing Buildings to be removed: 5,006 S.F.

Proposed Area Covered by Building: 4,844 S.F.

Open Space Proposed: 41 %

Open Space Required: 35 %

Total Area: S.F.: 53,722 Acres: 1.233

Area in Wetland: 0 S.F. Area Steep Slopes:

Required Lot Size: 30,000 S.F.

Existing Frontage: 298 FT

Required Frontage: 150 FT

Building Setbacks:	<u>Required*</u>	<u>Proposed</u>
Front:	<u>50</u>	<u>50</u>
Side:	<u>15</u>	<u>15</u>
Rear:	<u>15</u>	<u>15</u>

SITE DATA SHEET
(Continued)

Flood Zone Reference: Zone A (without BFE)

Width of Driveways: 56 FT

Number of Curb Cuts: 1

Proposed Parking Spaces: 21 (1 ADA)

Required Parking Spaces: N/A

Basis of Required Parking (Use): N/A (Car Wash)

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

Waiver Requests

<i>Town Code Reference:</i>	<i>Regulation Description:</i>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

(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:  Date: 5/4/26

Print Name of Owner: Thomas Klemm

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

Signature of Developer: _____ Date: _____

Print Name of Developer: _____

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

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: _____

Street Address: _____

I _____ hereby request that the Planning Board waive the requirements of item _____ of the Hudson Land Use Regulations in reference to a plan presented by _____ (name of surveyor and engineer) dated _____ for property tax map(s) _____ and lot(s) _____ in the Town of Hudson, NH.

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

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

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

Signed:

Applicant or Authorized Agent

SCHEDULE OF FEES**A. REVIEW FEES:**

1. <u>Site Plan Use</u>	<u>Project Size/Fee</u>	
Multi-Family	\$105.00/unit for 3-50 units \$78.50/unit for each additional unit over 50	\$ _____
Commercial/Semi Public/Civic or Recreational	\$157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): 4844 SF \$78.50/1,000 sq.ft. thereafter.	\$ <u>760.50</u>
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)

Total 1.23 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:

<u>9</u> Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @\$6.08 (or Current Certified Mail Rate)	\$ <u>54.72</u>
<u>30</u> Indirect Abutters (property owners within 200 feet) @\$0.78 (or Current First Class Rate)	\$ <u>23.40</u>

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

TOTAL \$ _____

SCHEDULE OF FEES
(Continued)

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

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

D. RECORDING:

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

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

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

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

**TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST**

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

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

Relevant Regulations:

§ 276-11.1 General Plan Requirements

§§ 275-8 – 275-9 Site Plan Requirements

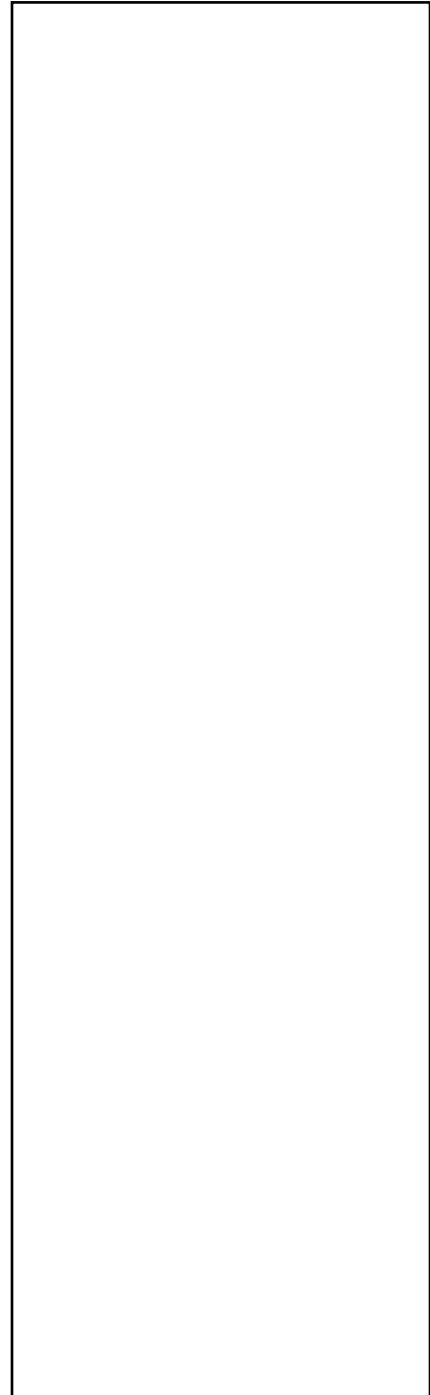
- | <u>Y</u> | <u>P</u> | <u>W</u> | |
|---|--------------------------|--------------------------|--|
| 1. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - A list of the names and addresses of the owner(s) of the property, the applicant(s), and all abutters 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. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Sets of plans and copies as indicated on application. |
| 3. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Scale no smaller than 50 feet to the inch (1" = 50') [§ 276-11.1.B.(2)] |
| 4. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Title block in the lower right-hand corner of the plan, containing: [§ 276-11.1.B.(3)] |
| 5. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Title, including the term "site plan" or "subdivision plan" |
| 6. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - The name for whom the plan was prepared |
| 7. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Preparer of the plan |
| 8. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - The scale(s) of the plan |
| 9. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Date of the plan |
| 10. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Appropriate revision block |
| 11. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - 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. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Owner's printed name and address and signature [§ 276-11.1.B.(6)] |
| 13. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Name and address of all abutting property owners [§ 276-11.1.B.(7)] |
| 14. <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - A locus plan at one inch equals 1,000 feet (1" = 1,000') [§ 276-11.1.B.(8)] |

Notes

(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**

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

- | | <u>Y</u> | <u>P</u> | <u>W</u> | <u>NA</u> | |
|-----|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---|
| 30. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - 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. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - 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. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - 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. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Required open space, including the calculation showing the requirement is met [§ 276-11.1.B.(24)] |
| 34. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Parking space calculation showing and a statement stating the required parking spaces are provided [§ 275-8.C.(2) & (3)] |
| 35. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Required dimensions for parking space [§ 275-8.C.(4)] |
| 36. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Required dimensions for aisle/access drive [§ 275-8.C.(5)] |
| 37. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Required off-street loading spaces [§ 275-8.C.(6)] |
| 38. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Required landscaping for the parking lot, including calculation shown the planting requirement is met [§ 275-8.C.(7)] |
| 39. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Required screening for visual separation of incompatible uses [§ 275-8.C.(8)] |
| 40. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Handicap accessibility provided in accordance with the latest ADA Regulations [§ 275-8.C.(11)] |
| 41. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - Stormwater Management Plan [§ 275-9.A] |
| 42. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Traffic Study, if required [§ 275-9.B] |
| 43. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Noise Study, if required [§ 275-9.C] |

Notes

(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)

- | | <u>Y</u> | <u>P</u> | <u>W</u> | <u>NA</u> | |
|-----|--------------------------|-------------------------------------|--------------------------|-------------------------------------|---|
| 44. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Fiscal Impact Study, if required [§ 275-9.D] |
| 45. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Utility Study [§ 275-9.E] |
| 46. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Copies of any proposed or existing easements, covenants, deed restrictions or any other similar document pertinent to the Site Plan [§ 275-9.F] |
| 47. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | - A copy of all applicable Town, state, county or federal approvals or applications [§ 275-9.G] |
| 48. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | - Environmental Impact Study, if required [§ 275-9.I] |

Notes

(End of checklist)

OWNER AFFIDAVIT

I, Thomas Klemm, Jr, owner of the property situated at 224 Central Street in Hudson, NH and referenced on Hudson Tax Assessor's Map 176; Lot 29, hereby authorize Granite Engineering, LLC and Vanasse & Associates, Inc. to submit local, state, and federal land use applications on my behalf, as they relate to the development of my property to accommodate a new commercial development. Further, I authorize those parties to aid in the representation of said permits, as required, before the Town of Hudson and the State of New Hampshire.



Thomas Klemm, Jr
Managing Member
Klemm Family, LLC
4 Mall Rd, Salem, NH 03079
(603) 898-5125

Abutters List – Hudson PB

**Hudson Car Wash
224 Central Street
Hudson, New Hampshire**

	Map	Lot	Owner
Applicant	176	29	Klemm Family, LLC 4 Mall Road Salem, NH 03079
Immediate Abutters			
	176	28	Mario & Denyse Plante Trust 9 Old Derry Road Hudson, NH 03051
	176	33	7, Eleven, Inc. C/O Engie Insight p.o. Box 2440 Spokane, WA 99210-2440
	185	40-1	Town of Hudson 12 School St Hudson, 03051
Secondary Abutters			
	168	1	Town of Hudson 12 School St Hudson, 03051
	176	31	Westview Cemetery C/O Ruth Parker 11 Old Robinson Rd Hudson, NH 03051
	176	41	Meadows Property, LLC 195R Central St Hudson, NH 03051
	168-2	0	Krystal Drive Estates, LLC 5 Krystal Drive Hudson, NH 03051

Attachment "A"

168-2	1	Charles M Lawrence & Marilyn M Stokes Life Trust 7 Krystal Drive Hudson, NH 03051
168-2	2	Christine M. Magnuson 36 Krystal Drive Hudson, NH 03051
168-2	3	Sharon M. Desrosiers 34 Krystal Drive Hudson, NH 03051
168-2	4	Anne Marie Fiore 32 Krystal Drive Hudson, NH 03051
168-2	5	Paul J. & Anita V. Girard 30 Krystal Drive Hudson, NH 03051
168-2	6	Donald A. & Florence M. Crowell, and Gayellen Le Silva 28 Krystal Drive Hudson, NH 03051
168-2	7	John A. Brewer 26 Krystal Drive Hudson, NH 03051
168-2	8	Myeong Sook Yun 24 Krystal Drive Hudson, NH 03051
168-2	9	Timothy L. Thompson 22 Krystal Drive Hudson, NH 03051
168-2	10	Anthony F. Jr & Arlene F. Soroka 20 Krystal Drive Hudson, NH 03051
168-2	11	Leon J III & Nancy J. Snyder 18 Krystal Drive Hudson, NH 03051
168-2	12	Paul & Nancy Bailey 16 Krystal Drive Hudson, NH 03051

Attachment "A"

168-2	13	Aaron R. Miller 14 Krystal Drive Hudson, NH 03051
168-2	14	Lee-Ann Jefferson 11 Krystal Drive Hudson, NH 03051
168-2	15	Carol M. Monas 12 Krystal Drive, Hudson, NH 03051
168-2	16	Lynn M. Hartman 10 Krystal Drive, Hudson, NH 03051
168-2	17	Melanie Rocha & Nina Daniels 8 Krystal Drive, Hudson, NH 03051
168-2	18	Travis S. Peters 6 Krystal Drive, Hudson, NH 03051
168-2	19	Gayle F. Finnal 9 Krystal Drive, Hudson, NH 03051
168-2	20	Sally Farmer 35 Krystal Drive, Hudson, NH 03051
168-2	21	Gerard C. & Rita Annette Rondeau 33 Krystal Drive, Hudson, NH 03051
168-2	22	Patrick Rogers & SueEllen McCarthy 31 Krystal Drive, Hudson, NH 03051
168-2	23	Paul E. & Barbara J. Corbin Trust 27 Krystal Drive, Hudson, NH 03051
168-2	24	Linda J, & Carl A. Owens 23 Krystal Drive, Hudson, NH 03051
168-2	25	Donald J. J. & Barbara E. Gagne Trust 19 Krystal Drive, Hudson, NH 03051

Attachment "A"

168-2	26	Michael W. & June O. Nolet 17 Krystal Drive, Hudson, NH 03051
168-2	27	Bonenfant One Family Trust C/O Robert L. Bonenfant 15 Krystal Drive, Hudson, NH 03051
176	27	Justine Mary Holdings C/o Don Levesque 214 Central St Hudson, NH 03051
185	40-2	Town of Hudson 12 School St Hudson, 03051

Professionals

Land Surveyor

Smith & Pospesil, PLLC.
240 Quebec Rd
Lyman, NH 03585

Wetland Scientist

Frontier Geoservices, LLC
127 Old Warner Road
Bradford, NH 03221

Engineer

Granite Engineering, LLC
150 Dow Street, Tower 2, Suite 421
Manchester, NH 03101

Architect

The Architects
679 Union Street
Manchester, NH 03104

Landscape Architect

Design Works
125 Wason Road
Hudson, NH 03051

Traffic Engineer

Vanasse & Associates, Inc
35 New England Business Center Dr
Suite 140
Andover, MA 01810

Contractor

Marquis Contracting Group
717 Daniel Webster Highway
Merrimack, NH 03054



May 4, 2026

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

RE: Site Plan Application – Hudson Car Wash
Tax Map 176; Lot 29
224 Central Street, Hudson, NH 03051
GE Project No. 25-1020-1

Dear Ms. Dubowik,

This narrative accompanies the above-referenced project. It describes existing site conditions, outlines the intent of the proposed redevelopment, and summarizes the improvements proposed as part of the site plan application.

Existing Conditions

The subject property is identified on the Hudson Tax Assessor's Map 176 as Lot 29. The parcel contains approximately 1.23 acres and is located entirely within the Business Zoning District. The site is accessed from Central Street via one (1) existing driveway. The property is currently developed with a former fast-food restaurant (Burger King) and associated site improvements. The restaurant was constructed in the early 1980s and has recently closed. Municipal water and municipal sewer service the property.

A Certified Wetland Scientist evaluated the property and confirmed that no wetlands are present onsite. According to the USDA Natural Resources Conservation Service (NRCS), the predominant onsite soil types include Freetown mucky peat (Gw) (Hydrologic Soil Group B) and Hinckley loamy sand (HsB), Pipestone loamy sand (PiA), and Windsor loamy sand (WdC) (Hydrologic Soil Group A).

Project Scope

The owner and applicant for this project is Klemm Family, LLC. The proposed work includes full redevelopment of the property. The existing building and onsite improvements will be removed to allow construction of a new car wash facility. The proposed facility consists of one (1) building containing two (2) touch-free wash bays and one (1) wash tunnel. Site access will remain via the existing driveway configuration previously used by the former use.

The project includes twenty-one (21) onsite parking/vacuum spaces, updated site lighting, and new landscaping improvements.

Deliveries associated with the proposed use are anticipated to be made by carrier van rather than tractor-trailer. Accordingly, the plan provides a reduced loading space measuring 10 feet by 35 feet (10' × 35').

The plan proposes use of a portion of the east side yard to accommodate a travel way. Pursuant to Chapter 276-11.1(B)(25), the Planning Board may allow travel ways within the side yard setback provided that an equal amount of frontage green area is added beyond the minimum required. This plan proposes approximately 1,000 square feet of side yard encroachment and an additional 3,000 square feet of frontage green area.

Utilities

Electric and communication services will be extended from the existing onsite service pole.

Water service will utilize the existing water service connection installed for the former use.

A new sewer service is proposed to support the proposed water reclamation system and the oil/grit trap.

A gas main is located within Central Street; the intent is to utilize the existing gas service.

The project will reduce total impervious coverage onsite. In addition, the plan includes design and construction of a stormwater treatment swale to provide enhanced stormwater treatment. No stormwater treatment controls currently exist onsite.

Planning Board Sign-off

Project Name		Map/Lot:	
Site Address:		Zone:	
		Due by:	

Project Status		Ready for Approval	Awaiting Revisions	Approval with Stipulations
DEPARTMENT	INITIAL			
FUSS & O'NEILL:				
ZONING:				
ASSESSING:				
ENGINEERING:				
PUBLIC WORKS:				
FIRE:				
POLICE:				

Comments:

Planning Board Sign-off

Project Name		Map/Lot:	
Site Address:		Zone:	
		Due by:	

Extended Comments:



November 21, 2025
File No. 2025091

Granite Engineering, LLC
150 Dow Street, Tower 2, Suite 421
Manchester, NH 03101

Re: Wetland Assessment
224 Central Street
Hudson, NH 03051
Map 176 Lot 29

To Whom It May Concern:

A site visit was conducted on the above-referenced subject parcel on November 20, 2025 by Certified Wetland Scientist (CWS #311), Caitlin Banaszak, of Frontier Geoservices, LLC. During this visit, the entire parcel was reviewed following the criteria established by the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual and its Northeast Regional Supplement.

The 1.233-acre lot is entirely developed with a currently unused commercial building and associated parking lot. The only vegetation on the parcel is a small amount of grass around the perimeter of the parking lot and a few ornamental shrubs on the northeast side of the parking lot. There are two man-made drainage areas on the southwest and northwest sides of the parking lot that show some hydrophytic vegetation growing within them, however both ditches are heavily lined with rip-rap, signifying that the areas are not in a natural state. While poorly drained soils were identified just outside of these drainage ditches, lack of hydrophytic vegetation and wetland hydrology indicates that these areas are not considered jurisdictional wetlands.

No jurisdictional wetland areas were identified on site. Please reach out to Caitlin Banaszak with any questions or comments at 814-907-1406 or caitlin@frontiergeoservices.com.

Sincerely,

Caitlin Banaszak, CWS #311
Frontier Geoservices, LLC



Attachment "D"



Rip-rap lined drainage ditches on the northwest (top right) and southwest (top left and bottom) sides of the existing parking lot.

STORMWATER MANAGEMENT REPORT



GRANITE ENGINEERING

civil engineering • land planning • municipal services

HUDSON CAR WASH

Map 176; Lot 29
224 Central Street
Hudson, New Hampshire

May 1, 2026

PREPARED FOR:
KLEMM FAMILY, LLC
4 MALL ROAD
SALEM, NH 03079

PREPARED BY:
GRANITE ENGINEERING, LLC
150 DOW STREET, TOWER 2, SUITE 421
MANCHESTER, NH 03101
603.518.8030



GE Project No. 25-1020-1

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1. PROJECT NARRATIVE

I. INTRODUCTION

A. Project Overview

The subject development project is located at 224 Central Street, Hudson, New Hampshire, on Town of Hudson Tax Map 176, Lot 29. The Owner and applicant of this property is Klemm Family, LLC.

The project proposes the redevelopment of the site from an abandoned restaurant (built in the 1980's) to an automated car wash facility with associated site improvements. The property is located entirely within the Town of Hudson Business (B) Zoning District. The project consists of the design and construction of one new car wash building and a new parking lot and driveway that will enter/exit onto Central Street. The building structure and all paved surfaces on this lot will be razed as part of the project for the new building, parking lot, and driveways. The combined on-site post-development impervious surfaces (roof and pavement) will be reduced by approximately 3,579 square-feet as compared to on-site pre-development impervious services. This is considered a redevelopment project that will disturb 40,000 square-feet or more. The total area of disturbance will be approximately 47,444 square-feet. The anticipated start of construction schedule is Fall of 2026.

The entire site currently drains—and will continue to drain—to an existing 15-inch CMP culvert located off-site, just off the western corner of the subject lot, entirely within Tax Map 176, Lot 28. The culvert runs beneath the entrance to the adjacent shopping plaza on Tax Map 176, Lot 28 and ultimately discharges into Merrill Brook, which flows into Ottarnic Pond. (See attached Project Plans and Drainage Area Plans in Section 8.)

B. Existing Site Conditions

Tax Map 176, Lot 28 is approximately 53,722 square feet in area. It is currently completely developed with an existing building and associated parking and driveway which has an entrance/exist connecting to Central Street. The ground cover on the properties consists of a building, pavement, gravel, grass, and some landscaping. The total on-site impervious area (pavement and roof) is approximately 35,437 square-feet.

The drainage on the site generally sheet flows across pavement into existing grass swales located along the north and west edges of the lot. These swales currently and will continue to drain to the existing 15" CMP culvert described above. A small portion of Central Street located along the front of the lot also drains to this culvert, partly by entering the site's parking lot and sheeting to the aforementioned swales and partly by following along a curb located long the north edge of Central Street which directs flow into the grass swale bordering the western edge of the site. In addition, a large portion of the adjacent shopping plaza also drains to the culvert. It sheets down to the grass swale bordering the north edge of the

site. This culvert discharges into Merrill Brook which ultimately flows into Ottarnic Pond. (See attached Pre-Development Drain Area Plans in Section 8).

According to the USDA Natural Resources Conservation Service (NRCS), the predominant onsite soil types are Freetown mucky peat (Gw) with a Hydrological Soil Group rating of 'B' and Hinckley loamy sand (HsB), Pipestone loamy sand (PiA), and Windsor loamy sand (WdC) which have a Hydrological Soil Group rating of 'A'. (See NRCS Web Soil Survey Figure attached in Section 3).

Construction limitations of the site in respect to stormwater include:

- The site being partially within a mapped FEMA Flood Zone (Zone A) (see attached floodplain and FIRMet figures in Section 2). Based on this it was decided to not place any stormwater treatment BMPs within the flood zone for precautionary reasons.
- Suspected high Estimate Seasonal Water Table (ESWT) based on the nearby wetlands located across Central Street (see attached Hudson Car Wash Aerial and NHDES AoT Screening Layers Figures in Section 2) and the on-site mapped flood zone. The high ESWT was confirmed by a test pit performed on site that indicates the ESWT to be just 4.5 feet to 5 feet below existing grade (see Section 9). Infiltration as a form of stormwater treatment BMP has been ruled out for the site because of the high ESWT.
- The somewhat high inlet invert of the aforementioned 15" CMP culvert as compared to the site's topography. This high culvert invert has made the use of underdrained filtration stormwater treatment BMPs extremely difficult.

II. STORM DRAINAGE ANALYSIS & DESIGN

A. Methodology

In accordance with the Town of Hudson Stormwater Regulations, and generally accepted engineering practice, the 2-year, 10-year, 25-year, 50-year, and 100-year frequency storms have each been used in the various aspects of analysis and design of stormwater management considerations for the subject site. Stormwater-treatment provisions and all drainage facilities have been designed to be fully functional during a 50-year return frequency storm.

In appreciation of the benefits and limitations related to each of the various methods available to design professionals for estimating peak stormwater discharge rates for use in analysis and design, the TR-20 computer model was used. Values for Time of Concentration used in the analysis were estimated using the methodology contained within USDA-S.C.S. publication Urban Hydrology for Small Watersheds Technical Release No. 55 (TR 55). Per Town of Hudson Regulation Chapter 290, Stormwater Management,

Section 290-5 A. (6), stormwater management BMP sizing and design was based on the extreme precipitation tables posted at the Northeast Region Climate Center (NRCC) (attached in Section 5).

The New Hampshire Stormwater Manual Volume 2: Post-Construction Best Management Practices Selection and Design publication served as the primary reference for the numerous temporary and permanent erosion control and stormwater treatment methods incorporated into the design of this project.

All design and analysis calculations performed using the referenced methodologies are attached to this report (see Sections 4 and 6). The minimum time of concentrations used for the analysis is 6 minutes. These calculations document each catchment area, a breakdown of surface type, time of concentration, rainfall intensity, peak discharge volume, Manning's "n" value, peak velocity, and other descriptive design data for each watershed and pipe segment evaluated. In addition, the "Pre/Post Development Drainage Area Plans" graphically define and illustrate the extent of each watershed or catchment area investigated and the direction of flow through these catchment areas (see Section 8).

B. Pre-Development Drainage Conditions

As described in Section I above, the site drains via grass drainage swales to the wester corner of the property at the inlet to a 15" CMP culvert. The current site was built in the 1980s and there has never been any onsite stormwater controls or treatment devices except for these common grass swales located along the northern and western edges of the site. These swales have been partially eroded and/or filled in with sediment over time.

In order to evaluate the impact of the proposed development, one (1) Point of Analysis (POA) was analyzed to demonstrate that the peak rates of runoff would not increase from the site improvements. This primary POA, Link A, is located at the wester corner of the property at the inlet to the aforementioned 15" CMP Culvert. There is one primary subcatchment flow to this location (designated as 1S) which includes roofs, pavement, grassed/landscaped, and very minor wooded areas. Subcatchment 1S contains 29,487 square-feet of onsite pavement and 5,950 square-feet of onsite roof for a total of 35,437 square-feet of onsite imperviousness.

Pre-development peak rates of flow and volume discharge are identified in Tables 2 and 3. Further explanation of the post-condition hydrology will show a net decrease to the points of analysis.

For a more visual description of the information presented in this section, please refer to the attached "Pre-Development Drainage Areas Plans" attached in Section 8.

C. Post-Development Drainage Conditions:

The same POA "A" from the Pre-Development scenario were used in the Post-Development analysis. The overall drainage watershed draining to PAO "A" remains unchanged.

The onsite proposed pavement has been reduced by 3,599 square-feet to 25,888 square-feet and the onsite proposed roof areas has been increased by 21 square-feet to 5,971 square-feet for a total proposed onsite imperviousness of 31,859 square-feet. This results in a net decrease in proposed onsite imperviousness of 3,578 square-feet as compared to the pre-development conditions. This net decrease in imperviousness, all of which is pavement, will result in less pollutants being released by the site, and as discussed below, results in less runoff from the site.

Per Hudson Regulation Chapter 290, Stormwater Management, a redevelopment project that will disturb 40,000 square feet or more shall Implement LID or stormwater treatment measures that will treat or disconnect at least 30% of the existing impervious cover and 50% of any additional proposed impervious surface or paved areas using filtration and/or infiltration practices. Per this regulation, this site is only required to treat 30% of the existing impervious cover since there is not any additional impervious proposed (it is decreasing as discussed above). This equivalates to 30% of 35,437 square-feet of existing onsite impervious area which equals 10,631 square-feet that is technically required to be treated.

Due to the limitations of the site as discussed in Section I above that limit where and what can be used for stormwater treatment, a vegetated treatment swale was selected to provide stormwater treatment in the form of filtration for the site with as much of the runoff from the new parking lot/driveway and building being routed via sheet flow and roof drains to the start of the treatment swale located along the south side of the proposed building. The total area of onsite pavement and roof proposed to be diverted to the treatment swale totals 10,272 square-feet (6,310 square-feet of pavement & 3,962 square-feet of roof), This technically falls just 359 square-feet short of the proposed required impervious area to treat, but the proposed 3,578 square-foot net reduction in onsite imperviousness, all of which is pavement, should more than make up for this shortfall. This satisfies Town of Hudson Regulation Chapter 290, Stormwater Management, Section 290-5 A (1), (2), and (3).

All other drainage from the site shall sheet flow to the existing grass drainage swales along the north and western edges of the lot. As discussed above, these swales have been partially eroded and/or filled in with sediment over time so they will be cleaned out/regraded to once again provide adequate conveyance of stormwater to the 15" CMP culvert.

Attachment "E"

HydroCAD subcatchment 1.1S has been modeled to include the pavement, roof, and grassed/vegetated areas draining to the treatment swale. The majority of subcatchment 1.1S is onsite areas but also includes some offsite areas from the abutting property to the east and from Central Street. This subcatchment was then routed to POA "A" for simplicity in the HydroCAD modeling. The flows from subcatchment 1.1S were then used in designing the treatment swale utilizing the NHDES BMP design worksheet for a treatment swale in conjunction with the North American Green Erosion Control Materials Design Software vs 7.0. (see Sections 4 and 6 for these calculations). It was determined that this treatment swale can appropriately treat the water quality flow (WQF) as required by NHDES design guidelines and handle the 50-year storm event without overtopping.

The remaining site drainage area not being diverted to the treatment swale is contained in HydroCAD subcatchment 1.2S. HydroCAD subcatchment 1.2S has been modeled to include the pavement, roof, and grassed/vegetated areas and drains to the grass drainage swales located along the north and western edges of the property. This subcatchment was then routed to POA "A" for simplicity in the HydroCAD modeling.

The reduction in onsite imperviousness alone offset the peak rates of runoff flow and volume for the town of Hudson required design storms and the treatment swale and reduction in pavement at the site provide pollutant reduction. See Tables 2 and 3 below for comparisons of the peak pre-development and post-development flows and volumes. This satisfies Town of Hudson Regulation Chapter 290, Stormwater Management, Section 290-5 A(5) and (7).

The amount of pervious (vegetated) area with a Hydrological Soil Group rating of 'A' is proposed to be increased by approximately 2,049 square-feet and the amount of pervious (vegetated) area with a Hydrological Soil Group rating of 'B' is proposed to be increased by approximately 1,529 square-feet due to the proposed decrease in onsite imperviousness. As a result of this, the amount of onsite groundwater recharge should be increasing without the need for any sort of proposed BMP infiltration devices. This satisfies Town of Hudson Regulation Chapter 290, Stormwater Management, Section 290-5 A(4).

The detailed hydrologic and hydraulic relationship of each sub-catchment is described within the HydroCAD stormwater modeling contained in Section 6 of this report.

The peak stormwater runoff rate and total storm volumes for the specific storm frequencies are presented and analyzed in the subsequent summary section of this report, for the point of analysis (Tables 1, 2, & 3).

D. Summary:

Overall, the design complies with the requirements to provide treatment of stormwater for redeveloped areas, groundwater recharge, and pollutant reduction requirements per Town of Hudson Regulation Chapter 290, Stormwater Management and Town of Hudson Engineering Department Engineering Technical Guidelines and Typical Details, Section 900 – Drainage and channel protection requirements as set by NHDES Regulation Env-Wq 1507.05.

Per Town of Hudson Regulation Chapter 290, Stormwater Management, Section 290-5 A(11), the proposed stormwater best management practice (BMP) was designed in accordance with the New Hampshire Stormwater Manual Volume 2: Post-Construction Best Management Practices Selection and Design and BMP worksheets provided by the New Hampshire Department of Environmental Services (see BMP worksheet attached in Section 4).

In addition, stormwater discharges, in terms of peak rate of runoff and total volume, are consistent with the Town of Hudson Stormwater Regulations and NHDES Regulations Env-Wq 1500. The results are reported below in Tables 1, 2, and 3 below.

TABLE 1: CHANNEL PROTECTION REQUIREMENTS (NHDES ENV-WQ 1507.05)

Site Pre-Development vs. Post-Development				
Analysis Point	2-Year Q (cfs)		24-hr Rainfall (2.95 in) Volume (cubic-feet)	
	Pre	Post	Pre	Post
A	3.25	2.89	10,305	9,235

Per Env-Wq 1507.05(b)(1)a, Channel Protection Requirements are met since the 2-year, 24 post-development peak flow to a channel, downstream receiving water, or wetland generated from the project site via the proposed disturbance is equal to or less than the 2-year, 24-hour pre-development peak flow rate and the 2 year, 24-hour post-development storm volume, directed to a channel, downstream receiving water, or wetland has not increased over the pre-development volume by more than 0.1 acre-feet (4,356 cubic-feet).

TABLE 2: PEAK RUNOFF FLOWS (TOWN OF HUDSON REGULATION CHAPTER 290, STORMWATER MANAGEMENT, SECTION 290-5 A. (5))

Site Pre Development vs. Post Development (Peak Discharge Rate in cfs)										
Description	2-Year		10-Year		25-Year		50-Year		100-Year	
24-hr Rainfall	2.95"		4.46"		5.65"		6.75"		8.08"	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	3.25	2.89	6.23	5.77	8.65	8.16	10.90	10.40	13.62	13.12

TABLE 3: PEAK RUNOFF VOLUMES (TOWN OF HUDSON REGULATION CHAPTER 290, STORMWATER MANAGEMENT, SECTION 290-5 A. (5))

Site Pre Development vs. Post Development (Peak Discharge Volume in cubic-feet)										
Description	2-Year		10-Year		25-Year		50-Year		100-Year	
24-hr Rainfall	2.95"		4.46"		5.65"		6.75"		8.08"	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	10,305	9,235	19,710	18,248	27,607	25,924	35,114	33,272	44,353	42,365

III. EROSION & SEDIMENTATION CONTROL PROVISIONS

A. Temporary Erosion Control Measures

Temporary erosion and sediment control measures are indicated on the design plans, construction details, general notes and within the drainage report. All erosion control measures specified are designed to reduce or eliminate potential soil migration and water quality degradation, both during and after the construction period.

The following temporary erosion control measures will be implemented;

- Silt Fence and/or Silt Logs (as needed)
- Dandy Bags (as needed)
- Turf Establishment
- Construction Entrance

In addition to the above-listed erosion control measures, references are made throughout the project documents to the New Hampshire Stormwater Manual; Volume 3: Erosion and Sediment Temporary Controls During Construction for additional measures, as necessary.

B. Construction Sequence

A site-specific construction sequence sensitive to limiting soil loss due to erosion and associated water quality degradation was prepared specifically for this project and is shown on the project plans. As pointed out in the erosion control notes, it is important for the contractor to recognize that proper judgment in the implementation of work will be essential if erosion is to be limited and protection of completed work is to be realized. Moreover, any specific changes in sequence and/or field conditions affecting the ability of specific erosion control measures to adequately serve their intended purpose should be reported to this office by the contractor. Furthermore, the contractor is encouraged to supplement specified erosion control measures during the construction period where and when in his/ her best judgment, additional protection is warranted.

C. Permanent Erosion Control Measures

Similar to temporary erosion control measures, all permanent erosion control measures are indicated on the design plans, construction details, general notes, drainage report, and O & M project documents.

The following permanent erosion control measures will be implemented;

- Stormwater Management System Inspection & Maintenance (I&M) Plan.
- Turf Establishment - Hydroseeding with mulch and tackifiers

Each of the above-mentioned permanent erosion control measures are designed in a project-specific manner within both state and local regulatory compliance standards.

2. FIGURES

A. HUDSON CAR WASH USGS FIGURE

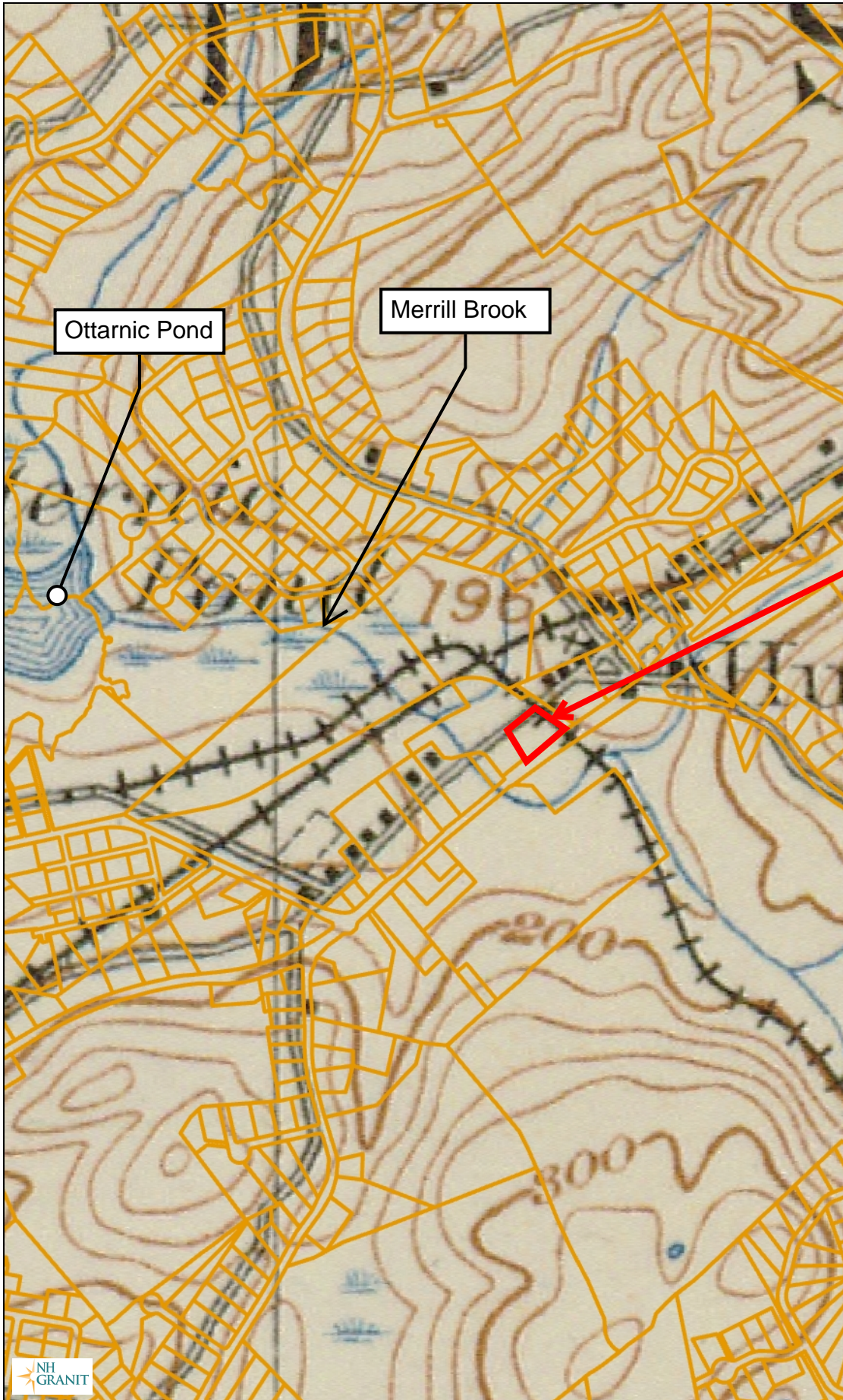
B. HUDSON CAR WASH AERIAL MAP

C. HUDSON CAR WASH FLOODPLAIN MAP

D. FEMA FIRMETTE

**E. HUDSON CAR WASH NHDES AOT SCREENING
LAYERS**

Hudson Car Wash USGS Figure



Legend

- Parcels
- Additional Lines
- State
- County
- City/Town
- 1905
- Red: Band_1
- Blue: Band_3
- World_Street_Map

PROJECT LOT

Map Scale

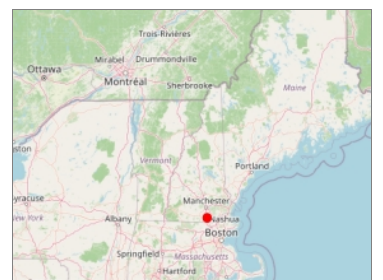
1: 10,000

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Map Generated: 4/30/2026



Notes

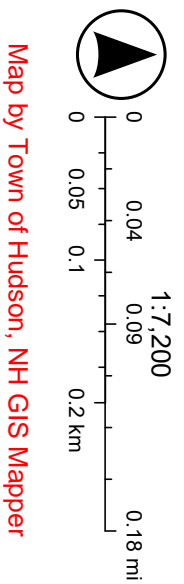


Attachment "E"

Hudson Car Wash Aerial Map



- 4/30/2026
- Parcels - Aerials
 - Parcels
 - Wetlands - Aerials
 - RoadNames
 - area_roads_cut
 - area_towns_cut
 - area_towns_cut
 - area_water_bodies_cut
 - HudsonImagery2022
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3
 - drape



Hudson Car Wash Floodplain Map



4/30/2026

- Flood Zones - Approximate
- A
 - AE
 - AO
 - 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL
 - 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
 - D
- Parcels - Aerials
- area_towns_cut
 - area_water_bodies_cut
 - area_roads_cut
 - area_towns_cut
- Wetlands - Aerials
- area_towns_cut
 - area_roads_cut
 - area_towns_cut
- RoadNames
- area_towns_cut
 - area_towns_cut
- HudsonInMapy2022
- Red: Band_1
 - Green: Band_2
 - Blue: Band_3
 - drapes

1:7,200



Map by Town of Hudson, NH GIS Mapper



Attachment "E"



/HJHQ

63 (&,\$/)/2-	:LWKRXXW %DVH)ORRG (O
+\$=\$5' \$5(=ROH \$ 9 \$-RHSWK2 \$+ 9
	:LWK %)(RRSQHSWK2 \$+ 9
	5HJXODWRUVU)ORRGZD\

27+(5 \$5 (\$5 2)	\$OQXDO &KDOFH)ORR
/22' +\$=\$	RI DQXDO FKDQFH IO
	GHSWK OHVV WKDQ ROH
	DUHUV RI OHVV WKDQ DQ
)XWXUH &RQGLWLRQV
	&KDOFH)ORRQ+D]DUG
	\$UHD ZLWK 5HGXFHG)OR
	/HYHH 6HHRDRWHV
	\$UHD ZLWK)ORRG 5LWV

27+(5 \$5 (\$6	12 6&5(\$UHD RI 0LQRPD)ORRG
6758&785(6111 /HYHH 'LNH RU)ORRGZD	(IHFWLYH /205V
	\$UHD RI 8QGHWHUPLQHG
	&KDOQHO &XOYHUW RU
	*1(5\$/- &KDOQHO &XOYHUW RU

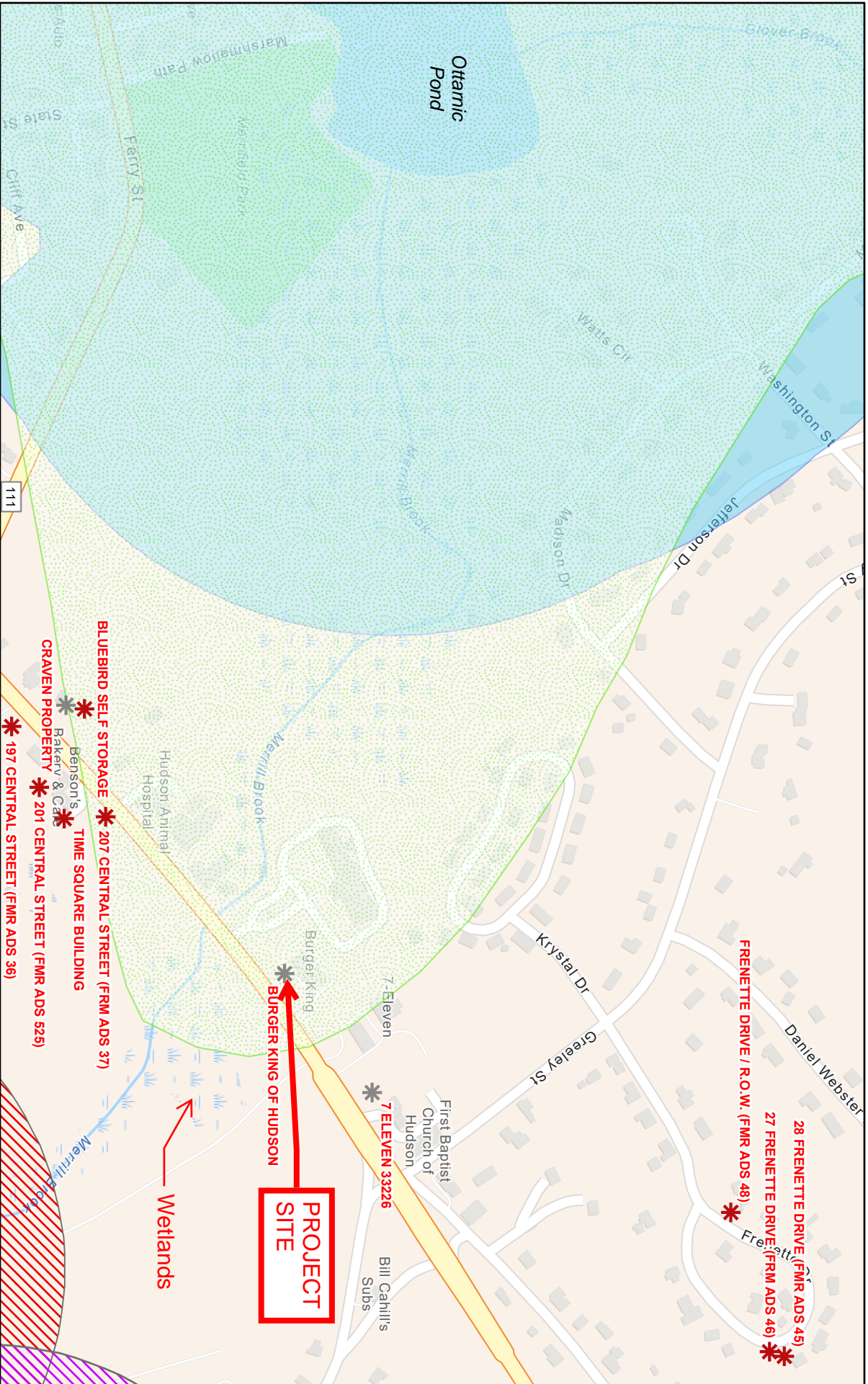
27+(5 (\$785 (6	&URVV 6HFWRQV ZLWK
	:DWHU 6XUIDFH (OHYDWL
	&RDVWDO 7UDQVHFW
	%DVH)ORRG (OHYDWLRQ
	/LPLW RI 6WXG\
	-XULVGLFWLRQ %RXQGDU
	&RDVWDO 7UDQVHFW %DV
	3URILQH %DVHOLQH
	+ \GURJUDSKLF)HDWXUH

0\$3 3\$1 (/6	1R 'LJLWDO 'DWD \$YDLOD
	8QPDSSHG
	ZKH SLQ GLVSOD\HG RQ WKH
	SRLQW VHOHFWHG E\ WKH XV
	DQ DXWKRULWDLWYH SURSHU

ZKLV PDS FRPSOLHV ZLWK)(0\$ V VWDOQ
 GLJLWDO IORRG PDSV LI LW LV QRW YR
 ZKH EDVHPDS VKRZQ FRPSOLHV ZLWK)(0\$
 DFFXUDF\ VWDAQDUGV
 ZKH IORRG KDIDUG LQIRUPDWLRQ LV GH
 DXWKRULWDLWYH 1)+/ ZHE VHUYL FHV S
 ZDV HSRUWHG RQW * DOG GRHV QRW
 UHIOHFW FKDOJHV RU DPHQGHQWV VX
 WLRPH ZKH 1)+/ DOG HHHFWLYH LQIRUP
 EHFRRH VXSHUVHGHG E\ QHZ GDWD RYH
 ZKLV PDS LPDJH LV YRLG LI WKH RQH R
 HOHPHQWV GR QRW DSSHU, EDVHPDS
 OHJHQ VFDODU PDS FUDWLRQ G
) 50 SDQH OXPEHU DOG) 50 HHHFWLY
 XQPDSSHG DOG XQPRGHUQLJHG DUHDV
 UHJXODWRU\ SXSRVHV



Hudson Car Wash
NHDES AOT SCREENING LAYERS



4/30/2026, 3:29:27 PM

- Start/End Consent/Deed/Other Boundary
- Sites with PFRAS > AGQS 2016
- PFRAS Samples with 1000ft Buffer
- PFRAS <= MCL (2020)
- PFRAS > MCL (2020)
- PFRAS > 70 ppt (AGQS 2016)
- EMD PFRAS Groundwater Station Samples with 1000ft Buffer
- PFRAS > MCL (2020) Groundwater Stations
- PFRAS > 70 ppt (AGQS 2016) Groundwater Stations
- EMD PFRAS Other Station Samples with 1000ft Buffer
- PFRAS > MCL (2020) Other Stations
- PFRAS > 70 ppt (AGQS 2016) Other Stations
- EMD PFRAS Surface Water Station Samples with 1000ft Buffer
- PFRAS > MCL (2020) Surface Water Stations
- PFRAS <= PFRAS > 70 ppt (AGQS 2016) Surface Water Stations
- Found Station Sites
- Closed
- Other
- Coastal and Great Bay/Region Communities
- Designated River Center
- Segment is subject to the SWQRA
- Segment is exempt from the SWQRA
- Groundwater Classification Area GAI
- Groundwater Classification Area GAZ
- Wellhead Protection Area
- Water Supply Intake Protection Areas
- Public Water Supply Wells
- Segment is subject to the SWQRA
- Class A - All Features

1:7,200

0 0.05 0.1 0.2 km

0 0.04 0.08 0.16 mi

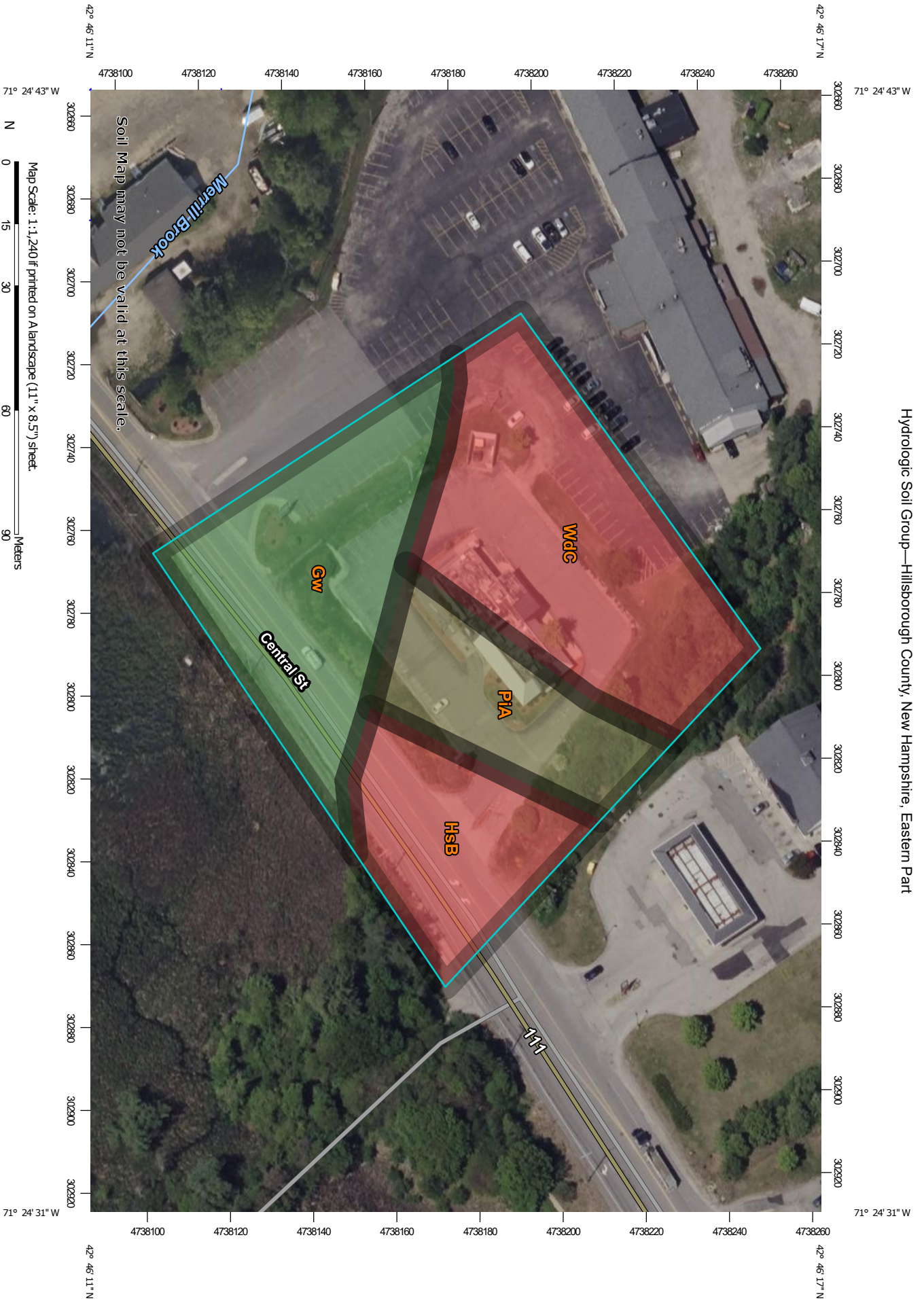
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Map by NHDES OneStop Data Mapper

3. NRCS WEB SOIL SURVEY

Attachment "E"

Hydrologic Soil Group—Hillsborough County, New Hampshire, Eastern Part



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

4/23/2026
Page 1 of 4

MAP LEGEND

- Area of Interest (AOI)
 - Area of Interest (AOI)
- Soils
 - Soil Rating Polygons
 - A
 - A/D
 - B
 - B/D
 - C
 - C/D
 - D
 - Not rated or not available
- Water Features
 - Streams and Canals
- Transportation
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background
 - Aerial Photography
- Soil Rating Lines
 - A
 - A/D
 - B
 - B/D
 - C
 - C/D
 - D
 - Not rated or not available
- Soil Rating Points
 - A
 - A/D
 - B
 - B/D

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hillsborough County, New Hampshire, Eastern Part
 Survey Area Data: Version 28, Sep 9, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Gw	Freetown mucky peat, 0 to 2 percent slopes	B/D	0.9	29.8%
HsB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.5	17.6%
PiA	Pipestone loamy sand, 0 to 3 percent slopes	A/D	0.5	16.2%
WdC	Windsor loamy sand, 8 to 15 percent slopes	A	1.1	36.4%
Totals for Area of Interest			3.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



4. NHDES BMP WORKSHEET

TREATMENT SWALE DESIGN CRITERIA Attachment "E"

(Env-Wq 1508.09)

Node Name: DA 1.1S

Enter the node name in the drainage analysis (e.g., reach TS 5), if applicable.

Yes	Yes/No	Have you reviewed the restrictions on unlined swales outlined in Env-Wq 1508.09(a)?	
No	Yes/No	Is the system lined? (required if not treated or if above SHWT)	
0.53	ac	A = Area draining to the practice	
0.32	ac	A _i = Impervious area draining to the practice	
6.0	minutes	T _c = Time of Concentration	
0.60	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.59	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.31	ac-in	WQV = 1" x R _v x A	
1,142	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1	inches	P = Amount of rainfall. For WQF in NH, P = 1".	
0.59	inches	D _{WQ} = Water quality depth. D _{WQ} = WQV/A	
95	unitless	CN = Unit peak discharge curve number. CN = 1000 / (10 + 5P + 10Q - 10 * [Q ² + 1.25 * Q * P] ^{0.5})	
0.48	inches	S = Potential maximum retention. S = (1000/CN) - 10	
0.095	inches	I _a = initial abstraction. I _a = 0.2S	
650	cfs/mi ² /in	q _u = Unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III	
0.32	cfs	WQF = q _u x WQV. Conversion: to convert "cfs/mi ² /in * ac-in" to "cfs" multiply by 1mi ² /640ac	
140.00	feet	L = Swale length ¹	≥ 100'
5.00	feet	w = Bottom of the swale width ²	0 - 8 feet
171.85	feet	E _{SHWT} = Elevation of SHWT. If none found, use the lowest elev. of test pit.	
172.15	feet	E _{BTM} = Elevation of the bottom of the practice	≥ E _{SHWT}
5.0	:1	SS _{RIGHT} = Right side slope	≥ 3:1
4.0	:1	SS _{LEFT} = Left side slope	≥ 3:1
0.005	ft/ft	S = Slope of swale in decimal form ³	0.005 - .05
2.8	inches	d = Flow depth in swale at WQF (attach stage-discharge table)	≤ 4"
0.15	unitless	d must be < 4", therefore Manning's n = 0.15	
1.39	ft ²	Cross-sectional area check (assume trapezoidal channel)	
7.12	feet	Check wetted perimeter	
0.33	cfs	WQF _{check} ⁴	WQF _{check} = WQF?
3%		Percent difference between WQF _{check} and WQF ⁴	+/- 10%
10	minutes	HRT = hydraulic residence time during the WQF	≥ 10 min
172.58	ft	Peak elevation of the 10-year storm event ⁵	
173.15	ft	Elevation of the top of the swale	
YES	Yes/No	10 peak elevation ≤ the top of swale	← yes

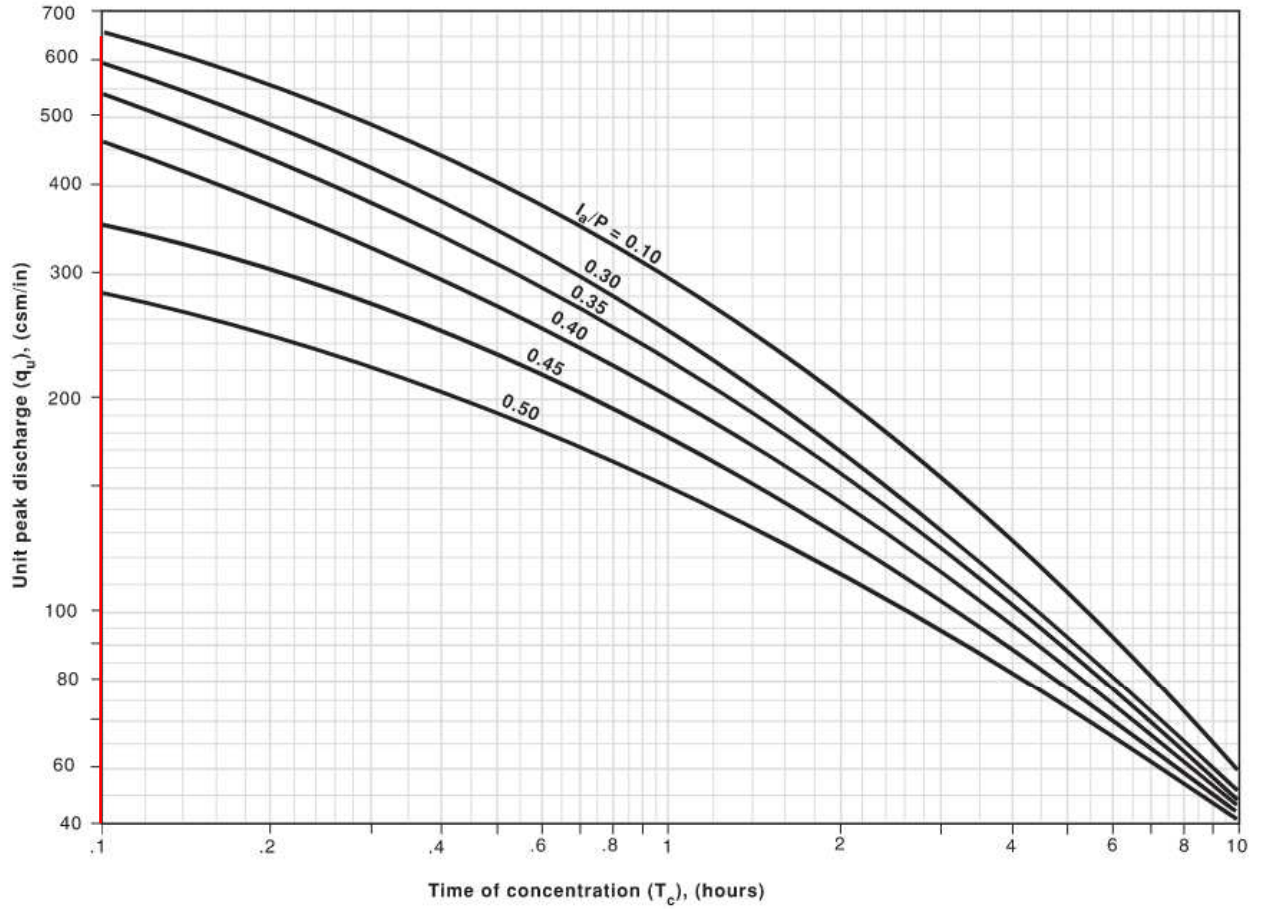
- Any portion of the swale that is in a roadside ditch shall not count towards the swale length.
- Widths up to 16' allowed if a dividing berm or structure is used such that neither width is more than 8'.
- If > 0.02 (2%) then check dams are required. No additional detention time is credited for check dams.
- The WQF_{check} & WQF should be near equal (within 10%) if you have selected the correct depth off the stage-
- If the swale does not discharge the 50-year storm without overtopping, hydrologic routing of secondary discharge

Designer's Notes: Depth water modeled using North American Green Erosion Control Materials Design

Software. Peak 10 year normal depth = 0.43ft, Peak 50 year Normal Depth = 0.58ft

Elevations above given for at start of Treatment Swale. Min. Swale ht. = 1.0 ft at its start. SHWT assumed.

Exhibit 4-III Unit peak discharge (q_u) for NRCS (SCS) type III rainfall distribution





CHANNEL ANALYSIS

>>> Treatment Swale - WQF

Name Treatment Swale - WQF
 Discharge 0.32 ← **WQF = 0.32 cfs (From NHDES BMP Worksheet)**
 Channel Slope 0.005
 Channel Bottom Width 5
 Left Side Slope 4
 Right Side Slope 5
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Sod Former
 Vegetation Density Very Good 80-95%
 Soil Type Sandy Loam (GM)

Channel Flow Depth



Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	0.32 cfs	0.23 ft/s	0.23 ft	0.15	4 lbs/ft ²	0.07 lbs/ft ²	56.43	STABLE	--
Underlying Substrate	Straight	0.32 cfs	0.23 ft/s	0.23 ft	0.15	4 lbs/ft ²	0.06 lbs/ft ²	66.48	STABLE	--

ANALYSIS COMPUTATIONS

 >>>> [View Computation](#)

Inputs	
Channel Discharge (Q):	0.32 cfs
Peak Flow Period (H):	hours
Channel Slope (S0):	0.005 ft/ft
Bottom Width (B):	5 ft
Left Side Slope (ZL):	4 (H : V)
Right Side Slope (ZR):	5 (H : V)
Existing Channel Bend:	No
Bend Coefficient (Kb):	1
Channel Bend Radius:	
Retardance Class of Vegetation:	C 6-12 in
Vegetation Type:	Sod Former
Vegetation Density:	Very Good 80-95%
Soil Type:	Sandy Loam (GM)
Channel Lining Options	

Basic Relationships
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$
Where:
B = Base width of channel, ft (m)
D = Flow depth, ft (m)
Z _L = Left side bank slope (H : 1 V)
Z _R = Right side bank slope (H : 1 V)
$P = \text{Wetted perimeter, ft (m)} = B + Z_L * D + Z_R * D$
$R = \text{Hydraulic radius, ft (m)} = A / P$
$V = \text{Flow velocity, ft/s (m/s)} = Q / A$
Where:
Q = Channel discharge, cfs (cms)
$\text{Tau}_a = \text{Average bed shear stress, psf (Pa)} = 62.4 * R * S_0$
Where:
S ₀ = Gradient of channel, ft/ft (m/m)
$\text{Tau}_0 = \text{Maximum bed shear stress, psf (Pa)} = 62.4 * D * S_0$

Unvegetated Conditions Computations:
$n = \text{Manning's } n = a * \text{Tau}_a^b$
and (iteratively solved)
$n = 1.486 / Q * A * R(2/3)S_0^{0.5}$
Where:
n = Manning's n
a = Product specific coefficient from performance testing
b = Product specific coefficient from performance testing
$\text{SF}_P = \text{Product factor of safety} = \text{Tau}_T / \text{Tau}_0$
Where:
Tau _T = Permissible shear stress from testing, psf (Pa)
$\text{Tau}_p = \text{In place permissible shear, psf (Pa)} = \text{Tau}_T / \text{alpha} * (\text{Tau}_s + \text{alpha} / 4.3)$
Where:
alpha = unit conversion constant, 0.14 English, 6.5 Metric
Tau _s = Permissible shear stress of soil
$\text{SFL} = \text{Factor of safety of installed liner} = \text{Tau}_p / \text{Tau}_a$

Vegetated Computations:
$n = \text{Manning's } n = \text{alpha} * C_n * \text{Tau}_a - 0.4$

Attachment "E"

and (iteratively solved).
$n = 1.486 / Q * A * R(2/3)S_0^{0.5}$
Where:
alpha = Unit conversion constant, 0.213 English, 1.0 Metric
Cn = Vegetation retardance coefficient
SFP = Product factor of safety = Tau_{TV} / Tau_0
Where:
Tau_{TV} = Permissible shear stress from testing, psf (Pa)
Tau_p = In place permissible shear, psf (Pa) = $Tau_s / (1 - C_{TRM}) * (n / n_s)^2$
Where:
C_{TRM} = Coefficient of TRM performance derived from testing Tau_s = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = Tau_p / Tau_a

Unreinforced Vegetation

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
Unreinforced Vegetation	0.15	0.23 ft	1.37 ft ²	7.1 ft	0.19 ft	0.23 ft/s	0.09	0.07 lbs/ft ²	56.43 (SFL)
Underlying Substrate	0.15	0.23 ft	1.37 ft ²	7.1 ft	0.19 ft	0.23 ft/s	0.09	0.06 lbs/ft ²	66.48 (SFL)



CHANNEL ANALYSIS

>>> Treatment Swale - 10 Year Q

Name Treatment Swale - 10 Year
 Q 1.32 ← 10yr Q = 1.32 cfs (From
 Discharge 1.32 ← HydroCAD Results - See
 Channel Slope 0.005 Section 6)
 Channel Bottom Width 5
 Left Side Slope 5
 Right Side Slope 4
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Sod Former
 Vegetation Density Very Good 80-95%
 Soil Type Sandy Loam (GM)

Channel Flow Depth



Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	1.32 cfs	0.44 ft/s	0.43 ft	0.116	4 lbs/ft ²	0.14 lbs/ft ²	29.57	STABLE	--
Underlying Substrate	Straight	1.32 cfs	0.44 ft/s	0.43 ft	0.116	4 lbs/ft ²	0.1 lbs/ft ²	38.28	STABLE	--

ANALYSIS COMPUTATIONS

 >>>> [View Computation](#)

Inputs	
Channel Discharge (Q):	1.32 cfs
Peak Flow Period (H):	hours
Channel Slope (S0):	0.005 ft/ft
Bottom Width (B):	5 ft
Left Side Slope (ZL):	5 (H : V)
Right Side Slope (ZR):	4 (H : V)
Existing Channel Bend:	No
Bend Coefficient (Kb):	1
Channel Bend Radius:	
Retardance Class of Vegetation:	C 6-12 in
Vegetation Type:	Sod Former
Vegetation Density:	Very Good 80-95%
Soil Type:	Sandy Loam (GM)
Channel Lining Options	

Basic Relationships
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$
Where:
B = Base width of channel, ft (m)
D = Flow depth, ft (m)
Z _L = Left side bank slope (H : 1 V)
Z _R = Right side bank slope (H : 1 V)
$P = \text{Wetted perimeter, ft (m)} = B + Z_L * D + Z_R * D$
$R = \text{Hydraulic radius, ft (m)} = A / P$
$V = \text{Flow velocity, ft/s (m/s)} = Q / A$
Where:
Q = Channel discharge, cfs (cms)
$\text{Tau}_a = \text{Average bed shear stress, psf (Pa)} = 62.4 * R * S_0$
Where:
S ₀ = Gradient of channel, ft/ft (m/m)
$\text{Tau}_0 = \text{Maximum bed shear stress, psf (Pa)} = 62.4 * D * S_0$

Unvegetated Conditions Computations:
$n = \text{Manning's } n = a * \text{Tau}_a^b$
and (iteratively solved)
$n = 1.486 / Q * A * R(2/3)S_0^{0.5}$
Where:
n = Manning's n
a = Product specific coefficient from performance testing
b = Product specific coefficient from performance testing
$\text{SF}_P = \text{Product factor of safety} = \text{Tau}_T / \text{Tau}_0$
Where:
Tau _T = Permissible shear stress from testing, psf (Pa)
$\text{Tau}_p = \text{In place permissible shear, psf (Pa)} = \text{Tau}_T / \text{alpha} * (\text{Tau}_s + \text{alpha} / 4.3)$
Where:
alpha = unit conversion constant, 0.14 English, 6.5 Metric
Tau _s = Permissible shear stress of soil
$\text{SFL} = \text{Factor of safety of installed liner} = \text{Tau}_p / \text{Tau}_a$

Vegetated Computations:
$n = \text{Manning's } n = \text{alpha} * C_n * \text{Tau}_a - 0.4$

Attachment "E"

and (iteratively solved).
$n = 1.486 / Q * A * R(2/3)S_0^{0.5}$
Where:
alpha = Unit conversion constant, 0.213 English, 1.0 Metric
Cn = Vegetation retardance coefficient
SFP = Product factor of safety = Tau_{TV} / Tau_0
Where:
Tau_{TV} = Permissible shear stress from testing, psf (Pa)
Tau_p = In place permissible shear, psf (Pa) = $Tau_s / (1 - C_{TRM}) * (n / n_s)^2$
Where:
C_{TRM} = Coefficient of TRM performance derived from testing Tau_s = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = Tau_p / Tau_a

Unreinforced Vegetation

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
Unreinforced Vegetation	0.116	0.43 ft	3.01 ft ²	9 ft	0.33 ft	0.44 ft/s	0.14	0.14 lbs/ft ²	29.57 (SFL)
Underlying Substrate	0.116	0.43 ft	3.01 ft ²	9 ft	0.33 ft	0.44 ft/s	0.14	0.1 lbs/ft ²	38.28 (SFL)



CHANNEL ANALYSIS

>>> Treatment Swale - 50 Year Q

Name Treatment Swale - 50 Year
 Discharge Q
 Channel Slope 0.005
 Channel Bottom Width 5
 Left Side Slope 5
 Right Side Slope 4
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Sod Former
 Vegetation Density Very Good 80-95%
 Soil Type Sandy Loam (GM)

50yr Q = 2.51 cfs (From
 HydroCAD Results - See
 Section 6)

Channel Flow Depth

Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	2.51 cfs	0.57 ft/s	0.58 ft	0.105	4 lbs/ft ²	0.18 lbs/ft ²	22.07	STABLE	--
Underlying Substrate	Straight	2.51 cfs	0.57 ft/s	0.58 ft	0.105	4 lbs/ft ²	0.13 lbs/ft ²	30.02	STABLE	--

ANALYSIS COMPUTATIONS

>>>> [View Computation](#)

Inputs	
Channel Discharge (Q):	2.51 cfs
Peak Flow Period (H):	hours
Channel Slope (S0):	0.005 ft/ft
Bottom Width (B):	5 ft
Left Side Slope (ZL):	5 (H : V)
Right Side Slope (ZR):	4 (H : V)
Existing Channel Bend:	No
Bend Coefficient (Kb):	1
Channel Bend Radius:	
Retardance Class of Vegetation:	C 6-12 in
Vegetation Type:	Sod Former
Vegetation Density:	Very Good 80-95%
Soil Type:	Sandy Loam (GM)
Channel Lining Options	

Basic Relationships
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$
Where:
B = Base width of channel, ft (m)
D = Flow depth, ft (m)
Z _L = Left side bank slope (H : 1 V)
Z _R = Right side bank slope (H : 1 V)
$P = \text{Wetted perimeter, ft (m)} = B + Z_L * D + Z_R * D$
$R = \text{Hydraulic radius, ft (m)} = A / P$
$V = \text{Flow velocity, ft/s (m/s)} = Q / A$
Where:
Q = Channel discharge, cfs (cms)
$\text{Tau}_a = \text{Average bed shear stress, psf (Pa)} = 62.4 * R * S_0$
Where:
S ₀ = Gradient of channel, ft/ft (m/m)
$\text{Tau}_0 = \text{Maximum bed shear stress, psf (Pa)} = 62.4 * D * S_0$

Unvegetated Conditions Computations:
$n = \text{Manning's } n = a * \text{Tau}_a^b$
and (iteratively solved)
$n = 1.486 / Q * A * R^{(2/3)} S_0^{0.5}$
Where:
n = Manning's n
a = Product specific coefficient from performance testing
b = Product specific coefficient from performance testing
$\text{SF}_P = \text{Product factor of safety} = \text{Tau}_T / \text{Tau}_0$
Where:
Tau _T = Permissible shear stress from testing, psf (Pa)
$\text{Tau}_p = \text{In place permissible shear, psf (Pa)} = \text{Tau}_T / \alpha * (\text{Tau}_s + \alpha / 4.3)$
Where:
alpha = unit conversion constant, 0.14 English, 6.5 Metric
Tau _s = Permissible shear stress of soil
$\text{SFL} = \text{Factor of safety of installed liner} = \text{Tau}_p / \text{Tau}_a$

Vegetated Computations:
$n = \text{Manning's } n = \alpha * C_n * \text{Tau}_a - 0.4$

Attachment "E"

and (iteratively solved).
$n = 1.486 / Q * A * R(2/3)S_0^{0.5}$
Where:
alpha = Unit conversion constant, 0.213 English, 1.0 Metric
Cn = Vegetation retardance coefficient
SFP = Product factor of safety = Tau_{TV} / Tau_0
Where:
Tau_{TV} = Permissible shear stress from testing, psf (Pa)
Tau_p = In place permissible shear, psf (Pa) = $Tau_s / (1 - C_{TRM}) * (n / n_s)^2$
Where:
C_{TRM} = Coefficient of TRM performance derived from testing Tau_s = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = Tau_p / Tau_a

Unreinforced Vegetation

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
Unreinforced Vegetation	0.105	0.58 ft	4.42 ft ²	10.36 ft	0.43 ft	0.57 ft/s	0.15	0.18 lbs/ft ²	22.07 (SFL)
Underlying Substrate	0.105	0.58 ft	4.42 ft ²	10.36 ft	0.43 ft	0.57 ft/s	0.15	0.13 lbs/ft ²	30.02 (SFL)

5. EXTREME PRECIPITATION TABLE

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing State	Yes
Location	
Latitude	42.771 degrees North
Longitude	71.411 degrees West
Elevation	50 feet
Date/Time	Mon Apr 27 2026 11:05:11 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.68	0.85	1.07	1yr	0.73	1.01	1.24	1.56	1.96	2.47	2.71	1yr	2.19	2.61	3.04	3.72	4.33	1yr
2yr	0.33	0.51	0.64	0.84	1.05	1.32	2yr	0.91	1.21	1.53	1.91	2.37	2.95	3.28	2yr	2.61	3.15	3.66	4.38	4.98	2yr
5yr	0.39	0.61	0.77	1.03	1.31	1.67	5yr	1.13	1.52	1.93	2.42	3.01	3.73	4.18	5yr	3.30	4.02	4.64	5.50	6.23	5yr
10yr	0.44	0.69	0.88	1.19	1.55	1.99	10yr	1.34	1.80	2.32	2.90	3.61	4.46	5.01	10yr	3.95	4.82	5.56	6.54	7.37	10yr
25yr	0.53	0.83	1.06	1.46	1.94	2.51	25yr	1.67	2.25	2.93	3.68	4.58	5.65	6.39	25yr	5.00	6.14	7.06	8.22	9.23	25yr
50yr	0.59	0.94	1.21	1.70	2.30	3.00	50yr	1.98	2.66	3.52	4.43	5.50	6.75	7.68	50yr	5.98	7.38	8.46	9.78	10.95	50yr
100yr	0.68	1.10	1.41	2.00	2.73	3.58	100yr	2.35	3.16	4.20	5.30	6.58	8.08	9.23	100yr	7.15	8.88	10.14	11.64	12.98	100yr
200yr	0.77	1.26	1.63	2.34	3.24	4.28	200yr	2.79	3.75	5.04	6.35	7.89	9.67	11.11	200yr	8.56	10.68	12.16	13.85	15.40	200yr
500yr	0.93	1.53	1.99	2.90	4.06	5.41	500yr	3.51	4.70	6.39	8.08	10.02	12.28	14.19	500yr	10.86	13.64	15.47	17.45	19.32	500yr

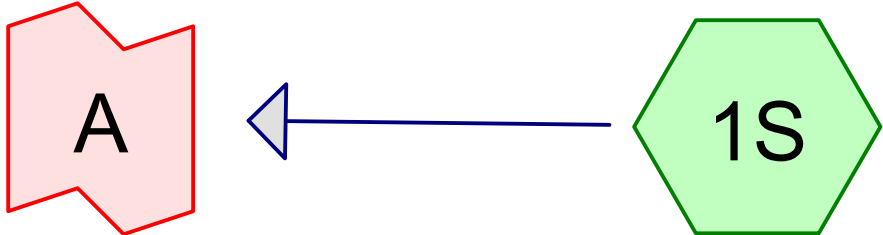
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.57	0.70	0.81	1yr	0.61	0.79	1.07	1.31	1.67	2.25	2.55	1yr	1.99	2.45	2.70	3.01	3.77	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.20	2yr	0.86	1.17	1.37	1.79	2.30	2.87	3.18	2yr	2.54	3.06	3.55	4.26	4.85	2yr
5yr	0.36	0.55	0.69	0.94	1.20	1.42	5yr	1.04	1.39	1.62	2.11	2.69	3.50	3.84	5yr	3.10	3.69	4.25	5.10	5.78	5yr
10yr	0.39	0.61	0.75	1.05	1.36	1.61	10yr	1.17	1.57	1.83	2.38	3.04	4.05	4.42	10yr	3.58	4.25	4.87	5.83	6.58	10yr
25yr	0.45	0.68	0.85	1.21	1.59	1.88	25yr	1.38	1.84	2.15	2.81	3.53	4.90	5.35	25yr	4.33	5.14	5.84	6.98	7.78	25yr
50yr	0.49	0.74	0.92	1.33	1.79	2.14	50yr	1.54	2.09	2.43	3.19	3.97	5.67	6.19	50yr	5.02	5.95	6.72	8.00	8.81	50yr
100yr	0.54	0.81	1.01	1.46	2.01	2.42	100yr	1.73	2.36	2.76	3.54	4.47	6.21	7.19	100yr	5.50	6.91	7.75	9.19	9.97	100yr
200yr	0.59	0.89	1.12	1.63	2.27	2.74	200yr	1.96	2.68	3.10	4.02	5.07	7.13	8.36	200yr	6.31	8.04	8.94	10.56	11.30	200yr
500yr	0.67	1.00	1.28	1.86	2.65	3.25	500yr	2.29	3.18	3.66	4.76	5.99	8.56	10.28	500yr	7.58	9.88	10.81	12.71	13.33	500yr

Upper Confidence Limits

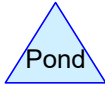
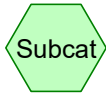
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.78	0.96	1.12	1yr	0.83	1.09	1.27	1.65	2.09	2.66	2.87	1yr	2.36	2.76	3.42	4.19	4.79	1yr
2yr	0.35	0.54	0.67	0.90	1.11	1.31	2yr	0.96	1.28	1.49	1.92	2.47	3.07	3.42	2yr	2.72	3.29	3.80	4.53	5.18	2yr
5yr	0.44	0.67	0.83	1.14	1.45	1.67	5yr	1.26	1.63	1.89	2.43	3.05	4.02	4.57	5yr	3.56	4.40	5.03	5.95	6.69	5yr
10yr	0.53	0.81	1.00	1.40	1.81	2.03	10yr	1.56	1.99	2.30	2.91	3.62	4.98	5.71	10yr	4.41	5.49	6.25	7.33	8.19	10yr
25yr	0.68	1.03	1.29	1.84	2.42	2.63	25yr	2.09	2.57	2.97	3.68	4.51	6.61	7.67	25yr	5.85	7.37	8.33	9.64	10.74	25yr
50yr	0.82	1.25	1.56	2.24	3.02	3.21	50yr	2.61	3.14	3.60	4.41	5.34	8.19	9.58	50yr	7.25	9.21	10.33	11.86	13.18	50yr
100yr	1.01	1.52	1.90	2.75	3.77	3.92	100yr	3.26	3.83	4.38	5.38	6.33	10.66	11.96	100yr	9.43	11.50	12.82	14.62	16.20	100yr
200yr	1.23	1.84	2.34	3.38	4.72	4.78	200yr	4.07	4.67	5.32	6.45	7.50	13.31	14.91	200yr	11.78	14.34	15.90	18.00	19.93	200yr
500yr	1.60	2.38	3.07	4.46	6.34	6.20	500yr	5.47	6.06	6.88	8.22	9.38	17.87	19.95	500yr	15.81	19.18	21.15	23.72	26.20	500yr

6. HYDROCAD DRAINAGE ANALYSIS



EXIST. CULVERT

Drainage Area



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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2 Year	Type III 24-hr		Default	24.00	1	2.95	2	2.95
2	10 Year	Type III 24-hr		Default	24.00	1	4.46	2	2.95
3	25 year	Type III 24-hr		Default	24.00	1	5.65	2	2.95
4	50 year	Type III 24-hr		Default	24.00	1	6.75	2	2.95
5	100 year	Type III 24-hr		Default	24.00	1	8.08	2	2.95

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,862	39	>75% Grass cover, Good, HSG A OFFSITE (1S)
10,917	39	>75% Grass cover, Good, HSG A ONSITE (1S)
3,619	61	>75% Grass cover, Good, HSG B OFFSITE (1S)
6,633	61	>75% Grass cover, Good, HSG B ONSITE (1S)
22,810	98	Paved parking, HSG A OFFSITE (1S)
25,202	98	Paved parking, HSG A ONSITE (1S)
2,045	98	Paved parking, HSG B OFFSITE (1S)
4,285	98	Paved parking, HSG B ONSITE (1S)
916	98	Roofs, HSG A OFFSITE (1S)
5,950	98	Roofs, HSG A ONSITE (1S)
13	30	Woods, Good, HSG A OFFSITE (1S)
674	30	Woods, Good, HSG A ONSITE (1S)
87,926	83	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
71,344	HSG A	1S
16,582	HSG B	1S
0	HSG C	
0	HSG D	
0	Other	
87,926		TOTAL AREA

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Type III 24-hr 2 Year Rainfall=2.95", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Drainage Area

Runoff Area=87,926 sf 69.61% Impervious Runoff Depth=1.41"
Tc=6.0 min CN=83 Runoff=3.25 cfs 10,305 cf

Link A: EXIST. CULVERT

Inflow=3.25 cfs 10,305 cf
Primary=3.25 cfs 10,305 cf

Total Runoff Area = 87,926 sf Runoff Volume = 10,305 cf Average Runoff Depth = 1.41"
30.39% Pervious = 26,718 sf 69.61% Impervious = 61,208 sf

Attachment "E"

2510201 Hudson Carwash PRE DEV

Type III 24-hr 10 Year Rainfall=4.46", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Drainage Area

Runoff Area=87,926 sf 69.61% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=83 Runoff=6.23 cfs 19,710 cf

Link A: EXIST. CULVERT

Inflow=6.23 cfs 19,710 cf
Primary=6.23 cfs 19,710 cf

Total Runoff Area = 87,926 sf Runoff Volume = 19,710 cf Average Runoff Depth = 2.69"
30.39% Pervious = 26,718 sf 69.61% Impervious = 61,208 sf

Attachment "E"

2510201 Hudson Carwash PRE DEV

Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Drainage Area

Runoff Area=87,926 sf 69.61% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=83 Runoff=8.65 cfs 27,607 cf

Link A: EXIST. CULVERT

Inflow=8.65 cfs 27,607 cf
Primary=8.65 cfs 27,607 cf

Total Runoff Area = 87,926 sf Runoff Volume = 27,607 cf Average Runoff Depth = 3.77"
30.39% Pervious = 26,718 sf 69.61% Impervious = 61,208 sf

Attachment "E"

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Type III 24-hr 50 year Rainfall=6.75", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Drainage Area

Runoff Area=87,926 sf 69.61% Impervious Runoff Depth=4.79"
Tc=6.0 min CN=83 Runoff=10.90 cfs 35,114 cf

Link A: EXIST. CULVERT

Inflow=10.90 cfs 35,114 cf
Primary=10.90 cfs 35,114 cf

Total Runoff Area = 87,926 sf Runoff Volume = 35,114 cf Average Runoff Depth = 4.79"
30.39% Pervious = 26,718 sf 69.61% Impervious = 61,208 sf

Attachment "E"

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Type III 24-hr 100 year Rainfall=8.08", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

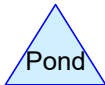
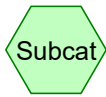
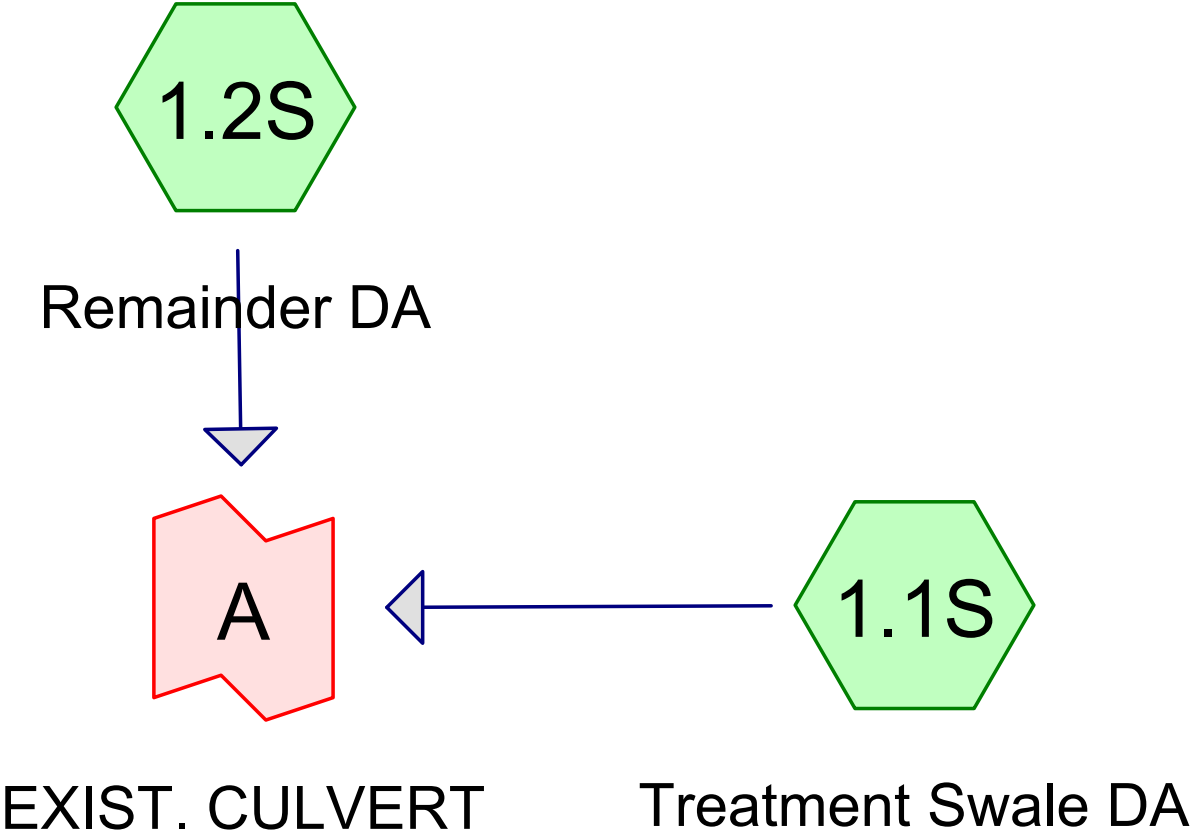
Subcatchment1S: Drainage Area

Runoff Area=87,926 sf 69.61% Impervious Runoff Depth>6.05"
Tc=6.0 min CN=83 Runoff=13.62 cfs 44,353 cf

Link A: EXIST. CULVERT

Inflow=13.62 cfs 44,353 cf
Primary=13.62 cfs 44,353 cf

Total Runoff Area = 87,926 sf Runoff Volume = 44,353 cf Average Runoff Depth = 6.05"
30.39% Pervious = 26,718 sf 69.61% Impervious = 61,208 sf



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2 Year	Type III 24-hr		Default	24.00	1	2.95	2	2.95
2	10 Year	Type III 24-hr		Default	24.00	1	4.46	2	2.95
3	25 year	Type III 24-hr		Default	24.00	1	5.65	2	2.95
4	50 year	Type III 24-hr		Default	24.00	1	6.75	2	2.95
5	100 year	Type III 24-hr		Default	24.00	1	8.08	2	2.95

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,875	39	>75% Grass cover, Good, HSG A OFFSITE (1.1S, 1.2S)
13,640	39	>75% Grass cover, Good, HSG A ONSITE (1.1S, 1.2S)
3,619	61	>75% Grass cover, Good, HSG B OFFSITE (1.2S)
8,162	61	>75% Grass cover, Good, HSG B ONSITE (1.1S, 1.2S)
22,810	98	Paved parking, HSG A OFFSITE (1.1S, 1.2S)
23,707	98	Paved parking, HSG A ONSITE (1.1S, 1.2S)
2,045	98	Paved parking, HSG B OFFSITE (1.2S)
2,181	98	Paved parking, HSG B ONSITE (1.2S)
916	98	Roofs, HSG A OFFSITE (1.2S)
5,395	98	Roofs, HSG A ONSITE (1.1S, 1.2S)
576	98	Roofs, HSG B ONSITE (1.1S)
87,926	81	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
71,343	HSG A	1.1S, 1.2S
16,583	HSG B	1.1S, 1.2S
0	HSG C	
0	HSG D	
0	Other	
87,926		TOTAL AREA

Attachment "E"

2510201 Hudson Carwash POST DEV

Type III 24-hr 2 Year Rainfall=2.95", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: Treatment Swale DA Runoff Area=23,002 sf 60.07% Impervious Runoff Depth=1.04"
Tc=6.0 min CN=77 Runoff=0.61 cfs 1,987 cf

Subcatchment 1.2S: Remainder DA Runoff Area=64,924 sf 67.48% Impervious Runoff Depth=1.34"
Tc=6.0 min CN=82 Runoff=2.28 cfs 7,248 cf

Link A: EXIST. CULVERT

Inflow=2.89 cfs 9,235 cf
Primary=2.89 cfs 9,235 cf

Total Runoff Area = 87,926 sf Runoff Volume = 9,235 cf Average Runoff Depth = 1.26"
34.46% Pervious = 30,296 sf 65.54% Impervious = 57,630 sf

Attachment "E"

2510201 Hudson Carwash POST DEV

Type III 24-hr 10 Year Rainfall=4.46", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: Treatment Swale DA Runoff Area=23,002 sf 60.07% Impervious Runoff Depth=2.18"
Tc=6.0 min CN=77 Runoff=1.32 cfs 4,175 cf

Subcatchment 1.2S: Remainder DA Runoff Area=64,924 sf 67.48% Impervious Runoff Depth=2.60"
Tc=6.0 min CN=82 Runoff=4.45 cfs 14,072 cf

Link A: EXIST. CULVERT

Inflow=5.77 cfs 18,248 cf
Primary=5.77 cfs 18,248 cf

Total Runoff Area = 87,926 sf Runoff Volume = 18,248 cf Average Runoff Depth = 2.49"
34.46% Pervious = 30,296 sf 65.54% Impervious = 57,630 sf

Attachment "E"

2510201 Hudson Carwash POST DEV

Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: Treatment Swale DA Runoff Area=23,002 sf 60.07% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=77 Runoff=1.93 cfs 6,087 cf

Subcatchment 1.2S: Remainder DA Runoff Area=64,924 sf 67.48% Impervious Runoff Depth=3.67"
Tc=6.0 min CN=82 Runoff=6.23 cfs 19,837 cf

Link A: EXIST. CULVERT

Inflow=8.16 cfs 25,924 cf
Primary=8.16 cfs 25,924 cf

Total Runoff Area = 87,926 sf Runoff Volume = 25,924 cf Average Runoff Depth = 3.54"
34.46% Pervious = 30,296 sf 65.54% Impervious = 57,630 sf

Attachment "E"

2510201 Hudson Carwash POST DEV

Type III 24-hr 50 year Rainfall=6.75", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: Treatment Swale DA Runoff Area=23,002 sf 60.07% Impervious Runoff Depth=4.14"
Tc=6.0 min CN=77 Runoff=2.51 cfs 7,939 cf

Subcatchment 1.2S: Remainder DA Runoff Area=64,924 sf 67.48% Impervious Runoff Depth=4.68"
Tc=6.0 min CN=82 Runoff=7.89 cfs 25,333 cf

Link A: EXIST. CULVERT

Inflow=10.40 cfs 33,272 cf
Primary=10.40 cfs 33,272 cf

Total Runoff Area = 87,926 sf Runoff Volume = 33,272 cf Average Runoff Depth = 4.54"
34.46% Pervious = 30,296 sf 65.54% Impervious = 57,630 sf

Attachment "E"

2510201 Hudson Carwash POST DEV

Type III 24-hr 100 year Rainfall=8.08", P2=2.95"

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: Treatment Swale DA Runoff Area=23,002 sf 60.07% Impervious Runoff Depth=5.35"
Tc=6.0 min CN=77 Runoff=3.21 cfs 10,251 cf

Subcatchment 1.2S: Remainder DA Runoff Area=64,924 sf 67.48% Impervious Runoff Depth>5.94"
Tc=6.0 min CN=82 Runoff=9.91 cfs 32,114 cf

Link A: EXIST. CULVERT

Inflow=13.12 cfs 42,365 cf
Primary=13.12 cfs 42,365 cf

Total Runoff Area = 87,926 sf Runoff Volume = 42,365 cf Average Runoff Depth = 5.78"
34.46% Pervious = 30,296 sf 65.54% Impervious = 57,630 sf

2510201 Hudson Carwash PRE DEV

Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

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Summary for Subcatchment 1S: Drainage Area

Runoff = 8.65 cfs @ 12.09 hrs, Volume= 27,607 cf, Depth= 3.77"

Routed to Link A : EXIST. CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

Area (sf)	CN	Description
* 10,917	39	>75% Grass cover, Good, HSG A ONSITE
* 4,862	39	>75% Grass cover, Good, HSG A OFFSITE
* 6,633	61	>75% Grass cover, Good, HSG B ONSITE
* 3,619	61	>75% Grass cover, Good, HSG B OFFSITE
* 674	30	Woods, Good, HSG A ONSITE
* 13	30	Woods, Good, HSG A OFFSITE
* 25,202	98	Paved parking, HSG A ONSITE
* 22,810	98	Paved parking, HSG A OFFSITE
* 4,285	98	Paved parking, HSG B ONSITE
* 2,045	98	Paved parking, HSG B OFFSITE
* 5,950	98	Roofs, HSG A ONSITE
* 916	98	Roofs, HSG A OFFSITE
87,926	83	Weighted Average
26,718		30.39% Pervious Area
61,208		69.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Tc = 6min

Summary for Link A: EXIST. CULVERT

Inflow Area = 87,926 sf, 69.61% Impervious, Inflow Depth = 3.77" for 25 year event

Inflow = 8.65 cfs @ 12.09 hrs, Volume= 27,607 cf

Primary = 8.65 cfs @ 12.09 hrs, Volume= 27,607 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

2510201 Hudson Carwash POST DEV

Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

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Summary for Subcatchment 1.1S: Treatment Swale DA

Runoff = 1.93 cfs @ 12.09 hrs, Volume= 6,087 cf, Depth= 3.18"

Routed to Link A : EXIST. CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

Area (sf)	CN	Description
*	5,847	39 >75% Grass cover, Good, HSG A ONSITE
*	492	39 >75% Grass cover, Good, HSG A OFFSITE
*	2,845	61 >75% Grass cover, Good, HSG B ONSITE
*	0	61 >75% Grass cover, Good, HSG B OFFSITE
*	6,310	98 Paved parking, HSG A ONSITE
*	3,546	98 Paved parking, HSG A OFFSITE
*	3,386	98 Roofs, HSG A ONSITE
*	576	98 Roofs, HSG B ONSITE
<hr/>		
23,002	77	Weighted Average
9,184		39.93% Pervious Area
13,818		60.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Tc = 6min

Summary for Subcatchment 1.2S: Remainder DA

Runoff = 6.23 cfs @ 12.09 hrs, Volume= 19,837 cf, Depth= 3.67"

Routed to Link A : EXIST. CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

Area (sf)	CN	Description
*	7,793	39 >75% Grass cover, Good, HSG A ONSITE
*	4,383	39 >75% Grass cover, Good, HSG A OFFSITE
*	5,317	61 >75% Grass cover, Good, HSG B ONSITE
*	3,619	61 >75% Grass cover, Good, HSG B OFFSITE
*	17,397	98 Paved parking, HSG A ONSITE
*	19,264	98 Paved parking, HSG A OFFSITE
*	2,181	98 Paved parking, HSG B ONSITE
*	2,045	98 Paved parking, HSG B OFFSITE
*	2,009	98 Roofs, HSG A ONSITE
*	916	98 Roofs, HSG A OFFSITE
<hr/>		
64,924	82	Weighted Average
21,112		32.52% Pervious Area
43,812		67.48% Impervious Area

2510201 Hudson Carwash POST DEV

Type III 24-hr 25 year Rainfall=5.65", P2=2.95"

Prepared by Granite Engineering, LLC

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Tc = 6min

Summary for Link A: EXIST. CULVERT

Inflow Area = 87,926 sf, 65.54% Impervious, Inflow Depth = 3.54" for 25 year event
 Inflow = 8.16 cfs @ 12.09 hrs, Volume= 25,924 cf
 Primary = 8.16 cfs @ 12.09 hrs, Volume= 25,924 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

7. SITE CLOSEOUT DOCUMENTATION

**I. STORMWATER MANAGEMENT SYSTEM INSPECTION AND
MAINTENANCE (I&M) PLAN**

**INCLUDES "STORMWATER STRUCTURE LONG TERM MAINTENANCE
AGREEMENT AND EXHIBITS"**



Stormwater Management System Inspection & Maintenance Plan

for:

Hudson Car Wash

Located at:

*Map 176; Lot 29
224 Central Street
Hudson, New Hampshire*

Prepared for:

*Klemm Family, LLC
4 Mall Road
Salem, NH 03079*

Prepared by:

Granite Engineering, LLC
150 Dow Street, Tower 2, STE 421
Manchester, NH 03101
603.518.8030 | www.GraniteEng.com

Stormwater Management System Inspection & Maintenance Plan Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]
0	Original Draft	May 1, 2026	Granite Engineering
1			

**Stormwater Management System Inspection
& Maintenance Manual**

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- Appendix G** – Legal Description of Property (Deed)
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**Stormwater Management System Inspection
& Maintenance (I&M) Manual**

I. Compliance with Stormwater Facility Maintenance Requirements

All property owners are responsible for ensuring that stormwater control measures (SCM) installed on their property are properly maintained and that they function as designed. The property owner shall inspect and maintain all SCMs, including devices and plantings as specified in the approved plan, to ensure they are in effective working condition. Property owners should be aware of their responsibilities regarding stormwater facility maintenance. A long-term maintenance agreement (LTMA) has been drafted to identify the Owner/ Operator and their successor that will be responsible for performing the inspections and maintaining the long-term integrity and the stormwater SCM functions and protected area and the ability to access these BMPs including any maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The LTMA is attached as Appendix H

Responsibility for inspection and maintenance by current and subsequent owners of the property on which permanent measures have been installed shall be included in the deed through the attachment of the LTMA to the deed as an attachment and shall run with the land. The deed shall be attached as Appendix G. The approved I&M plan shall also be incorporated into the Development Agreement of the property on which such measures are located and recorded at the Hillsborough County Registry of Deeds. The narrative shall be in the form of a typical SITE PLAN Management or Development Agreement, or as otherwise set forth by the PLANNING BOARD. Any transfer of responsibility for inspection and maintenance activities or transfer of ownership shall both be documented to the Town of Hudson in writing.

If the Owner fails to adequately inspect and maintain such measures, the Town shall have the authority to perform the required maintenance. The cost of such work shall be borne by the current property owner.

The construction contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control and SCM features during construction. At the completion of all sitework, all catch basins, culverts, sedimentation swales, and basins shall be inspected for excess sediment. Any sediment buildup must be removed. A maintenance schedule for future removal of sediment shall be established. The cost of such work shall be borne by the Owner. Long-term operation and maintenance for the stormwater management facilities are presented below.

The property owner (Klemm Family, LLC) is currently the owner of all the components of the stormwater system and is responsible for the inspection, operation, and maintenance of the system. The address for Klemm Family, LLC is 4 Mall Road, Salem, NH 03079.

There are no easements for any components of the stormwater system.

General Ongoing Compliance Requirements are given below and may be repeated later in this I&M Manual:

Plan Changes or Updates

The Owner is required keep the I&M Plan current, including making any modifications necessary to ensure that SCMs continue to operate as designed and approved. All updates are to be logged into the Stormwater Management System Inspection & Maintenance Plan Amendment Log on page 2 of this I&M Manual. Proposed modifications or changes to inspections or maintenance shall be submitted along with appropriate documentation to the Town of Hudson Engineering Department for review and approval. Additionally, the Owner must notify the Town of Hudson regrading a change in owner or party responsible for the I&M Plan.

Annual Reports

Permanent Stormwater BMPs shall be inspected at a minimum annually following post-construction. Owners are responsible for keeping inspection reports on-site in a location easily accessible to a Town Engineer prepared by a qualified professional certifying all SCMs are functioning per the I&M Plan. The report shall document any repairs other than routine maintenance. If an SCM is not functioning properly, the owner must make repairs to restore function as designed. If the Owner fails to adequately inspect and maintain such measures, the Town of Hudson shall have the authority to perform the required maintenance. The cost of such work shall be borne by the Owner.

Documentation

Owners are responsible for maintaining a log of all activities for the last three years including inspections, repair, replacement, material disposal, and the location of disposal. Logs must be kept on-site in a location easily accessible to a Town Engineer. The Owner also agrees to allow members of the Town of Hudson Engineering Department, and/or their designee access to the property for the purpose of inspecting SCMs to determine whether compliance with the I&M Plan is being maintained.

II. Inspection, Operation, and Maintenance – Annual Reporting

Requirements for the inspection and maintenance of stormwater facilities, as well as reporting requirements, are included in this Stormwater Management System Inspection and Maintenance (I&M) Plan.

Verification that the Stormwater facilities have been properly inspected and maintained is required. Copies of the annual report should be documented on-site for future reporting upon request.

Copies of the Inspection and Maintenance forms for each of the stormwater facilities is located in Appendix B and C. A standard annual reporting form is provided in Appendix A.

The Owner shall be responsible for keeping inspection reports on-site in a location easily accessible to a Town Engineer prepared by a qualified professional certifying all SCMs are functioning per the I&M Plan. The inspection and maintenance log and deicing log shall be included with the report along with photo documentation. The annual report shall note if any stormwater infrastructure needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan and I&M Plan, the Owner shall make any repairs necessary to restore the function as designed within a reasonable time period or provide documentation to the Town of Hudson Engineering Department describing why the system cannot be repaired within a reasonable time period and a proposed schedule for such repairs. Records must also be made available to the Town of Hudson Engineering Department upon request.

III. Maintenance Costs

The Klemm Family, LLC will be responsible for financing maintenance and emergency repairs.

Preventative Measures to Reduce Maintenance Costs

The most effective way to maintain your water quality facility is to prevent the pollutants from entering the facility in the first place. Common pollutants include sediment, trash & debris, chemicals, dog waste, runoff from stored materials, illicit discharges into the storm drainage system and many others. A thoughtful maintenance program will include measures to address these potential contaminants and will save money and time in the long run. Key points to consider in your maintenance program include:

- Educate property owners/residents to be aware of how their actions affect water quality, and how they can help reduce maintenance costs
- Keep properties, streets and gutters, and parking lots free of trash, debris, and lawn clippings
- Ensure the proper disposal of hazardous wastes and chemicals
- Plan lawn care to minimize the use of chemicals and pesticides
- Sweep paved surfaces and put the sweepings back on the lawn
- Be aware of automobiles leaking fluids. Use absorbents such as cat litter to soak up drippings – dispose of properly
- Re-vegetate disturbed and bare areas to maintain vegetative stabilization.
- Clean out the upstream components of the storm drainage system, including inlets, storm sewers, and outfalls
- Do not store materials outdoors (including landscaping materials) unless properly protected from runoff

IV. Access

All stormwater management facilities located on the site have direct access locations.

V. Safety

Keep safety considerations at the forefront of inspection procedures at all times. Likely hazards should be anticipated and avoided. Never enter confined space (outlet structure, manhole, etc) without proper training or equipment. A confined space should never be entered without at least one additional person present.

If a toxic or flammable substance is discovered, leave the immediate area and contact the local authority at 911.

Potentially dangerous (e.g., fuel, chemicals, hazardous materials) substances found in the areas must be referred to the local authority immediately for response. The emergency contact number is 911.

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the pond that is greater than 48" in height, make the appropriate note/comment on the maintenance inspection form.

If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local authority immediately.

VI. Field Inspection Equipment

It is imperative that the appropriate equipment is taken to the field with the inspector(s). This is to ensure the safety of the inspector and allow the inspections to be performed as efficiently as possible. Below is a list of the equipment that may be necessary to perform the inspections of all Stormwater Management Facilities:

- Protective clothing and boots
- Safety equipment (vest, hard hat, confined space entry equipment)
- Communication equipment
- SI&M for the site and BMP Location Plan
- Clipboard
- Measuring tape
- Stormwater Facility Maintenance Inspection Forms (See Appendix B)
- Manhole Lid Remover
- Shovel
- Camera

Some of the items identified above need not be carried by the inspector (manhole lid remover, shovel, and confined space entry equipment). However, this equipment should be available in the vehicle driven to the site.

VII. Inspecting Stormwater Management Facilities

The quality of stormwater relies heavily on the proper operation and maintenance of permanent best management practices. Stormwater management facilities must be periodically inspected to ensure that they function as designed. The inspection will determine the appropriate maintenance that is required for the facility.

A. Inspection Procedures

All stormwater management facilities are required to be inspected by a qualified individual. Inspections should follow the inspection guidance found in Appendix B of this manual.

B. Inspection Report

The person(s) conducting the inspection activities shall complete the appropriate inspection report for the specific facility. Inspection reports are located in Appendix B. All BMPs on the inspection checklist in Appendix B are required to be photographed as well.

VIII. Maintenance Requirements

Stormwater management facilities must be properly maintained to ensure that they operate correctly and provide the water quality treatment for which they were designed. Routine maintenance performed on a frequently scheduled basis can help avoid more costly rehabilitative maintenance that results when facilities are not adequately maintained.

The Long-Term Inspection and Maintenance Log provides a record of maintenance activities. Maintenance Logs for each facility type are provided in Appendix C.

Treatment Swale

Treatment swales are designed to promote sedimentation by providing a minimum hydraulic residence time within the channel under design flow conditions (Water Quality Flow). This SCM may also provide some vegetative filtration and vegetative uptake. As a result, treatment swales provide higher pollutant removal efficiencies. Pollutants are removed through sedimentation, adsorption, biological uptake, and microbial breakdown.

- .
- Remove debris and accumulated sediment annually.
- Mow semiannually but avoid cutting grasses shorter than 4 inches.
- Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.

Grass Drainage Swales

Conventional grass channels and swales are primarily designed for conveyance.

- Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Remove debris and accumulated sediment annually.
- Mow semiannually but avoid cutting grasses shorter than 4 inches.
- Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection

Outlet Protection

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.

Street Sweeping

- Sweep streets and parking lots, in spring after the winter sand season and in the fall after leaf fall.

Snow and Ice Management

- Snow is planned to be immediately hauled off site due to the lack of space for snow storage.
- If there are snow storage areas in the future, they shall be inspected annually, in the spring time, after final snow melt.
- If there is snow storage areas in the future, snow shall be removed from those areas when full.
- Logs (See Appendix E) shall be kept for all ice usage during winter maintenance
- The facility owner will use a certify "Green SnowPro" contractor for winter maintenance activities involving the use of deicing agents.
- Any snow storage areas are to be reseeded and stabilized as necessary.
- Silt to removed and discarded properly from any snow storage areas.
- Trash and debris should be removed at inspection in line with local, state and federal regulations.
- Minimize the use of salt and other salt products.
- A log should be kept for all "deicing" usage for each storm during winter maintenance and submitted to the City on annual basis at the time completed I&M reports and forms are submitted.

IX. Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described in Appendix D.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemicals.

X. EPA's Safe Management of Household Hazardous Waste Guidelines

To avoid the potential risks associated with household hazardous wastes, it is important that people always monitor the use, storage, and disposal of products with potentially hazardous substances in their homes. Improper disposal of HHW can include pouring them down the drain, on the ground, into storm sewers, or in some cases putting them out with the regular trash.

The dangers of such disposal methods might not be immediately obvious, but improper disposal of these wastes can pollute the environment and pose a threat to human health. Certain types of HHW have the potential to cause physical injury to sanitation workers, contaminate septic tanks or wastewater treatment systems if poured down drains or toilets. They can also present hazards to children and pets if left around the house.

Some quick tips for the safe handling of household hazardous wastes include:

- Follow any instructions for use and storage provided on product labels carefully to prevent any accidents at home.
- Be sure to read product labels for disposal directions to reduce the risk of products exploding, igniting, leaking, mixing with other chemicals, or posing other hazards on the way to a disposal facility.

Attachment "E"

- Never store hazardous products in food containers; keep them in their original containers and never remove labels. Corroding containers, however, require special handling. Call your local hazardous materials official or fire department for instructions.
- When leftovers remain, never mix HHW with other products. Incompatible products might react, ignite, or explode, and contaminated HHW might become unrecyclable.
- Check with your local environmental, health or solid waste agency for more information on HHW management options in your area.
 - If your community doesn't have a year-round collection system for HHW, see if there are any designated days in your area for collecting HHW at a central location to ensure safe management and disposal.
 - If your community has neither a permanent collection site nor a special collection day, you might be able to drop off certain products at local businesses for recycling or proper disposal. Some local garages, for example, may accept used motor oil for recycling. Check around.
- Remember, even empty containers of HHW can pose hazards because of the residual chemicals that might remain so handle them with care also.

Appendix A – Annual Inspection and Maintenance Submittal Form

Appendix A

**Annual Inspection and Maintenance Reporting Form
for
Stormwater Facilities**

Date: _____

Re: Certification of Inspection and Maintenance; Submittal of forms

Property/Subdivision Name: Hudson Car Wash

Property Address: 224 Central Street, Hudson, NH

Contact Name: Klemm Family, LLC

I verify that the required stormwater facility inspections and required maintenance have been completed in accordance with the Inspection and Maintenance Manual associated with the above-referenced property.

The required Stormwater Facility Inspection and Maintenance forms are hereby provided.

Name of Party Responsible for Inspection
& Maintenance

Owner / Agent

Authorized Signature

Signature

Appendix B – Inspection Checklist

Stormwater BMP Owner Inspection Form

Appendix B
Hudson Car WashAddress: 224 Central Street, Hudson, NHOwner: Klemm Family, LLC, 4 Mall Road, Salem, NH 03079

Date: _____ E-mail: _____ Phone: _____

I. GENERAL INSPECTION RESULTS					
Item	Inspection Results				BMP's in General
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Does BMP appear to be well maintained?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Does the BMP have significant design flaws which lessen its effectiveness?
3	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has the BMP had unauthorized modifications that reduce its effectiveness?
4	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has the BMP been destroyed or removed from property?
5	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has trash, debris, or yard waste accumulated on/in the BMP?
6	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Is there evidence of oil, gasoline, contaminants, or other pollutants?
7	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Are there unpleasant odors from the BMP?
8	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Are invasive or nuisance vegetation or weeds present in or on the BMP?
9	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has a photo been take of this BMP?

Attachment "E"

II. BMP SPECIFIC INSPECTION RESULTS – Treatment Swale					
Item	Inspection Results				BMP's in General
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Does BMP appear to be well maintained?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Does the BMP have significant design flaws which lessen its effectiveness?
3	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has the BMP had unauthorized modifications that reduce its effectiveness?
4	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has the BMP been destroyed or removed from property?
5	<input type="checkbox"/>	YES Type/Location:	<input type="checkbox"/>	NO	Is there evidence of oil, gasoline, or other contaminants such as animal waste in the swales?
6	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Is there excessive sediment present in the swales?
7	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Has trash or debris has accumulated in the swale?
8	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Are there unpleasant odors from the swales?
9	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Is there ponding of water in the swales?
10	<input type="checkbox"/>	YES Type/Location:	<input type="checkbox"/>	NO	Is the vegetation unhealthy looking or are pests present?
11	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Does the vegetation need to be trimmed or pruned?
12	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has a photo been taken of each swale?

Attachment "E"

III. BMP SPECIFIC INSPECTION RESULTS – Grass Drainage Swales					
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Does BMP appear to be well maintained?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Does the BMP have significant design flaws which lessen its effectiveness?
3	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has the BMP had unauthorized modifications that reduce its effectiveness?
4	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has the BMP been destroyed or removed from property?
5	<input type="checkbox"/>	YES Type/Location:	<input type="checkbox"/>	NO	Is there evidence of oil, gasoline, or other contaminants such as animal waste in the swales?
6	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	No excessive sediment or trash	Is there excessive sediment present in the swales?
7	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Has trash or debris has accumulated in the swale?
8	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Are there unpleasant odors from the swales?
9	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Is there ponding of water in the swales?
10	<input type="checkbox"/>	YES Type/Location:	<input type="checkbox"/>	NO	Is the vegetation unhealthy looking or are pests present?
11	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Does the vegetation need to be trimmed or pruned?
12	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has a photo been taken of each swale?

IV. BMP SPECIFIC INSPECTION RESULTS – Outlet Protection					
Item	Inspection Results				BMP's in General
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Does BMP appear to be well maintained?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Does the BMP have significant design flaws which lessen its effectiveness?
3	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has the BMP had unauthorized modifications that reduce its effectiveness?
4	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has the BMP been destroyed or removed from property?
5	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Has trash, debris, or yard waste accumulated on/in the BMP?
6	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Is there evidence of oil, gasoline, contaminants, or other pollutants?
7	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Are there unpleasant odors from the BMP?
8	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Are invasive or nuisance vegetation or weeds present in or on the BMP?
9	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has a photo been take of this BMP?
V. BMP SPECIFIC INSPECTION RESULTS - Street Sweeping					
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Has street sweeping been performed?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Is any winter sand or fall leaves present on pavement?

VI. BMP SPECIFIC INSPECTION RESULTS – Snow and Ice Management					
Item	Inspection Results			BMP's in General	
1	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Does the snow and ice storage appear appear to be well maintained?
2	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Does the snow & ice management/storage appear to have significant design flaws which lessen its effectiveness?
3	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Have there been unauthorized modifications to the snow & ice management that reduce its effectiveness?
4	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Is the snow & ice management still being done?
5	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	Is there trash and debris in the snow and ice storage areas?
6	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Is there evidence of oil, gasoline, or other contaminants such as animal Waste in the snow & ice storage areas?
7	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Are there unpleasant odors from the snow & ice storage areas?
8	<input type="checkbox"/>	YES Type:	<input type="checkbox"/>	NO	Are invasive or nuisance vegetation or weeds present in or on the snow & ice storage areas?
9	<input type="checkbox"/>	YES Location:	<input type="checkbox"/>	NO	Is there evidence of sediment accumulation on/in the snow & ice storage areas?
10	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO Which area(s) no photo of?	Has a photo been taken of each snow & ice storage area?

1. Has photographs of all BMPS on this checklist been taken? Yes No
2. Is maintenance needed at this time? Yes Yes
3. Maintenance items needed/completed:

Appendix C – Long-Term Maintenance Log

Appendix D – Control of Invasive Species

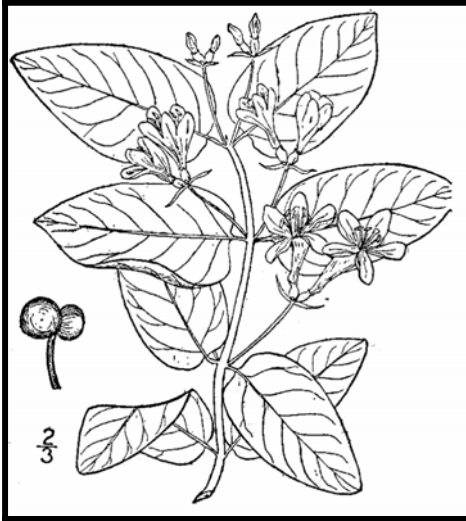
Appendix D



UNIVERSITY of NEW HAMPSHIRE
COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

Appendix D

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.





Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database /
Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Be diligent looking for seedlings for years in areas where removal and disposal took place.


Appendix D

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple <i>(Acer platanoides)</i> European barberry <i>(Berberis vulgaris)</i> Japanese barberry <i>(Berberis thunbergii)</i> autumn olive <i>(Elaeagnus umbellata)</i> burning bush <i>(Euonymus alatus)</i> Morrow's honeysuckle <i>(Lonicera morrowii)</i> Tatarian honeysuckle <i>(Lonicera tatarica)</i> showy bush honeysuckle <i>(Lonicera x bella)</i> common buckthorn <i>(Rhamnus cathartica)</i> glossy buckthorn <i>(Frangula alnus)</i>	Fruit and Seeds 	<p>Prior to fruit/seed ripening Seedlings and small plants</p> <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots exposed. No special care needed. <p>Larger plants</p> <ul style="list-style-type: none"> ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn. <hr/> <p>After fruit/seed is ripe Don't remove from site.</p> <ul style="list-style-type: none"> ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet <i>(Celastrus orbiculatus)</i> multiflora rose <i>(Rosa multiflora)</i>	Fruits, Seeds, Plant Fragments 	<p>Prior to fruit/seed ripening Seedlings and small plants</p> <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots exposed. No special care needed. <p>Larger plants</p> <ul style="list-style-type: none"> ▪ Make a brush pile. ▪ Burn. <hr/> <p>After fruit/seed is ripe Don't remove from site.</p> <ul style="list-style-type: none"> ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

Appendix D

Non-Woody Plants	Method of Reproducing	Methods of Disposal
<p>garlic mustard (<i>Alliaria petiolata</i>)</p> <p>spotted knapweed (<i>Centaurea maculosa</i>)</p> <ul style="list-style-type: none"> ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. <p>black swallow-wort (<i>Cynanchum nigrum</i>)</p> <ul style="list-style-type: none"> ▪ May cause skin rash. Wear gloves and long sleeves when handling. <p>pale swallow-wort (<i>Cynanchum rossicum</i>)</p> <p>giant hogweed (<i>Heracleum mantegazzianum</i>)</p> <ul style="list-style-type: none"> ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. <p>dame's rocket (<i>Hesperis matronalis</i>)</p> <p>perennial pepperweed (<i>Lepidium latifolium</i>)</p> <p>purple loosestrife (<i>Lythrum salicaria</i>)</p> <p>Japanese stilt grass (<i>Microstegium vimineum</i>)</p> <p>mile-a-minute weed (<i>Polygonum perfoliatum</i>)</p>	<p>Fruits and Seeds</p> 	<p>Prior to flowering</p> <p>Depends on scale of infestation</p> <p>Small infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and leave on site with roots exposed. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. <hr/> <p>During and following flowering</p> <p>Do nothing until the following year or remove flowering heads and bag and let rot.</p> <p>Small infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and leave on site with roots exposed. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
<p>common reed (<i>Phragmites australis</i>)</p> <p>Japanese knotweed (<i>Polygonum cuspidatum</i>)</p> <p>Bohemian knotweed (<i>Polygonum x bohemicum</i>)</p>	<p>Fruits, Seeds, Plant Fragments</p> <p>Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.</p>	<p>Small infestation</p> <ul style="list-style-type: none"> ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

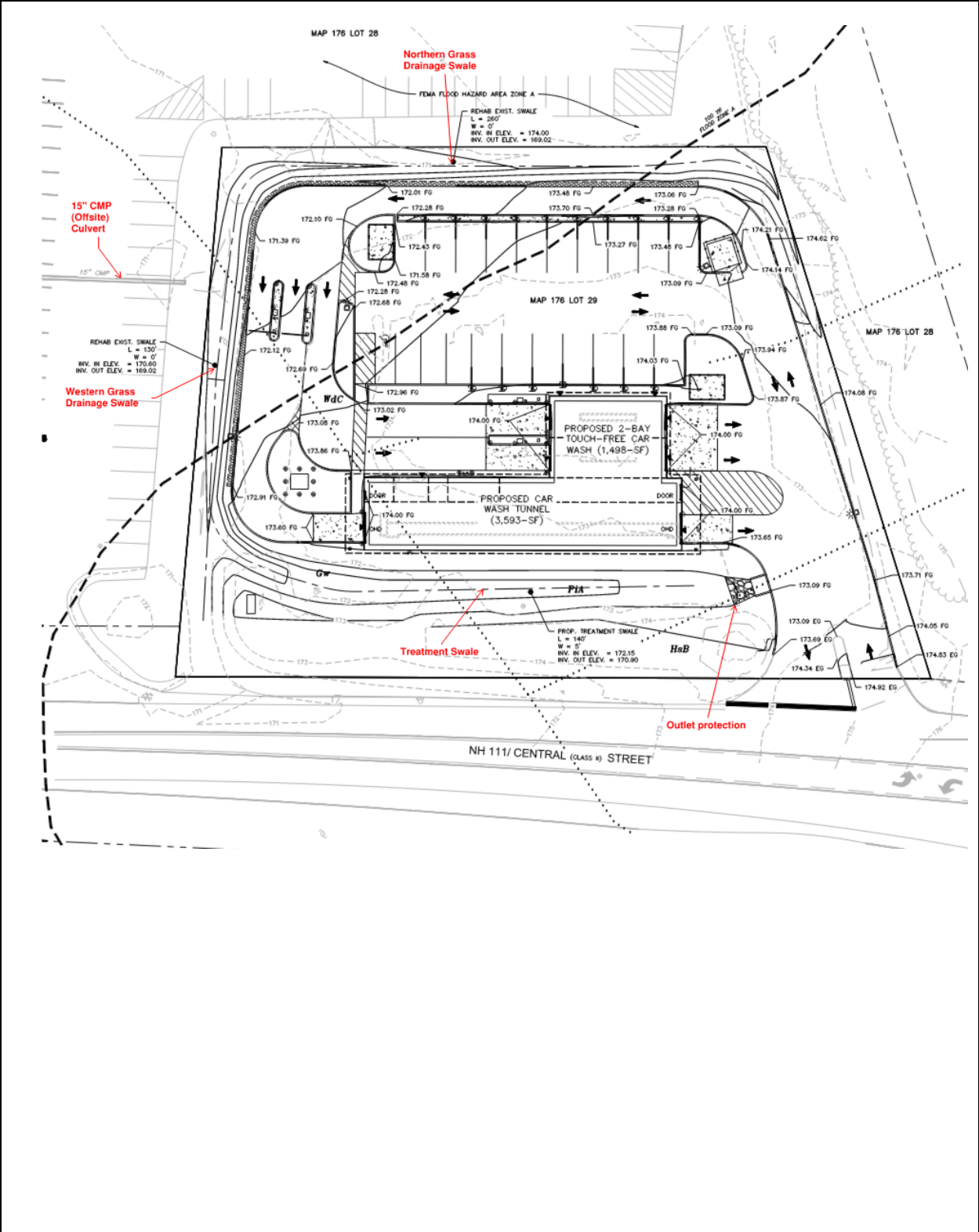
January 2010

Appendix E – Deicing Log

Appendix E

Site Deicing Data Form				
(This form shall be completed for each storm event throughout the season)				
Site:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Site:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

Appendix F – Location Map of Stormwater Structures



LOCATION MAP OF STORMWATER STRUCTURES
HUDSON CAR WASH
MAP 176 LOT 29

Appendix G – Legal Description of Property (Deed)

**TO BE ADDED ONCE
DEED FINALIZED**

Appendix H – Long Term Maintenance Agreement (LTMA)

**Town of Hudson, NH
Stormwater Structure
Long Term Maintenance Agreement**

Site Plan/Subdivision Approval #: _____
Map & parcel #: _____
Property Name & Address: _____

This Space for Recorder Use Only

**Stormwater Structure
Long Term Maintenance Agreement**

PLEASE RETURN TO:

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

This long term perpetual Maintenance Agreement for stormwater structures hereinafter referred to as "Agreement" is entered into this _____ day of _____, year _____, by and between Klemm Family, LLC, whose address is 4 Mall Road, Salem, NH 03079, hereinafter the "OWNER" and the Town of Hudson, a municipal cooperation duly organized with its principal place of business at 12 School Street, Hudson, Hillsborough County, New Hampshire 03051, hereinafter "TOWN", and is entered into and made pursuant to Code 290, Section 290-9 of the Town of Hudson's Stormwater Management Regulation, herein after "Regulation."

The Owner of the property described below, agrees to operate and maintain the stormwater structures, and agrees to the terms stated in this document to ensure that the stormwater structures continue serving the intended function in perpetuity.

Property Legal Description: Hudson Car Wash located at 212 Central Street in the Town of Hudson, Hillsborough County, New Hampshire.

Exhibits: LTMA executed with the following Exhibits.

- Exhibit A:** Full Legal Description of Property
- Exhibit B:** Summary of LTMA Inspection and Maintenance Requirements
- Exhibit C:** Location Maps of Stormwater Structure(s)

Witnesseth

Attachment "E"

We the OWNER(S), with full authority to execute deeds, mortgages, titles, all rights, other covenants and interests in the property described herein, do hereby covenant with the TOWN and agree as follows:

1. The OWNER(S) covenant and agree with the TOWN that OWNER be obligated to maintain the stormwater structures to provide adequate long term maintenance and continuation of stormwater control measures to ensure that the facilities are to remain in proper working condition in accordance with approved design standards, manufacturer's maintenance recommendations, the TOWN 's Storm Water Regulations and all applicable laws. OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall keep inspection reports on-site in a location easily accessible to a Town Engineer. The report will include the long term maintenance that documents inspection(s), times and dates of inspection(s), name of inspector(s) remedial actions taken to repair, modify, reconstruct or maintain the system and the state of the control measures.

3. The OWNER(S) shall grant to the TOWN or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspection to evaluate the stormwater management structure(s) and practices as necessary to ascertain that the structure(s) are being maintained and operated in accordance with this agreement and Code 290 of Hudson's Code of Ordinances. The TOWN shall maintain, as a public record, the results of the site inspections, shall inform the OWNER(S) of the inspection results, and shall recommend any corrective actions required to bring the stormwater structure(s) into proper operating condition.

4. If the OWNER is unable to adequately provide the required inspection and maintenance activities during construction, the Town may require additional escrow funding to be used by either the OWNER or the Town solely to repair, replace and/or maintain the required measures. If the Owner fails to adequately inspect and maintain such measures post construction, the Town shall have the authority to perform the required maintenance. The cost of such work shall be borne by the property owner.

5. This agreement does not cover improvements or infrastructure dedicated to the public and accepted by the TOWN, to include gutters, channels, culverts, roadside ditches or storm sewer appurtenances, whether located within the public right-of-way, easements or upon private property.

To these covenants and this agreement the OWNER(S) hereby binds themselves, their heirs, executors and assigns forever.

Attachment "E"

IN WITNESS WHEREOF, the OWNER and the TOWN have caused this agreement to be signed this _____ day of _____, 20____.

"OWNER(S)"

Klemm Family, LLC c/o Tom Klemm Jr. 4 Mall Road, Salem, NH 03079
 Insert Typed Name (OWNER) and Sign Above Date Address

 Insert Typed Name (OWNER) and Sign Above Date Address

State of New Hampshire : ss
 County of Hillsborough

Personally came before me this _____ day of _____, 20____, the
 above named _____ to me known to be the person(s)
 who executed the foregoing instrument and acknowledged the same.

 Signature
 Notary Public, State of New Hampshire
 My commission expires _____

"Town of Hudson, New Hampshire"

By: _____ Date _____ By: _____ Date _____
 _____ _____
 Signature Signature

State of New Hampshire : ss
 County of Hillsborough

Personally came before me this _____ day of _____, 20____, the
 above named _____ to me known to be the person(s)
 who executed the foregoing instrument and acknowledged the same.

 Signature
 Notary Public, State of New Hampshire
 My commission expires _____

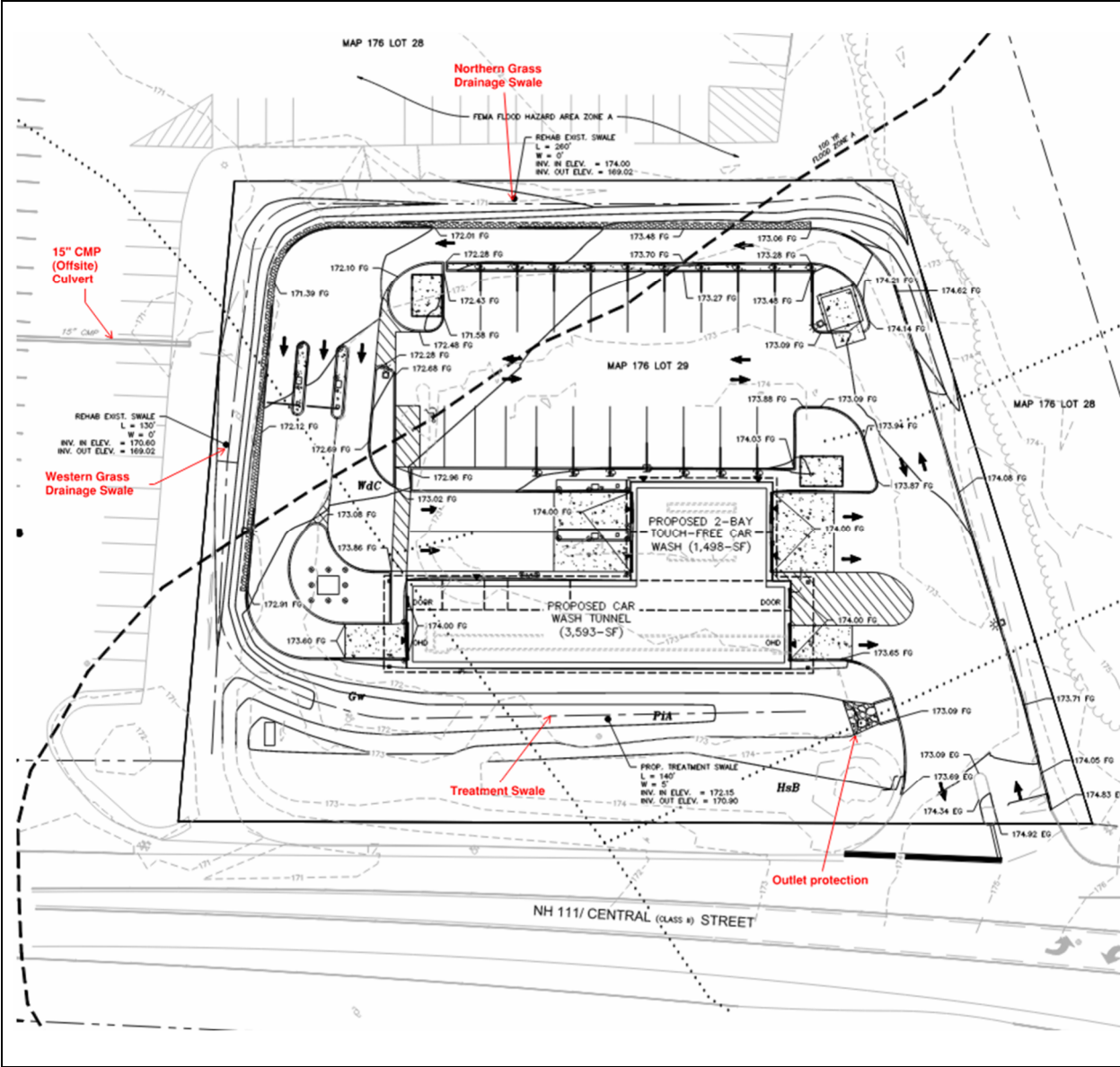
Exhibit A: Full Legal Description of Property

**TO BE ADDED ONCE
DEED FINALIZED**

Exhibit B: Summary of LTMA Inspection and Maintenance Requirements

Note: Refer to the site-specific Inspection & Maintenance Plan for more details.

Stormwater Control Measure	Summary of Inspection and Maintenance Requirements
Treatment Swale $\frac{1}{\text{Quantity}}$	<ul style="list-style-type: none"> - Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species. - Remove debris and accumulated sediment annually. - Mow semiannually but avoid cutting grasses shorter than 4 inches. - Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.
Grass Drainage Swales $\frac{2}{\text{Quantity}}$	<ul style="list-style-type: none"> - Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species. - Remove debris and accumulated sediment annually. - Mow semiannually but avoid cutting grasses shorter than 4 inches. - Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection
Outlet Protection	<ul style="list-style-type: none"> - Inspect the outlet protection annually for damage and deterioration. Repair damages immediately
Street Sweeping	<ul style="list-style-type: none"> - Sweep streets and parking lots, in spring after the winter sand season and in the fall after leaf fall.
Snow and Ice Management	<ul style="list-style-type: none"> - Store snow stockpiles away from water supplies and outside of wellhead protection areas in designated locations and not directly on top of stormwater management areas. - Separate designated snow storage areas from waterbodies, where present, by silt fence or similar barrier. - If snow stockpiles exceed the size of the designated area, properly handle and dispose of snow from the site. - Minimize the use of salt and other salt products.



**EXHIBIT C: LOCATION MAP OF STORMWATER STRUCTURES
MAP 176 LOT 29**

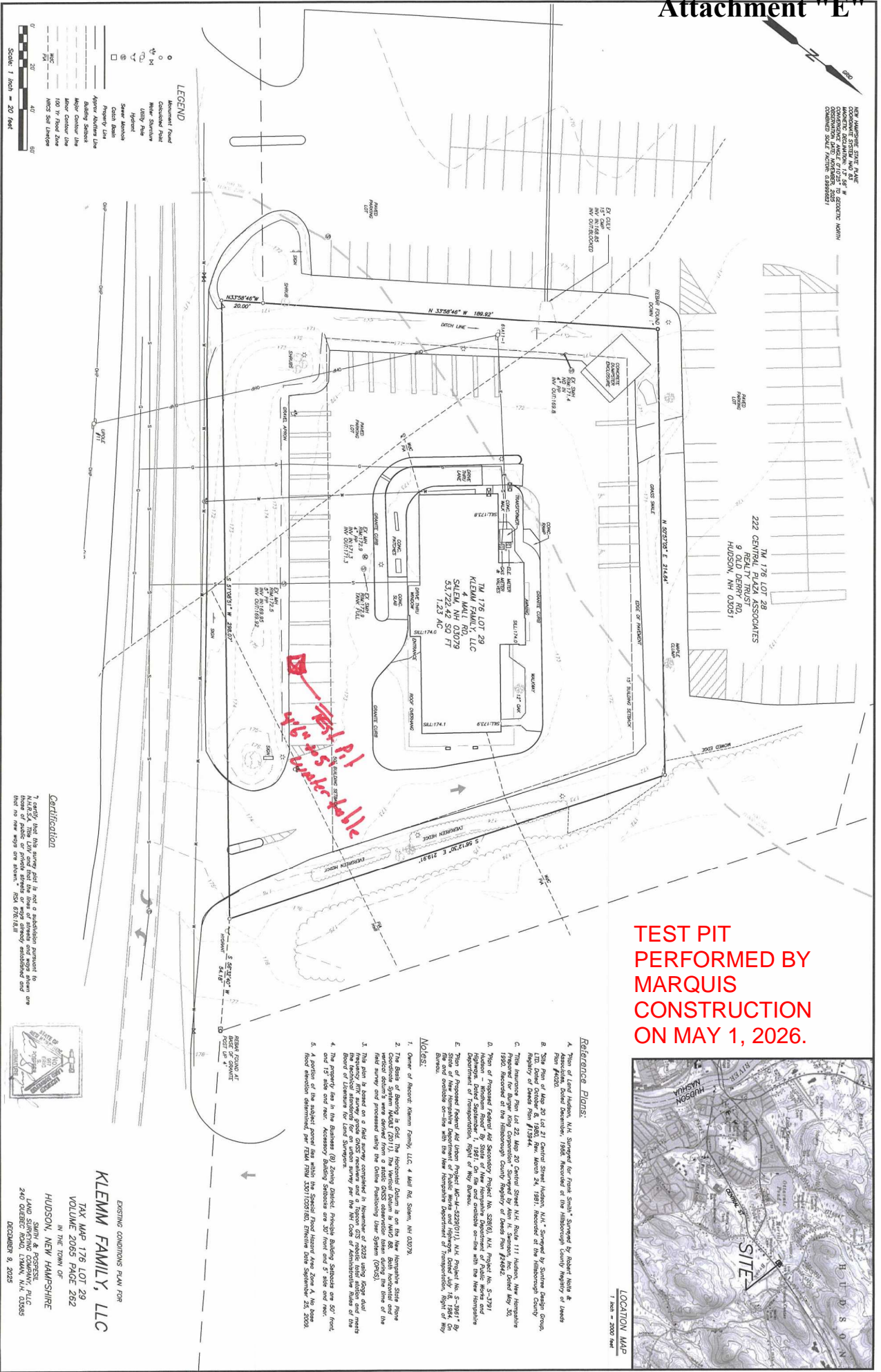
Town of Hudson, New Hampshire
Stormwater Structure Long Term Maintenance Agreement

**II. AS-BUILT PLANS (TO BE PROVIDED SEPARATELY AFTER
CONSTRUCTION COMPLETE)**

**III. INITIAL POST-CONSTRUCTION INSPECTION REPORT (TO
BE PROVIDED SEPARATELY AFTER CONSTRUCTION
COMPLETE)**

8. TEST PIT LOCATION/ESWT RESULTS

NEW HAMPSHIRE STATE PLANNING COMMISSION'S STATE MAP 8318 CONFORMANCE MAP OF 10/23/21 TO EXERCISE NORTH CONSIDERED SOUTH (NORTH OR REVERSED)



Scale: 1 inch = 20 feet

LEGEND

- 0
- 1/4" = 1'
- 1/2" = 2'
- 3/4" = 3'
- 1" = 4'
- 1 1/2" = 6'
- 2" = 8'
- 3" = 12'
- 4" = 16'
- 6" = 24'
- 8" = 32'
- 10" = 40'
- 12" = 48'
- 15" = 60'
- 20" = 80'
- 30" = 120'
- 40" = 160'
- 50" = 200'

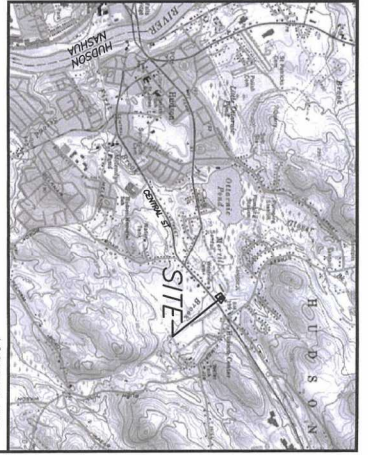
Certification

I certify that this plan and map are true and correct to the best of my knowledge and belief, and that I am a duly licensed and qualified professional engineer in the State of New Hampshire.



EXISTING CONDITIONS PLAN FOR
KLEMM FAMILY, LLC
 TAX MAP 176 LOT 29
 VOLUME 2065 PAGE 262
 IN THE TOWN OF
 HUDSON, NEW HAMPSHIRE
 LAND SURVEYOR: ROBERT M. KELLY, P.E., F.L.C.
 240 OULDER ROAD, LYMAN, N.H. 03335
 DECEMBER 9, 2023

TEST PIT PERFORMED BY MARQUIS CONSTRUCTION ON MAY 1, 2026.



LOCATION MAP
 1 inch = 200 feet

Reference Plans:

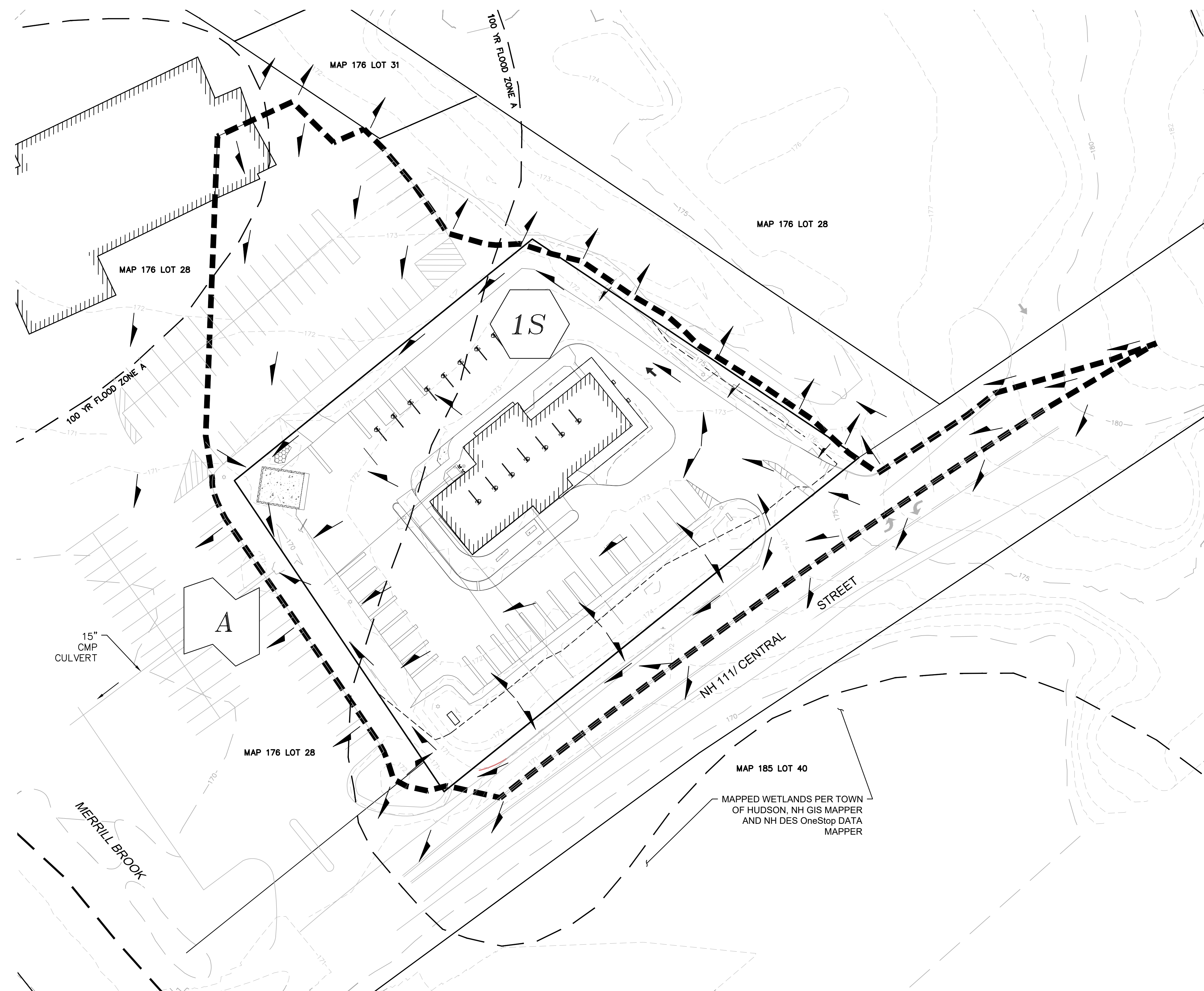
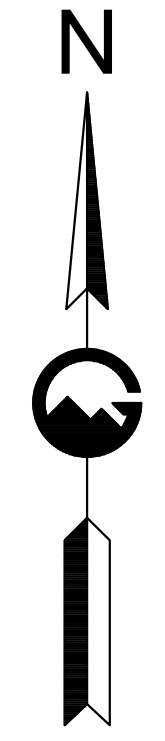
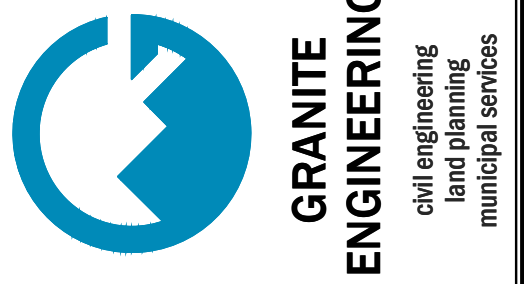
- A. Town of Loud Hudson, N.H. Surveyed for Frank Smith, Surveyed by Robert Kelly & Associates, Dated December, 1980. Revisited by the Hillsborough County Registry of Lands Plan #4203.
- B. Tax Map of May 20, Lot 21 Central Street, Hudson, N.H., Surveyed by Sumner Beagin Brown, Assessor, Dated December, 1980. Revisited by the Hillsborough County Registry of Lands Plan #4203.
- C. Title Insurance Plan lot 22, May 20 Central Street N.H. Block 111 Hudson, New Hampshire Property for Burger King Corporation, Surveyed by Allen H. Swanson, Inc. Dated May 30, 1984. Revisited by the Hillsborough County Registry of Lands Plan #4203.
- D. Title Insurance Plan lot 29, May 20 Central Street N.H. Block 111 Hudson, New Hampshire Property for Burger King Corporation, Surveyed by Allen H. Swanson, Inc. Dated May 30, 1984. Revisited by the Hillsborough County Registry of Lands Plan #4203.
- E. State of New Hampshire Department of Public Works and Highways, Dated July 18, 1984. On file on and on file with the New Hampshire Department of Transportation, Right of Way Plan and on file with the New Hampshire Department of Transportation, Right of Way Plan #4203.

Notes:

1. Owner of Record: Klemm Family, LLC, 4 Main Rd., Scam, NH 03078.
2. The Basis of Survey is a Plat. The Horizontal Datum is on the New Hampshire State Plane vertical datum were derived from a static GNSS observation taken during the time of the field survey and processed using the Online Positioning User System (OPUS).
3. This plan is based on a field survey completed in November of 2023 using Leica total stations and a Leica GNSS receiver. The survey was conducted in accordance with the standards of the Board of Licensure for Land Surveyors.
4. The property is in the Business (B) zoning district. Prohibited Building Substances are 50' front, 50' side and 50' rear. Necessary Building Substances are 50' front, 50' side and 50' rear. Road retention determined per RSA 229:120(5) (b). Elevation datum determined per RSA 229:120(5) (b). Elevation datum determined per RSA 229:120(5) (b).

9. PLANS

- A. SITE PLAN SET (22" X 34")
 - B. PRE-DEVELOPMENT DRAINAGE AREAS PLAN (22"X34"-B&W)
 - C. PRE-DEVELOPMENT DRAINAGE AREAS PLAN (22"X34"-COLOR)
 - D. POST-DEVELOPMENT DRAINAGE AREAS PLANS (22" X 34"-B&W)
 - E. POST-DEVELOPMENT DRAINAGE AREAS PLANS (22" X 34"-COLOR)
-



15" CMP CULVERT

MAP 176 LOT 28

MAP 176 LOT 31

MAP 176 LOT 28

1S

A

STREET

NH 111/ CENTRAL

MAP 185 LOT 40

MAPPED WETLANDS PER TOWN OF HUDSON, NH GIS MAPPER AND NH DES OneStop DATA MAPPER

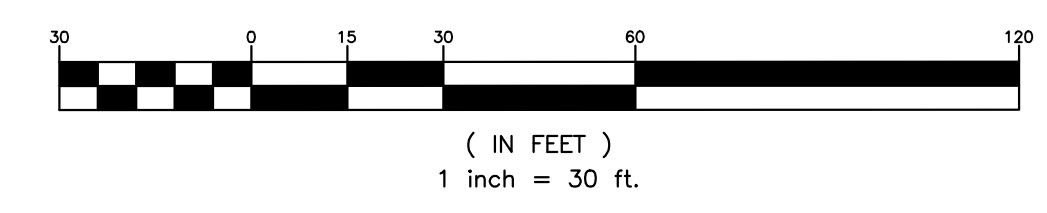
MERRILL BROOK

- NOTES:**
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL BEFORE DEVELOPMENT.
 2. SUPPLEMENTAL LIDAR CONTOUR DATA UTILIZED OUTSIDE PROJECT LOT FOR DRAINAGE SUBCATCHMENT DELINEATIONS.

DRAINAGE LEGEND:

- THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.
- SCS SOIL LINES
 - 140B DENOTES SOIL TYPE (FROM NRCS)
 - LIMIT OF SUBCATCHMENT AREA
 - S DENOTES SUBCATCHMENT AREA
 - L DENOTES POINT OF INTEREST
 - ▲ DIRECTION OF RUNOFF FLOW

GRAPHIC SCALE



NO.	DATE	COMMENTS	BY
0	05/05/2026	PROJECT SUBMITTAL	JDM

OWNER/APPLICANT:
KLEMM FAMILY, LLC
4 MALL RD
SALEM, NH 03079

GENERAL CONTRACTOR:
MASOUS CONTRACTING GROUP
717 DW HIGHWAY
MERRIMACK, NH 03064

GRANITE ENGINEERING
civil engineering • land planning • municipal services

150 Dow Street, Tower 2, Suite 421
Manchester, New Hampshire 03101
603.518.8030

www.GraniteEng.com

STAMP:

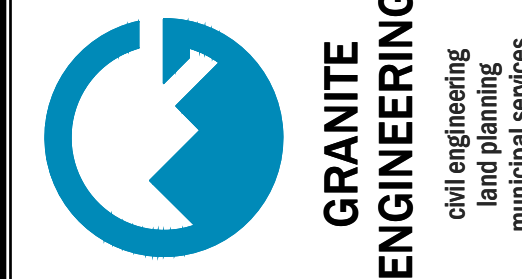
LOCATION:
TAX MAP 176 LOT 29
224 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

PROJECT:
HUDSON CAR WASH

TITLE:
PRE-DEVELOPMENT DRAIN AREAS PLAN

PROJECT No. DATE: 25-1020-1 MAY 5, 2026 SCALE: HORIZ. 1" = 30'

SHEET: 1 OF 4



GRANITE ENGINEERING
civil engineering • land planning • municipal services

NO.	DATE	COMMENTS	BY
0	05/05/2026	PROJECT SUBMITTAL	JDM

OWNER/APPLICANT:
KLEMM FAMILY, LLC
4 MALL RD
SALEM, NH 03079

GENERAL CONTRACTOR:
MASQUEL CONTRACTING GROUP
717 DW HIGHWAY
MERRIMACK, NH 03054

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civil engineering • land planning • municipal services

150 Dow Street, Tower 2, Suite 421
Manchester, New Hampshire 03101
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STAMP:

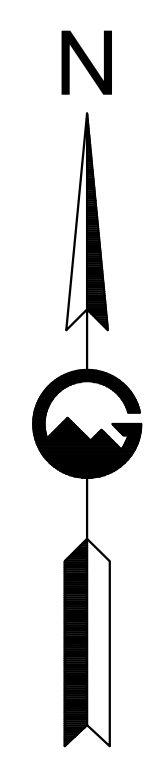
LOCATION:
TAX MAP 176 LOT 29
224 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

PROJECT:
HUDSON CAR WASH

TITLE:
**PRE-DEVELOPMENT
DRAIN AREAS PLAN**

PROJECT No. DATE: 25-1020-1 MAY 5, 2026 SCALE: HORIZ. 1" = 30'

SHEET: 2 OF 4



NOTES:
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL BEFORE DEVELOPMENT.

SCS (NRCS) LEGEND

Gw FREETOWN MUCKY PEAT, 0-2% SLOPES, HSG B
HsB HINCKLEY LOAMY SAND, 3-8% SLOPES, HSG A
PiA PIPESTONE LOAMY SAND, 0-3% SLOPES, HSG A
WdC WINDSOR LOAMY SAND, 8-15% SLOPES, HSG A

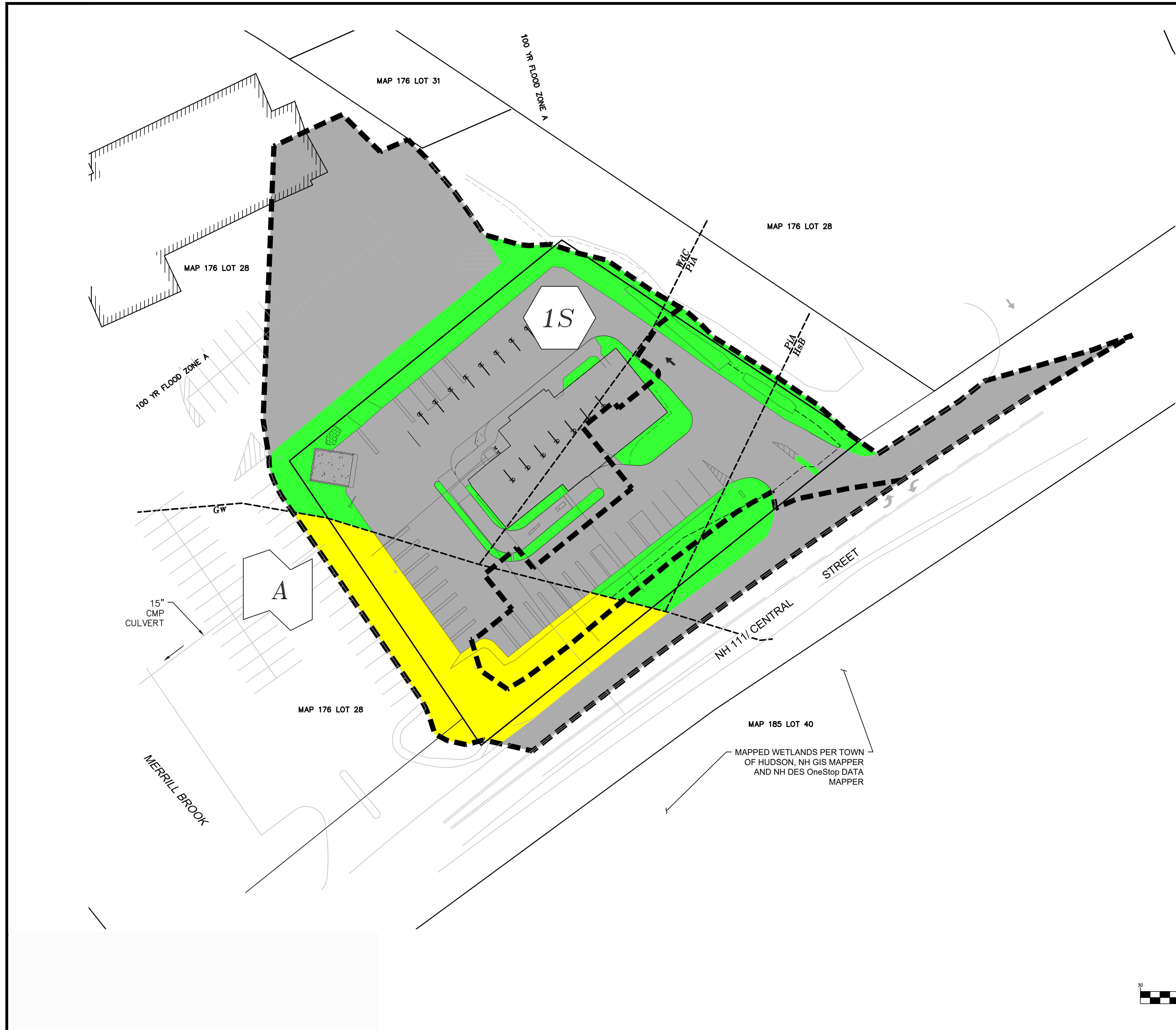
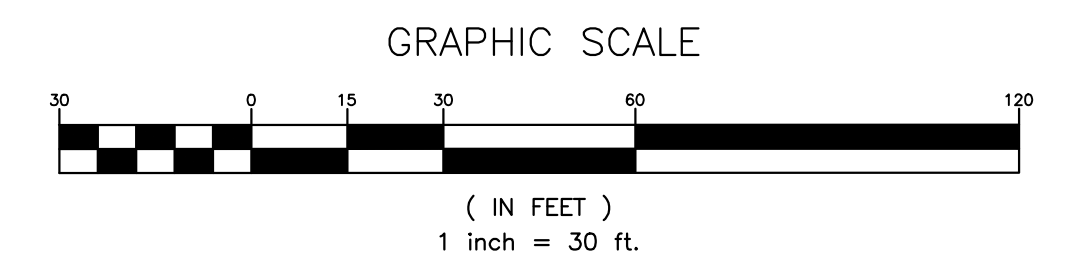
COLOR LEGEND:

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 B SOILS
 IMPERVIOUS AREA

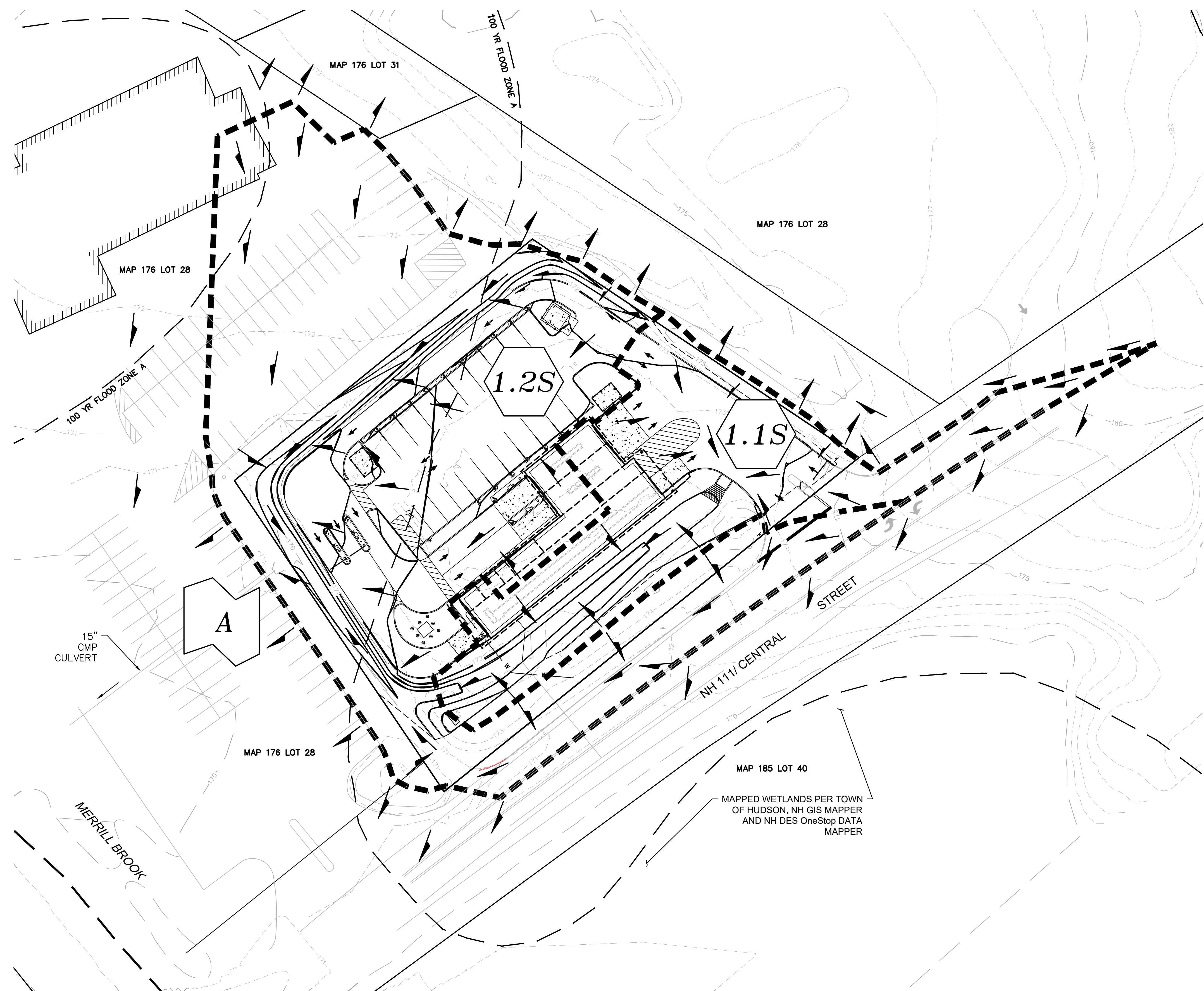
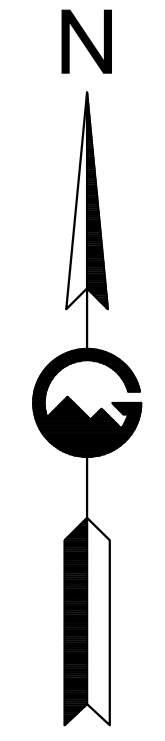
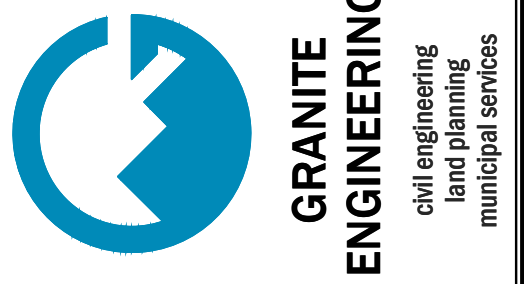
DRAINAGE LEGEND:
THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

--- SCS SOIL LINES
140B DENOTES SOIL TYPE (FROM NRCS)
 - - - - - LIMIT OF SUBCATCHMENT AREA

S DENOTES SUBCATCHMENT AREA
L DENOTES POINT OF INTEREST
 ▲ DIRECTION OF RUNOFF FLOW



MAPPED WETLANDS PER TOWN OF HUDSON, NH GIS MAPPER AND NH DES OneStop DATA MAPPER



NO.	DATE	COMMENTS	BY
0	05/05/2026	PROJECT SUBMITTAL	JDM

OWNER/APPLICANT:
 KLEMM FAMILY, LLC
 4 MALL RD
 SALEM, NH 03079

GENERAL CONTRACTOR:
 MASQUEL CONTRACTING GROUP
 717 DW HIGHWAY
 MERRIMACK, NH 03054

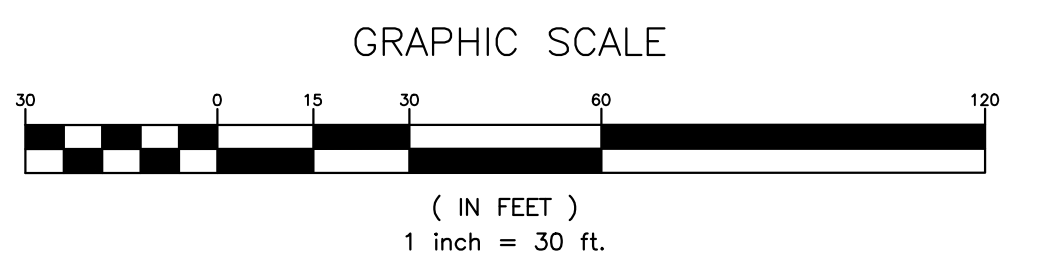
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 civil engineering • land planning • municipal services

150 Dow Street, Tower 2, Suite 421
 Manchester, New Hampshire 03101
 603.518.8030

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NOTES:
 1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL BEFORE DEVELOPMENT.
 2. SUPPLEMENTAL LIDAR CONTOUR DATA UTILIZED OUTSIDE PROJECT LOT FOR DRAINAGE SUBCATCHMENT DELINEATIONS.

- DRAINAGE LEGEND:**
 THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.
- SCS SOIL LINES
 - 140B DENOTES SOIL TYPE (FROM NRCS)
 - LIMIT OF SUBCATCHMENT AREA
 - S DENOTES SUBCATCHMENT AREA
 - L DENOTES POINT OF INTEREST
 - ▲ DIRECTION OF RUNOFF FLOW



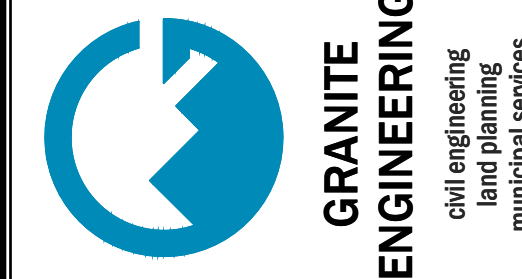
STAMP:

LOCATION:
 TAX MAP 176 LOT 29
 224 CENTRAL STREET
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

PROJECT:
HUDSON CAR WASH

TITLE:
**POST-DEVELOPMENT
 DRAIN AREAS PLAN**

PROJECT No.:	DATE:	SCALE:
25-1020-1	MAY 5, 2026	HORIZ.
SHEET:	3 OF 4	1" = 30'



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NO.	DATE	COMMENTS	BY
0	05/05/2026	PROJECT SUBMITTAL	JDM

OWNER/APPLICANT:
KLEMM FAMILY, LLC
4 WALL RD
SALEM, NH 03079

GENERAL CONTRACTOR:
MASOUS CONTRACTING GROUP
717 DW HIGHWAY
MERRIMACK, NH 03054

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STAMP:

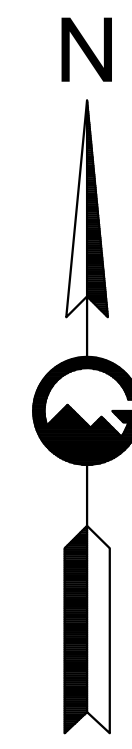
LOCATION:
TAX MAP 176 LOT 29
224 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

PROJECT:
HUDSON CAR WASH

TITLE:
POST-DEVELOPMENT DRAIN AREAS PLAN

PROJECT No. DATE: 25-1020-1 MAY 5, 2026 SCALE: HORIZ. 1" = 30'

SHEET: 4 OF 4



NOTES:
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL BEFORE DEVELOPMENT.

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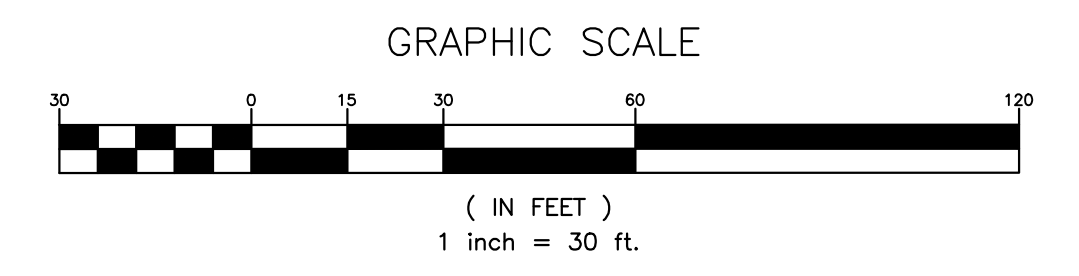
COLOR LEGEND:

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 B SOILS
 IMPERVIOUS AREA

DRAINAGE LEGEND:
THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

--- SCS SOIL LINES
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S DENOTES SUBCATCHMENT AREA
L DENOTES POINT OF INTEREST
 ▲ DIRECTION OF RUNOFF FLOW



MAPPED WETLANDS PER TOWN OF HUDSON, NH GIS MAPPER AND NH DES OneStop DATA MAPPER

MEMORANDUM

TO: Vanessa Rozier
Business Development Lead/
Project Manager
Marquis Contracting Group
717 Daniel Webster Highway
Merrimack, NH 03054

FROM: Scott W. Thornton, P.E. *and*
Thomas Hannon, E.I.T.
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810
(978) 474-8800

DATE: April 24, 2026

RE: 10614R

SUBJECT: Traffic Impact Study
Proposed Car Wash – 224 Central Street (NH Route 111)
Hudson, New Hampshire

Vanasse & Associates, Inc. (VAI) has prepared this Traffic Impact Study (TIS) in order to identify traffic impacts associated with a proposed car wash to be located at 224 Central Street (NH Route 111) in Hudson, New Hampshire (hereafter referred to as the “Project”). The purpose of this memorandum is to review existing and future traffic conditions in the vicinity of the Project site, determine the traffic impact of the proposed Project at key intersections expected to experience increased traffic levels from the Project, and review the need for improvements to mitigate the Project’s traffic impact.

PROJECT DESCRIPTION

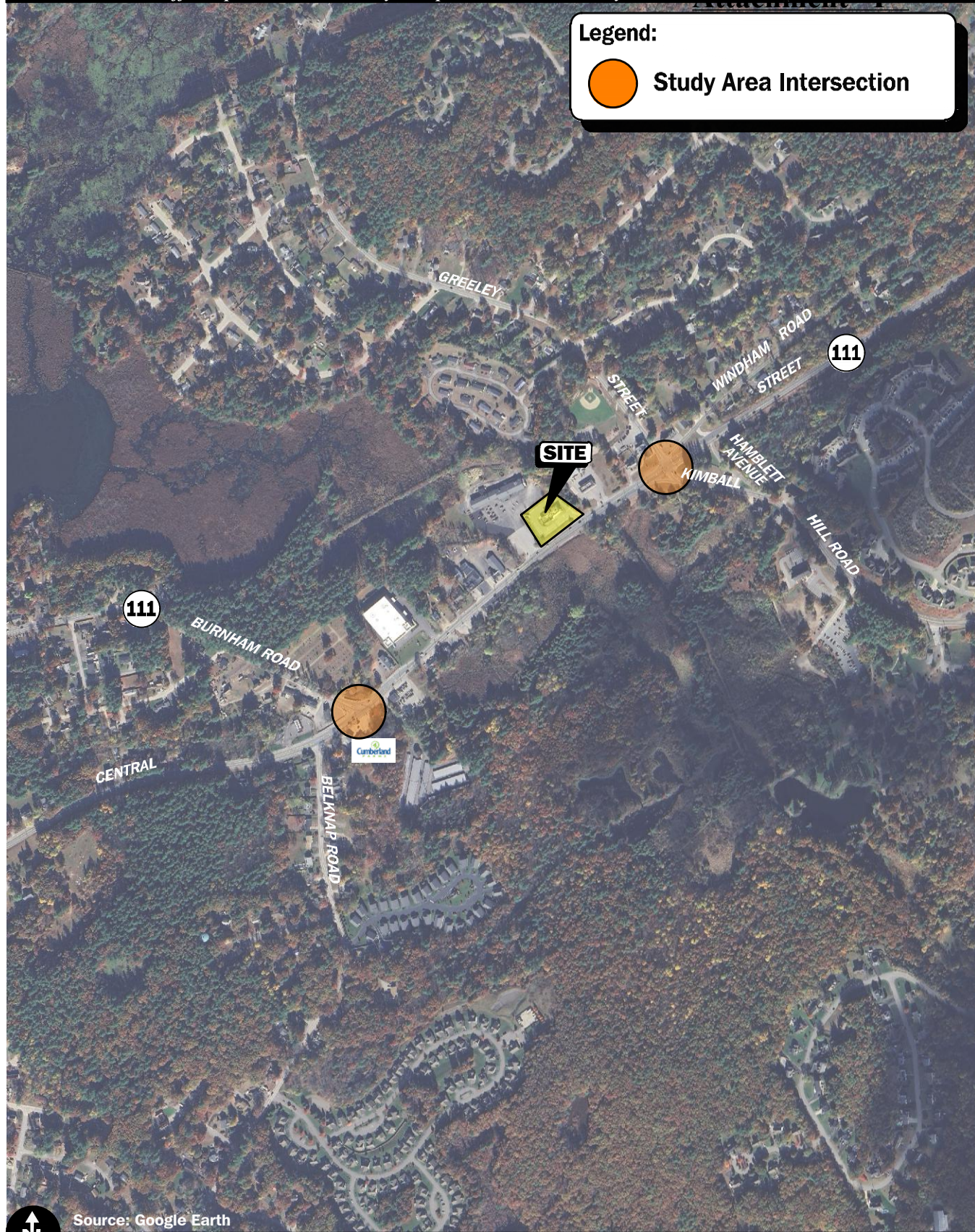
The Project entails the construction of a car wash composed of both self-service (two-wash stalls) and automated service (3,500 square foot (sf) tunnel). At present, the Project site consists of a former 4,958 sf Burger King restaurant with an existing driveway and curb cut. The Project site is bordered by commercial properties to the north, east, and west, and NH Route 111 to the south. An 11-foot-wide two-way left-turn lane is present on the segment of NH Route 111 in front of the site driveway and would provide space for approximately 3 to 4 vehicles to queue if needed.

Vehicle access to and egress from the proposed development will remain via the full-access driveway NH Route 111.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in March 2026. The field investigation consisted of an inventory of existing roadway geometrics, traffic volumes, and operating characteristics, as well as posted speed limits, sight distances, and land use information within the study area. The study area for the Project is listed below and graphically depicted in Figure 1:

- Burnham (NH Route 111) at Central Street and Cumberland Farms driveway
- Central Street (NH Route 111) at Greeley Street and Kimball Hill Road and Windham Road



Legend:
● Study Area Intersection

SITE

111

111

●

Figure 1

Site Location and Study Area Map



Figure 2 summarizes existing traffic control, lane use, travel lane widths, and pedestrian and bicycle accommodations at the study area intersections as observed in March 2026.

Existing Traffic Volumes

In order to establish base traffic-volume demands and flow patterns within the study area, manual turning movement counts (TMCs) were completed on Thursday, March 19, 2026 and Tuesday, March 31, 2026, during the weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods and on Saturday, March 21, 2026 and March 28, 2026, during the midday (11:00 AM to 2:00 PM) peak period.

Traffic-Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, New Hampshire Department of Transportation (NHDOT) 2024 Monthly Data, provided for Urban Group 4 (Urban Highways), were reviewed. Based on a review of this data, March volumes were found to be *below* peak-month conditions. As such, the 2026 traffic volumes were adjusted upward by an adjustment factor of 1.11 to represent peak-month conditions in accordance with NHDOT standards. The 2026 Existing traffic volumes are summarized in Table 1, with weekday morning, weekday evening, and Saturday midday peak-month peak-hour traffic volumes graphically depicted on Figure 3.

**Table 1
2026 EXISTING ROADWAY TRAFFIC-VOLUME SUMMARY**

Location	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	Volume (vph) ^a	Predominant Flow	Volume (vph)	Predominant Flow	Volume (vph)	Predominant Flow
NH Route 111 in the vicinity of the Project Site	1,752	60.4% WB	1,927	54.1% EB	1,519	51.8% WB






^aTwo-way peak-hour volume expressed in vehicles per hour, adjusted to peak month.
EB = eastbound; WB = westbound.

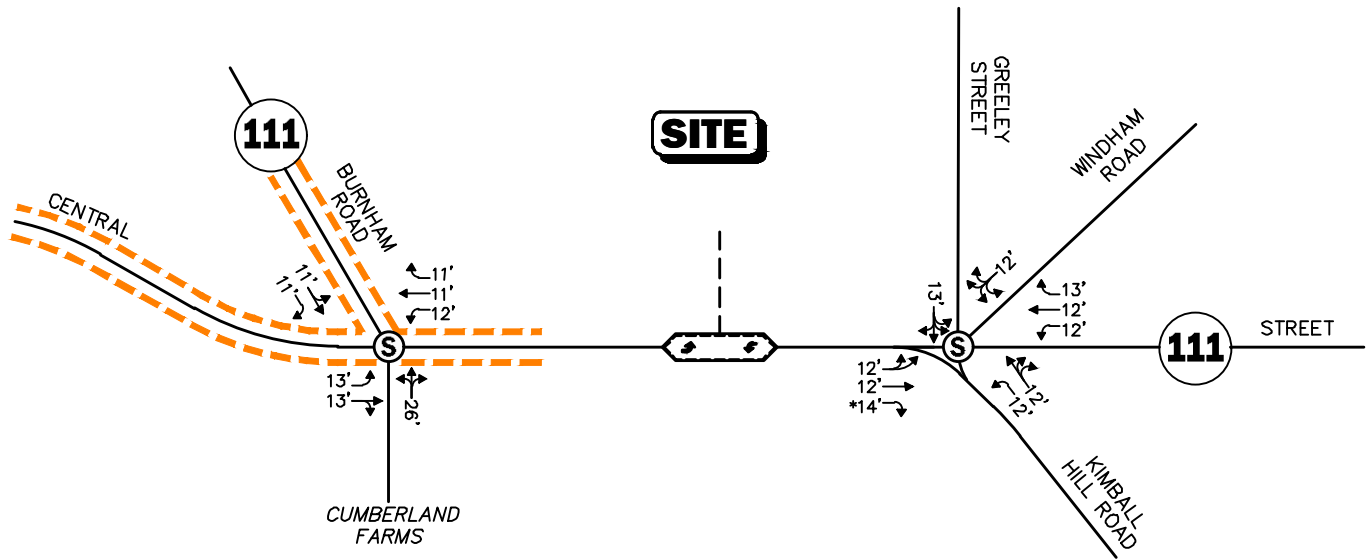
As can be seen in Table 1, NH Route 111 was observed to carry approximately 1,752 vehicles per hour (vph) during the weekday morning peak hour, 1,927 vph during the weekday evening peak hour, and 1,519 vph during the Saturday midday peak hour. During the weekday morning peak hour, 60 percent of the traffic is traveling westbound, during the weekday evening peak hour, 54 percent of the traffic is traveling eastbound, and during the Saturday midday peak hour, 52 percent of the traffic is traveling westbound.

Public Transportation

Public transportation services in the study area are provided by Nashua Transit System City Lift, an on-demand advanced-reservation service that provides curb-to-curb transportation to and from any address within Nashua, Merrimack, or Hudson. Schedule and fare information for the on-demand service are provided in the Appendix.

Legend:

-  Signalized Intersection
-  Sidewalk
-  Two-Way Left-Turn Lane
-  Lane Use and Travel Lane Width
-  Channelized Right Turn Lane



Not To Scale

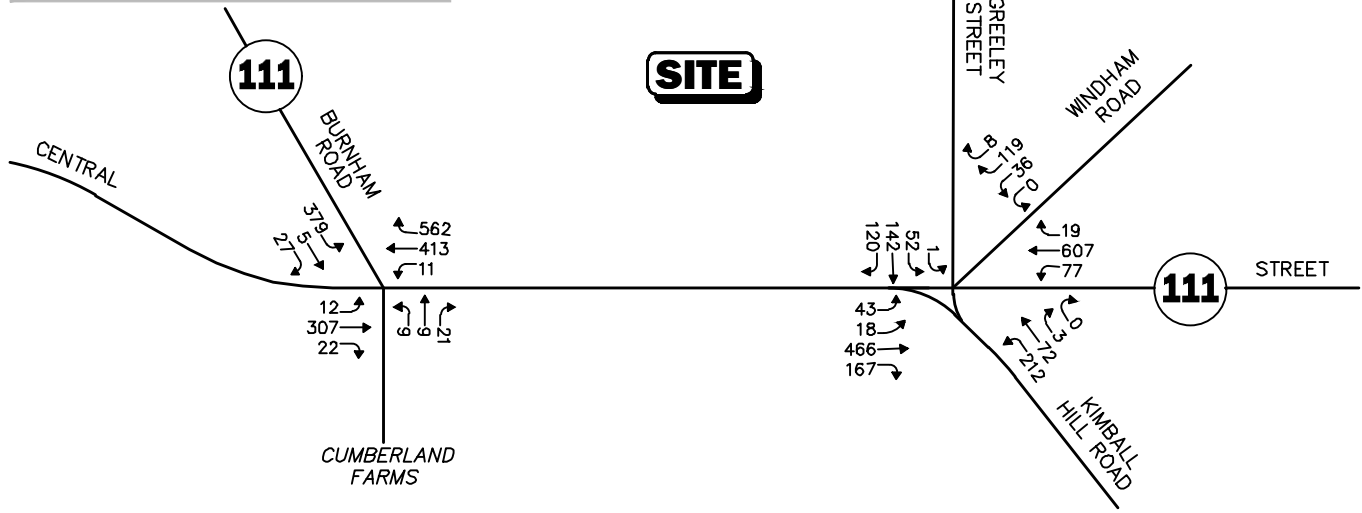


Figure 2

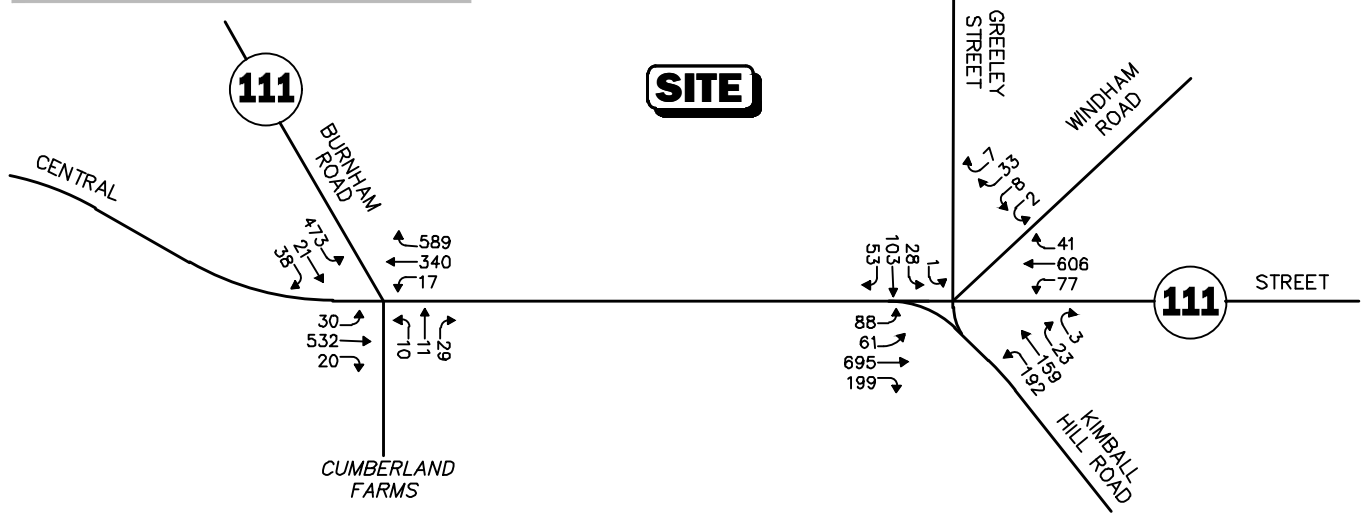
Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities

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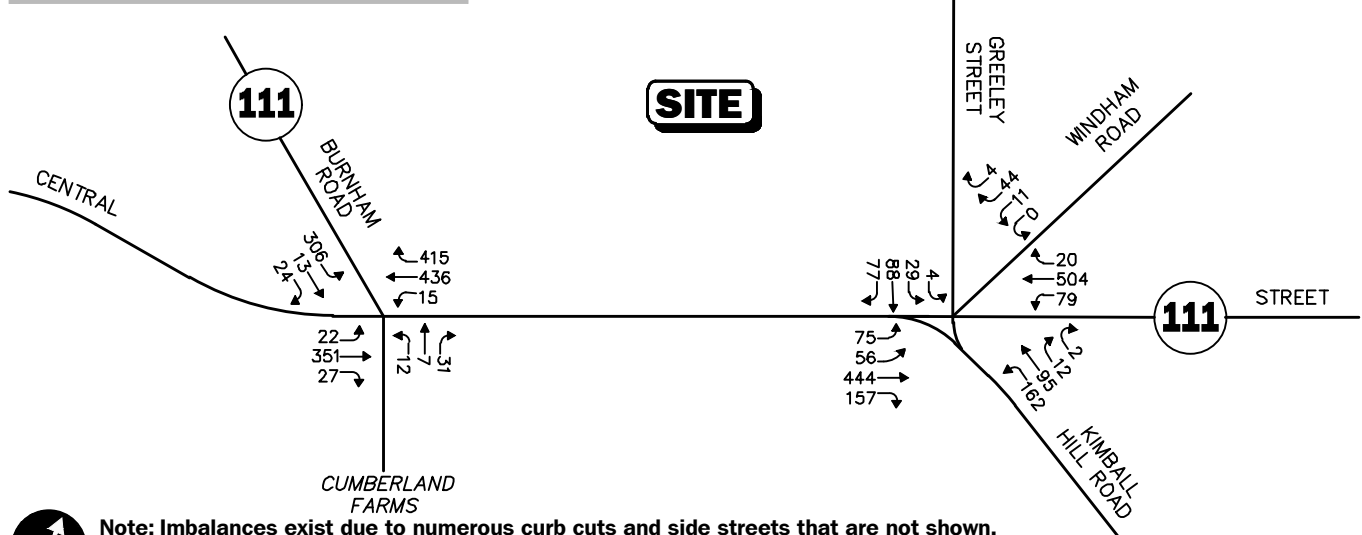
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 3

2026 Existing Peak Month Peak-Hour Traffic Volumes



Vehicle Speed Measurements

Existing vehicle speeds along NH Route 111, in the vicinity of the Project site, were recorded using a radar gun, with 50 observations in each direction to determine the average and 85th percentile vehicle speeds. There is a speed limit of 35 mph on this section of NH Route 111. The results of the speed measurements are shown in Table 2.

Table 2
VEHICLE TRAVEL SPEED MEASUREMENTS

	NH Route 111	
	Eastbound	Westbound
Average Travel Speed (mph)	35	36
85 th Percentile Speed (mph)	37	38
Speed Limit (mph)	35	35

mph = miles per hour.

As can be seen in Table 2, the mean vehicle travel speed along NH Route 111 in the vicinity of the Project site was 35 mph in the eastbound direction and 36 mph in the westbound direction. The 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 37 mph in the eastbound direction and 38 mph in the westbound direction.

FUTURE CONDITIONS

To determine the impact of site-generated traffic volumes on the roadway network under future conditions, existing traffic volumes in the study area were projected to the years 2027 and 2037. Traffic volumes on the roadway network at that time, in the absence of the Project (i.e., the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific development by others expected to be completed by 2027 and 2037. Inclusion of these factors resulted in the development of 2027 and 2037 No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop the 2027 Opening-Year and 2037 Design-Year Build traffic-volume conditions.

Future Traffic Growth

Traffic growth on area roadways is a function of the expected land development impacting the study area. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all existing traffic volumes under study. In addition, we research the location and type of planned development affecting the study area.

General Background Growth

To assess general traffic growth trends within the study area, NHDOT traffic-volume data from several permanent count stations within Region E were summarized and reviewed. NHDOT indicates that traffic volumes in Region E have fluctuated between 2014 and 2024, with a compound annual growth rate of approximately 0.87 percent. An exponential projection suggests that the average annual daily traffic is expected to grow by 0.25 percent annually. By averaging compounded annual growth and exponential projections, traffic in this area is anticipated to increase by an average of 0.56 percent per year.

To provide a prudent planning condition for the Project, a slightly higher 1.0 percent per year compounded annual traffic growth rate was used to account for future traffic growth and presently unforeseen development within the study area.

Specific Development by Others

The Planning Department of the Town of Hudson was contacted to determine whether any projects are planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on these discussions, the following projects were identified for possible inclusion in this assessment:

- ***Proposed Residential Development – 207 Central Street.*** This project entails the construction of a 118-unit residential development to be located at 207 Central Street in Hudson, New Hampshire. Estimates of additional traffic expected to be generated by this development were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*¹ and have been incorporated into the analysis of future traffic conditions.
- ***Proposed Multi-Tenant Retail Development – 1 Brockes Road.*** This project entails the construction of a multi-tenant retail building to be located at 1 Brockes Road in Hudson, New Hampshire. Estimates of additional traffic expected to be generated by this development were calculated using ITE and have been incorporated into the analysis of future traffic conditions.
- ***Proposed Lumber Yard – 3 Sullivan Road.*** This project entails the construction of six structures, one containing retail and office space, and the remaining containing storage space to be located at 3 Sullivan Road in Hudson, New Hampshire. Estimates of additional traffic expected to be generated by this development were obtained from the traffic letter² prepared for this project and have been incorporated into the analysis of future traffic conditions.

No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate of 1.0 percent. Peak-hour traffic volume networks for the background developments can be found in the Appendix of this report.

Planned Roadway Improvements

The NHDOT Road and Projects Viewer was reviewed to determine whether any planned future roadway improvement projects within the study area. Based on this review, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

¹*Trip Generation*, 12th Edition; Institute of Transportation Engineers; Washington, DC; 2025.

²*Crash Data Summary and Capacity Analysis Utilizing Empirical Trip Generation, Proposed Lumber Yard*; VAI; September 2024.

No-Build Traffic Volumes

The 2027 and 2037 No-Build peak-month peak-hour traffic-volume networks were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to 2026 Existing peak-month peak-hour traffic volumes and incorporating the above background development traffic volumes. The resulting 2027 and 2037 No-Build weekday morning, weekday evening, and Saturday midday peak-month peak-hour traffic volumes are graphically depicted on Figure 4 and Figure 5, respectively.

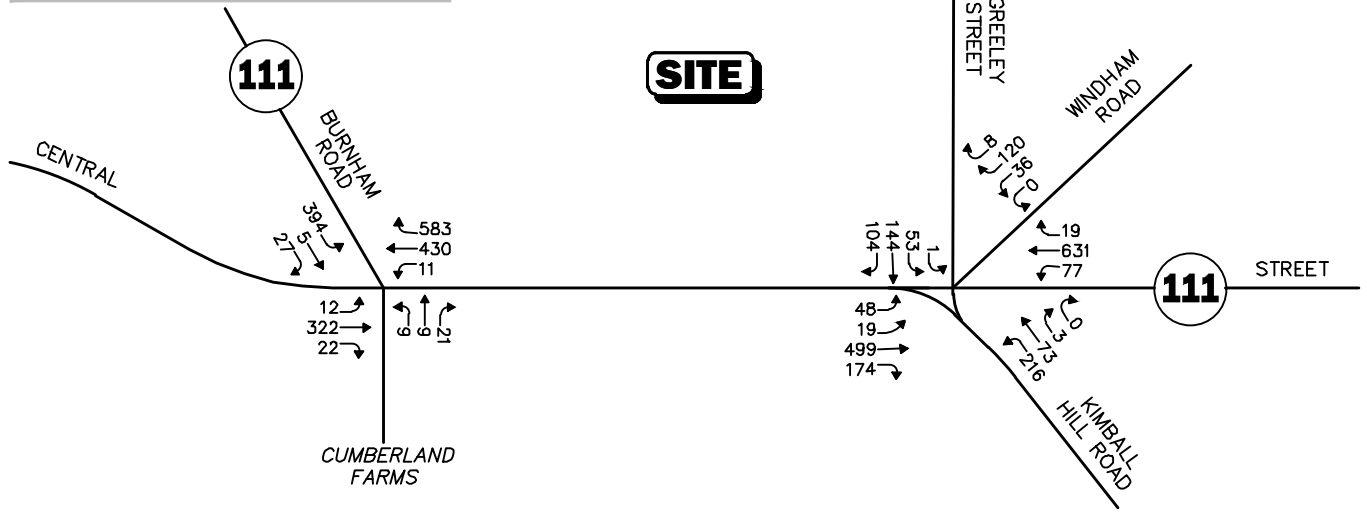
No-Build with Burger King Traffic Volumes

Separate 2027 and 2037 No-Build peak-month peak-hour traffic-volume networks were developed and include estimates of trips expected to be generated by the former Burger King restaurant. This was conducted to provide a basis of comparison between the former use and the proposed use. Trip-generation statistics published by the ITE for a land use similar to that of the former restaurant were utilized. ITE Land Use Code (LUC) 934, *Fast-Food Restaurant with Drive-Through Window*, was used to develop the expected traffic characteristics as if the existing site were reoccupied by a similar use. Trip-generation calculations were performed for a typical weekday and Saturday, as well as the weekday morning, weekday evening, and Saturday midday peak hours, the critical time periods for traffic activity.

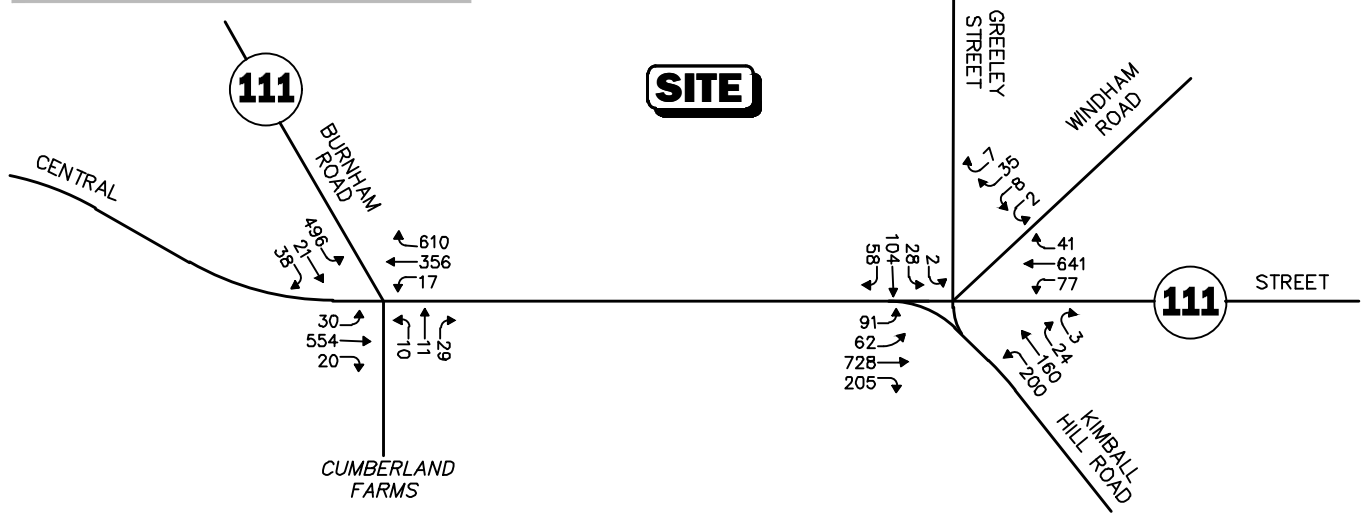
Pass-By Trips

Not all trips expected to be generated by the former Burger King would be new trips to the roadway network. A significant portion of these trips would have consisted of pass-by trips, or vehicles already traveling along NH Route 111 for other purposes that would patronize the Burger King in conjunction with their trip and then continue to their original destination. These are not new trips to the roadway network due to the Project. In order to account for pass-by trips, pass-by trip rates published by the ITE were reviewed and are summarized in Table 3.

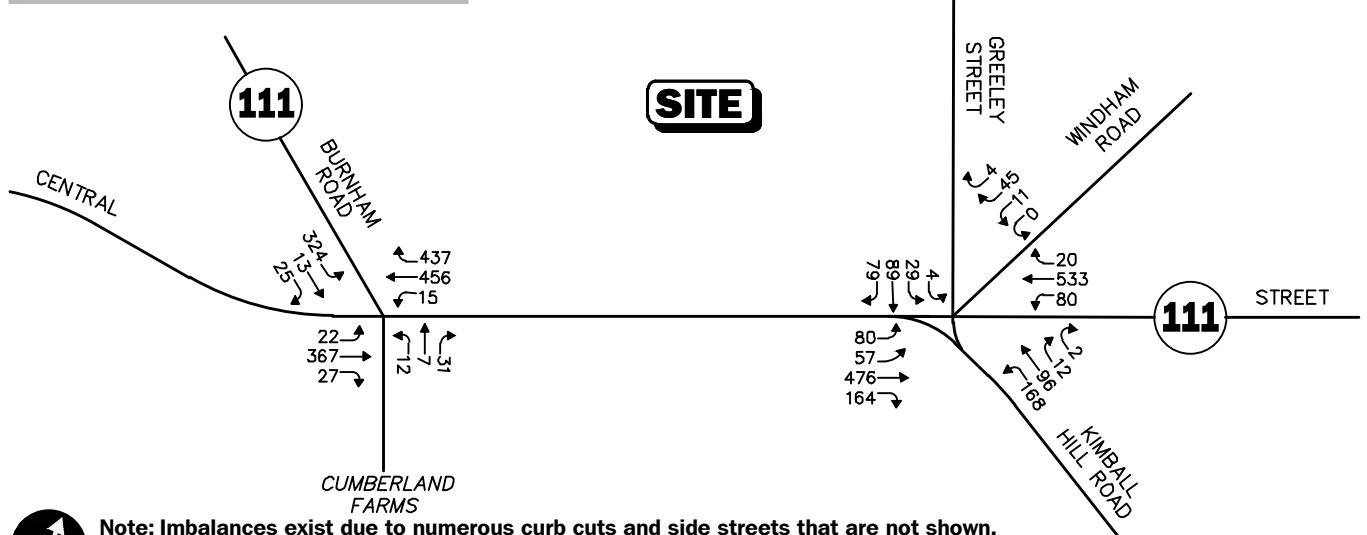
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

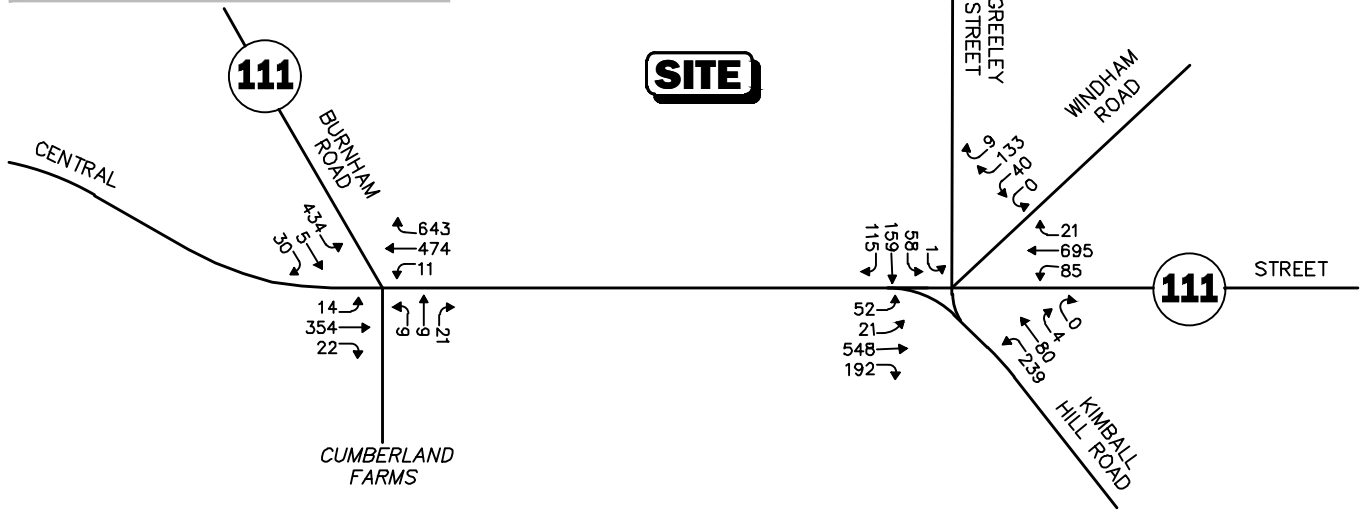
Figure 4

2027 No-Build Peak Month Peak-Hour Traffic Volumes

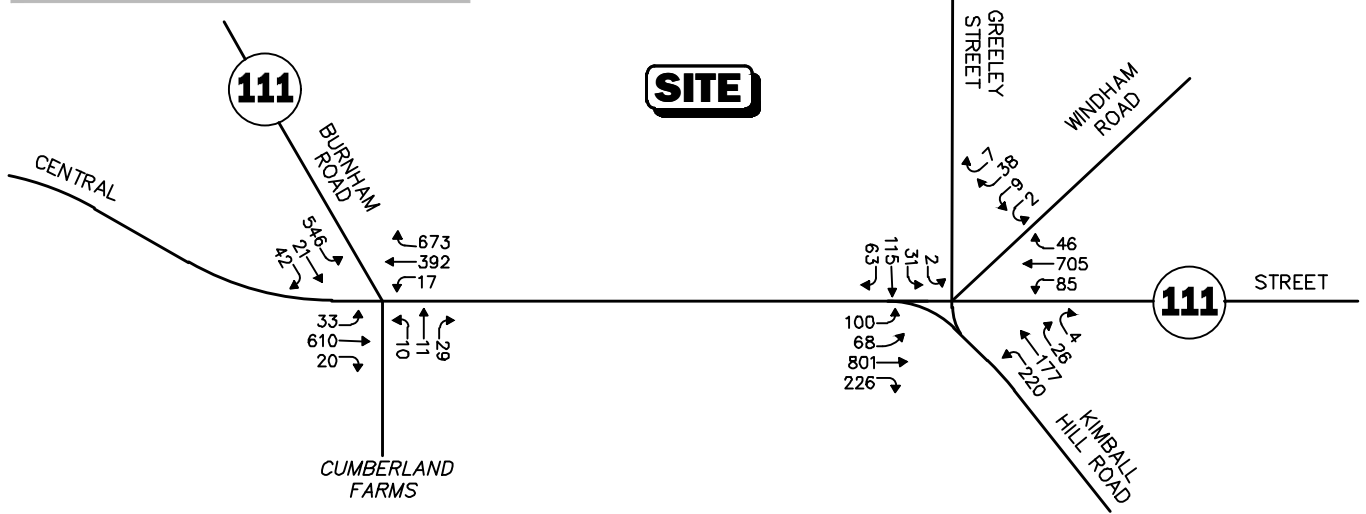


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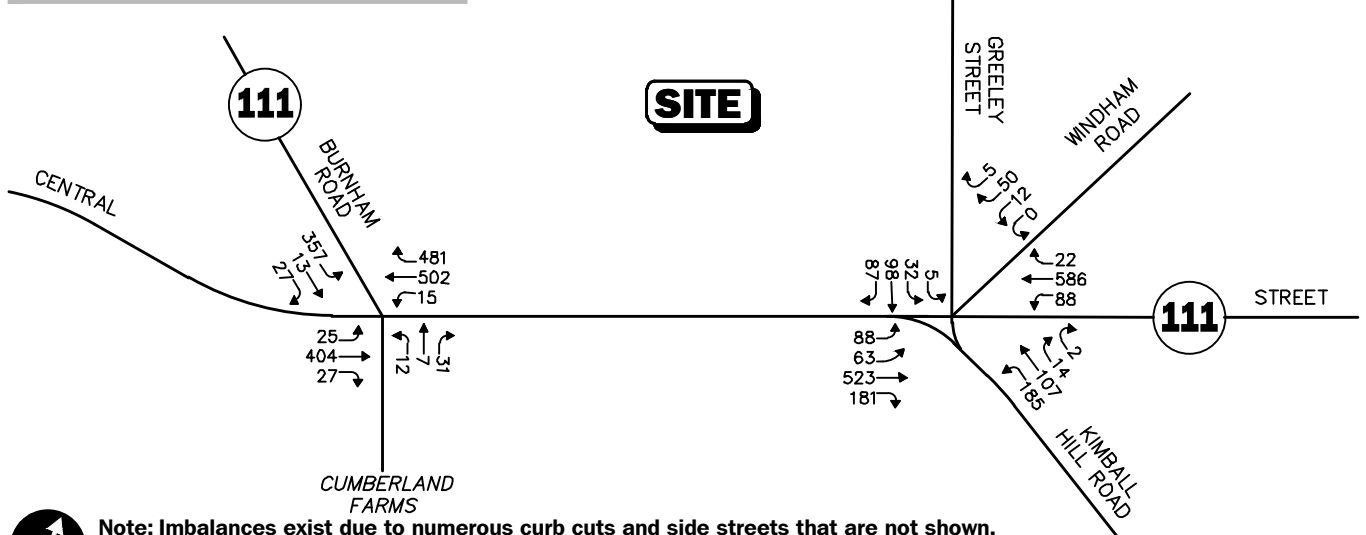
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 5

**2037 No-Build
Peak Month
Peak-Hour Traffic Volumes**



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Table 3
EXISTING SITE TRIP-GENERATION SUMMARY

Time Period/ Directional Distribution	Total Trips ^a	Pass-By Trips ^b	New Trips
<i>Weekday Daily:</i>			
Entering	1,111	555	556
<u>Exiting</u>	<u>1,111</u>	<u>555</u>	<u>556</u>
Total	2,222	1,110	1,112
<i>Weekday Morning Peak Hour:</i>			
Entering	84	41	43
<u>Exiting</u>	<u>81</u>	<u>41</u>	<u>40</u>
Total	165	82	83
<i>Weekday Evening Peak Hour:</i>			
Entering	82	43	39
<u>Exiting</u>	<u>75</u>	<u>43</u>	<u>32</u>
Total	157	86	71
<i>Saturday Daily:</i>			
Entering	1,295	647	648
<u>Exiting</u>	<u>1,295</u>	<u>647</u>	<u>648</u>
Total	2,590	1,294	1,296
<i>Saturday Midday Peak Hour:</i>			
Entering	129	63	66
<u>Exiting</u>	<u>123</u>	<u>63</u>	<u>60</u>
Total	252	126	126

^aBased on ITE LUC 934, *Fast-Food Restaurant with Drive-Through Window*; 4,958 sf.

^bBased on pass-by rate of 0.50 daily, 0.50 weekday morning peak hour, 0.55 weekday evening peak hour, 0.50 Saturday daily, and 0.50 Saturday midday peak hour.

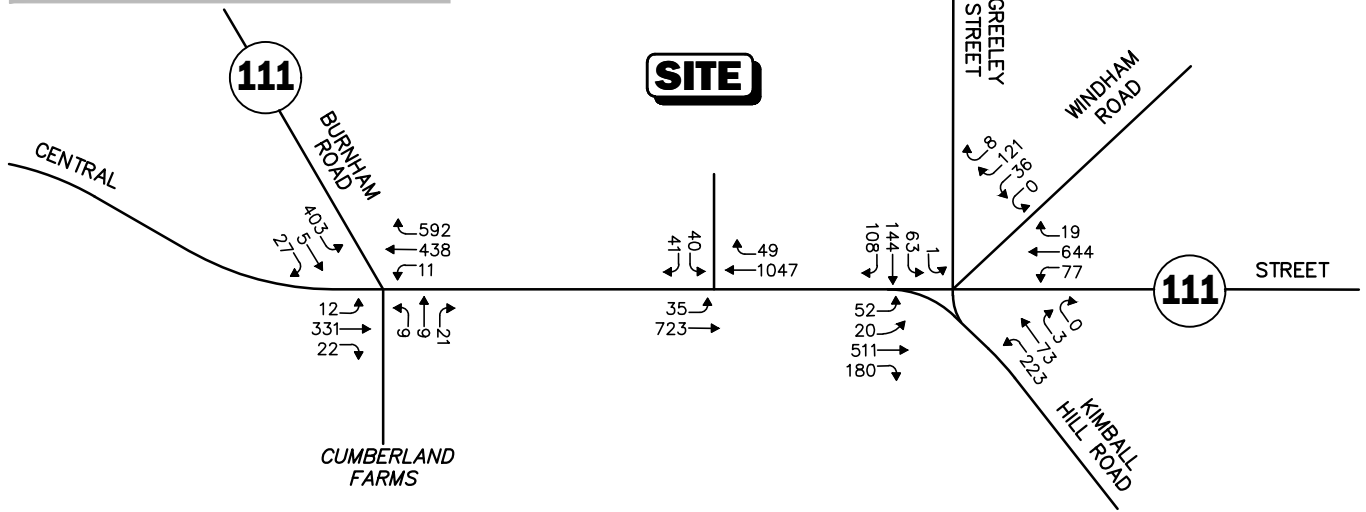
As shown in Table 3, the existing site would have been expected to generate 1,112 new vehicle trips on an average weekday (two-way, 24-hour volume), with 83 new vehicle trips (43 entering and 40 exiting) during the weekday morning peak hour and 71 new vehicle trips (39 entering and 32 exiting) during the weekday evening peak hour. On Saturday, the Project is expected to generate 1,296 new vehicle trips, with 126 new vehicle trips (66 entering and 60 exiting) during the Saturday midday peak hour.

The peak-hour traffic volumes expected to be generated by the Burger King were assigned to the study area roadway network as shown on the figures provided in the appendix. The resulting 2027 and 2037 No-Build with Burger King weekday morning, weekday evening, and Saturday midday peak-month peak-hour traffic volumes are graphically depicted on Figure 6 and Figure 7, respectively.

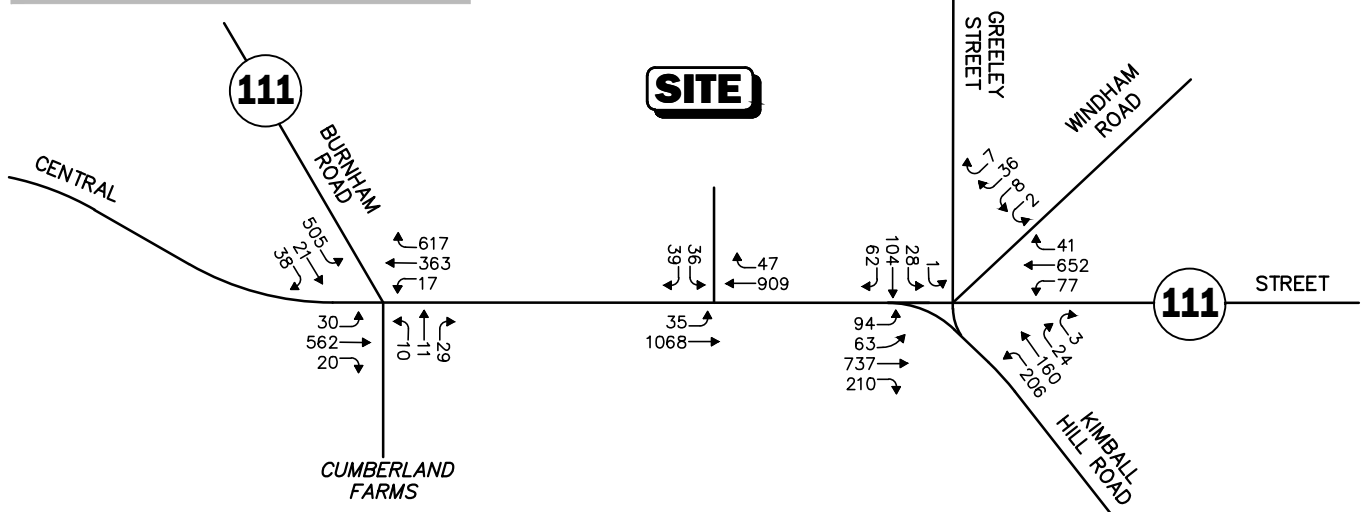
Project-Generated Traffic

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published by the ITE for similar land uses as those proposed were used. ITE LUC 947, *Self-Service Car Wash*, and LUC 948, *Automated Car Wash*, were used to develop the anticipated traffic characteristics of the Project. Trip-generation calculations were performed for a typical weekday and Saturday, as well as the weekday morning, weekday evening, and Saturday midday peak hours, the critical time periods for Project-related traffic activity.

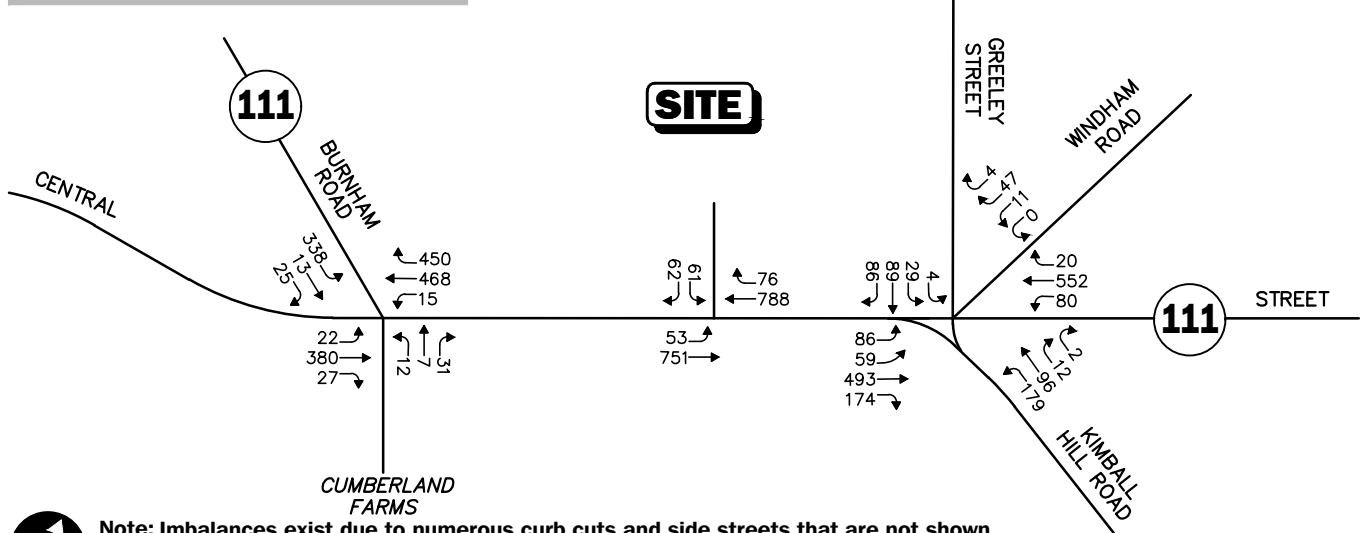
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

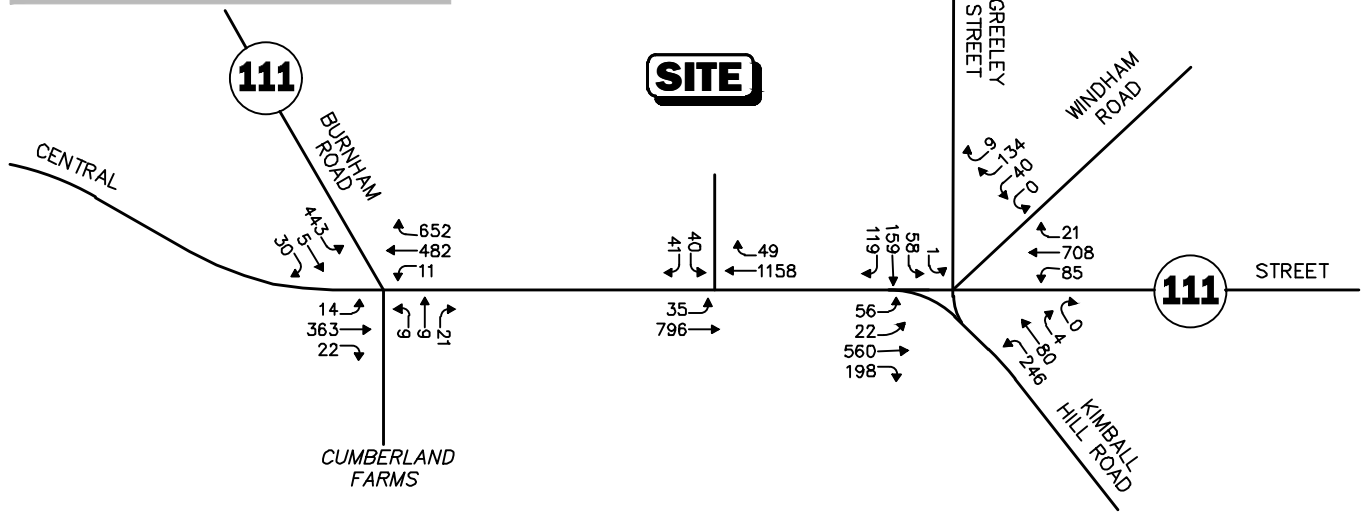
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Figure 6

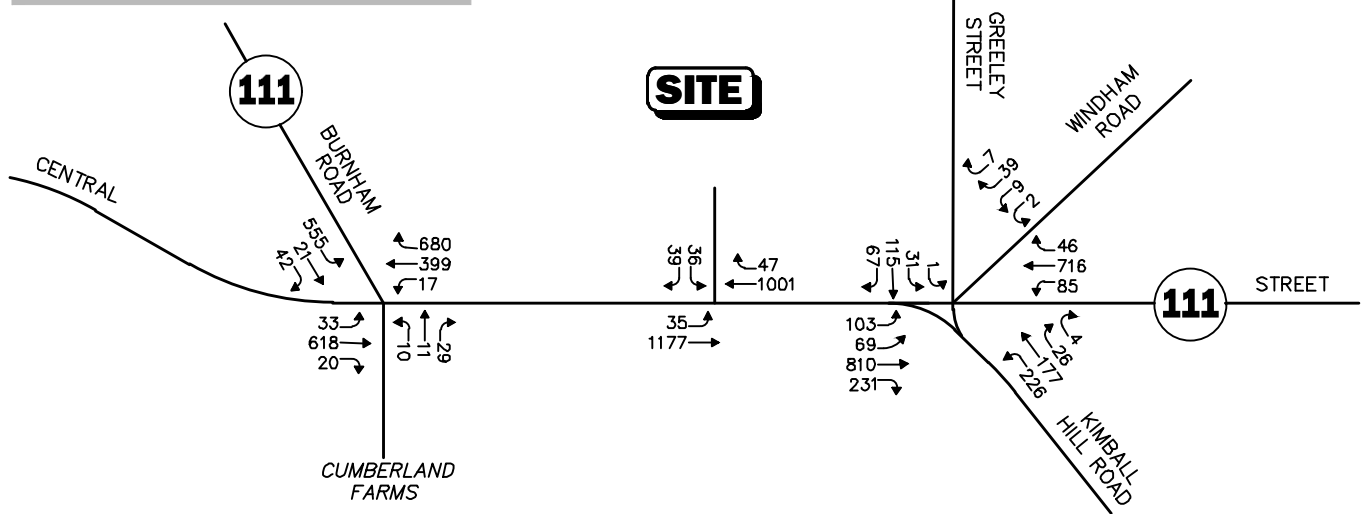
2027 No-Build with Burger King Peak Month Peak-Hour Traffic Volumes



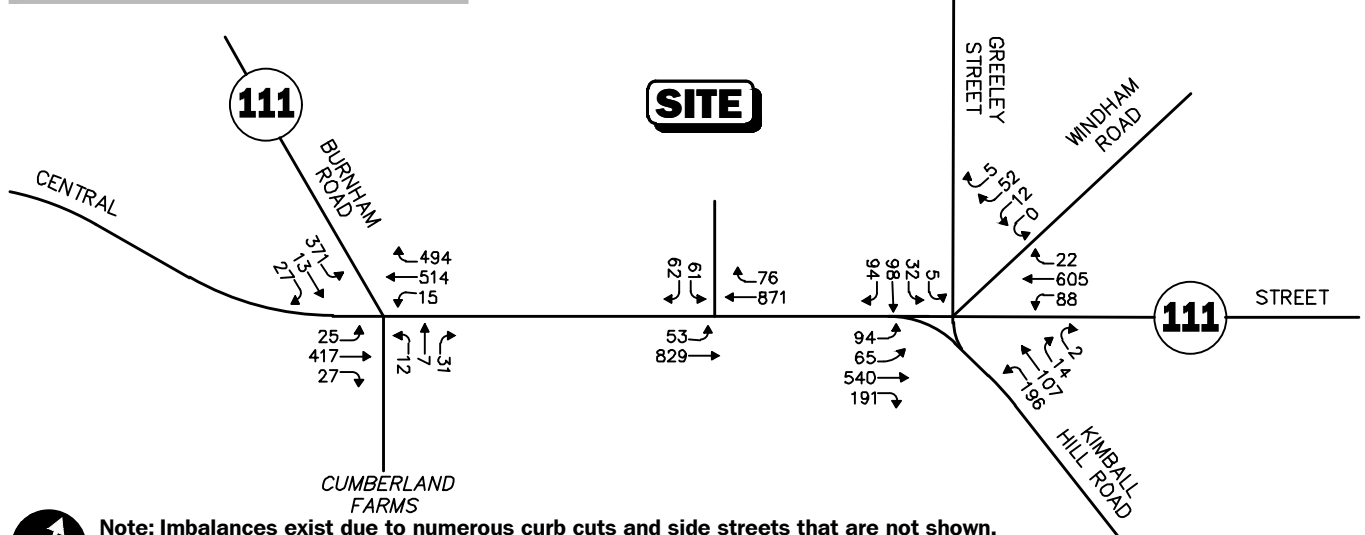
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 7

2037 No-Build with Burger King Peak Month Peak-Hour Traffic Volumes



Pass-By Trips

With regard to pass-by trips for car washes, a range of 25 to 40 percent for most retail/service uses is typical during peak hours. VAI would note that pass-by behavior applies throughout the day as well; therefore, a rate of 25 percent was applied to the trip generation for all time periods. The results are summarized in Table 4.

**Table 4
PROJECT TRIP-GENERATION SUMMARY**

<u>Time Period/ Directional Distribution</u>	<u>Self-Service Trips^a (A)</u>	<u>Automated Trips^b (B)</u>	<u>Total Trips (C=A+B)</u>	<u>Pass-By Trips^c (D)</u>	<u>New Trips (E=C-D)</u>
<i>Weekday Daily:</i>					
Entering	49	444	493	123	370
<u>Exiting</u>	<u>49</u>	<u>444</u>	<u>493</u>	<u>123</u>	<u>370</u>
Total	98	888	986	246	740
<i>Weekday Morning Peak Hour:</i>					
Entering	3	29	32	7	25
<u>Exiting</u>	<u>3</u>	<u>23</u>	<u>26</u>	<u>7</u>	<u>19</u>
Total	6	52	58	14	44
<i>Weekday Evening Peak Hour:</i>					
Entering	5	42	47	12	35
<u>Exiting</u>	<u>4</u>	<u>43</u>	<u>47</u>	<u>12</u>	<u>35</u>
Total	9	85	94	24	70
<i>Saturday Daily:</i>					
Entering	51	449	500	125	375
<u>Exiting</u>	<u>51</u>	<u>449</u>	<u>500</u>	<u>125</u>	<u>375</u>
Total	102	898	1,000	250	750
<i>Saturday Midday Peak Hour:</i>					
Entering	6	56	62	16	46
<u>Exiting</u>	<u>7</u>	<u>56</u>	<u>63</u>	<u>16</u>	<u>47</u>
Total	13	112	125	32	93

^aBased on ITE LUC 947, *Self-Service Car Wash*; 2 wash stalls.

^bBased on ITE LUC 948, *Automated Car Wash*, 3,500 sf.

^cBased on pass-by rate of 0.25 for daily and peak hour time periods.

As shown in Table 4, the Project is expected to generate 740 new vehicle trips on an average weekday (two-way, 24-hour volume), with 44 new vehicle trips (25 entering and 19 exiting) during the weekday morning peak hour and 70 vehicle trips (35 entering and 35 exiting) during the weekday evening peak hour. On Saturday, the Project is expected to generate 750 vehicle trips, with 93 vehicle trips (46 entering and 47 exiting) during the Saturday midday peak hour.

Trip Distribution and Assignment

The Project trip distribution was based on a review of existing travel patterns. The trip distribution for the Project is summarized in Table 5 and graphically depicted on Figure 8. The weekday morning, weekday evening, and Saturday midday peak-hour traffic volumes expected to be generated by the Project were assigned on the study area roadway network as shown on Figure 9.

**Table 5
TRIP-DISTRIBUTION SUMMARY**

<u>Roadway</u>	<u>Direction (To/From)</u>	<u>Percent (To/From)</u>
NH Route 111	North	22
Greeley Street	North	10
Kimball Hill Road	South	16
NH Route 111	East	29
Central Street	West	20
Windham Road	Northeast	<u>3</u>
TOTAL		100

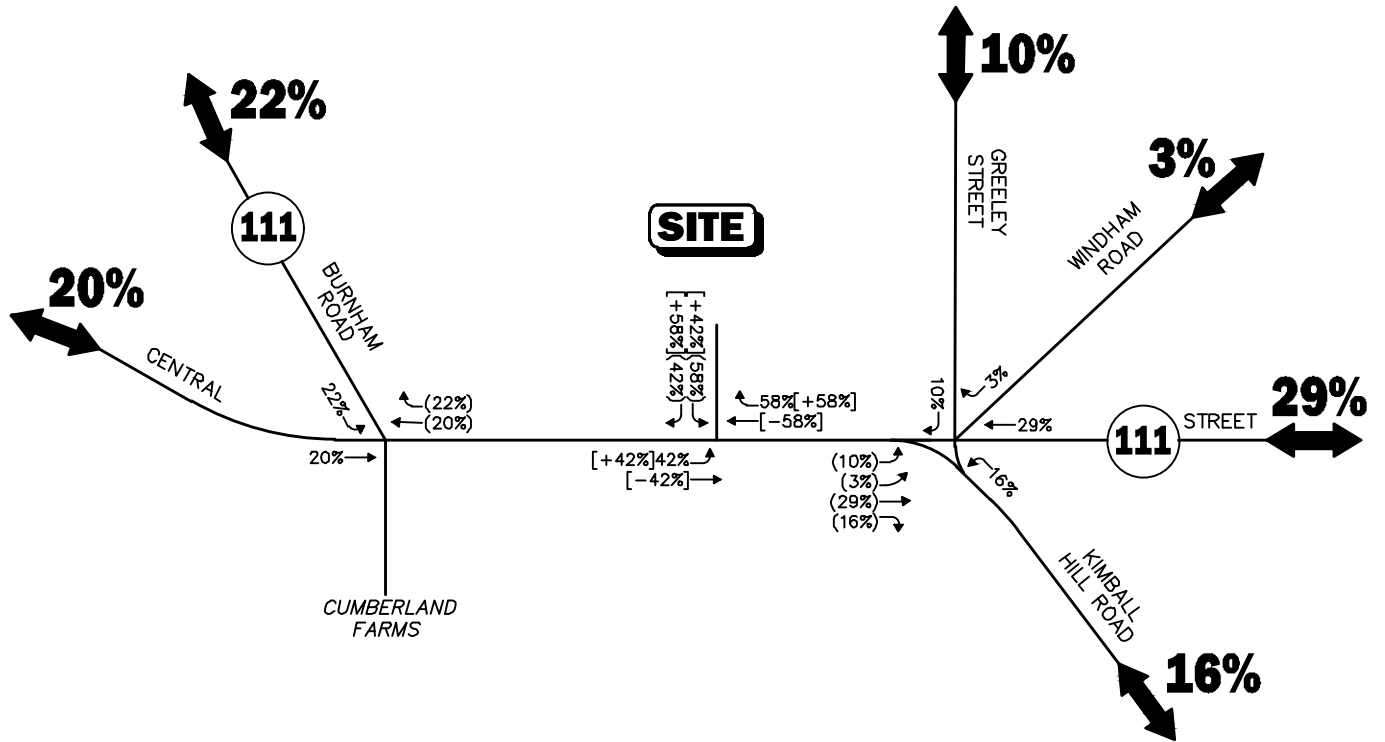
Future Traffic Volumes – Build Condition

The 2027 Opening-Year Build condition networks consist of the 2027 Opening-Year No-Build (without the Burger King) traffic volumes, with the anticipated Project-generated traffic added. The 2027 Opening-Year Build weekday morning, weekday evening, and Saturday midday peak-month peak-hour traffic-volume networks are graphically depicted on Figure 10.

The 2037 Design-Year Build condition networks consist of the 2037 Design-Year No-Build (without the Burger King) traffic volumes, with the anticipated Project-generated traffic added. The 2037 Design-Year Build weekday morning, weekday evening, and Saturday midday peak-hour traffic-volume networks are graphically depicted on Figure 11.

A summary of peak-month peak-hour projected traffic-volume increases external to the study area that is the subject of this assessment is shown in Table 6. These volumes are based on the expected increases from the Project.

Legend:
 XX Entering Trips
 (XX) Exiting Trips
 [XX] Pass-by Trips



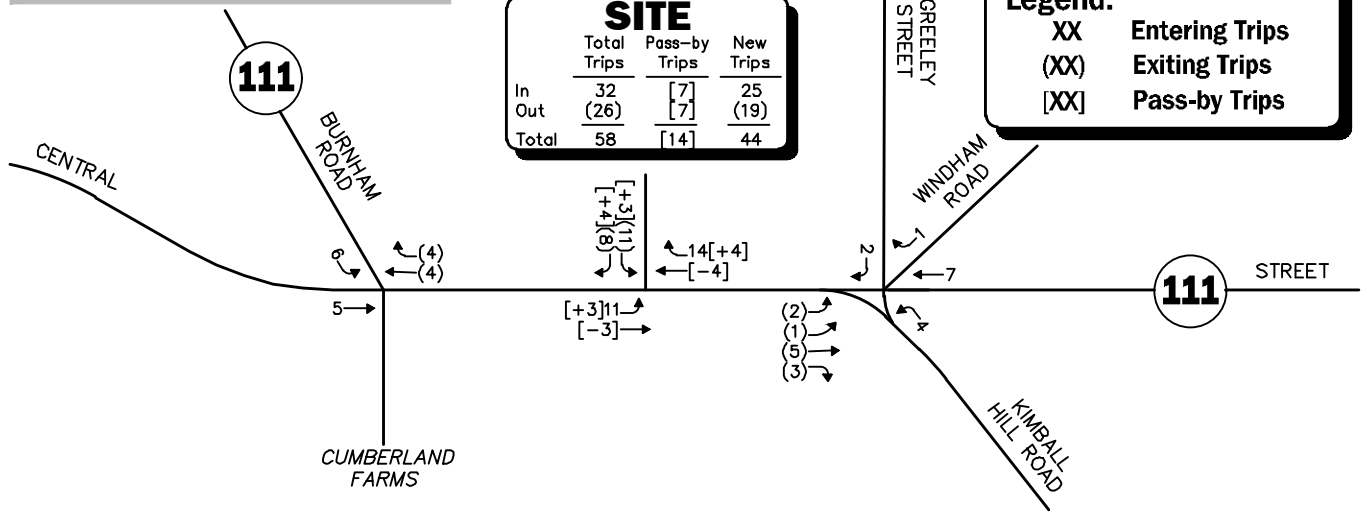
Not To Scale

Figure 8

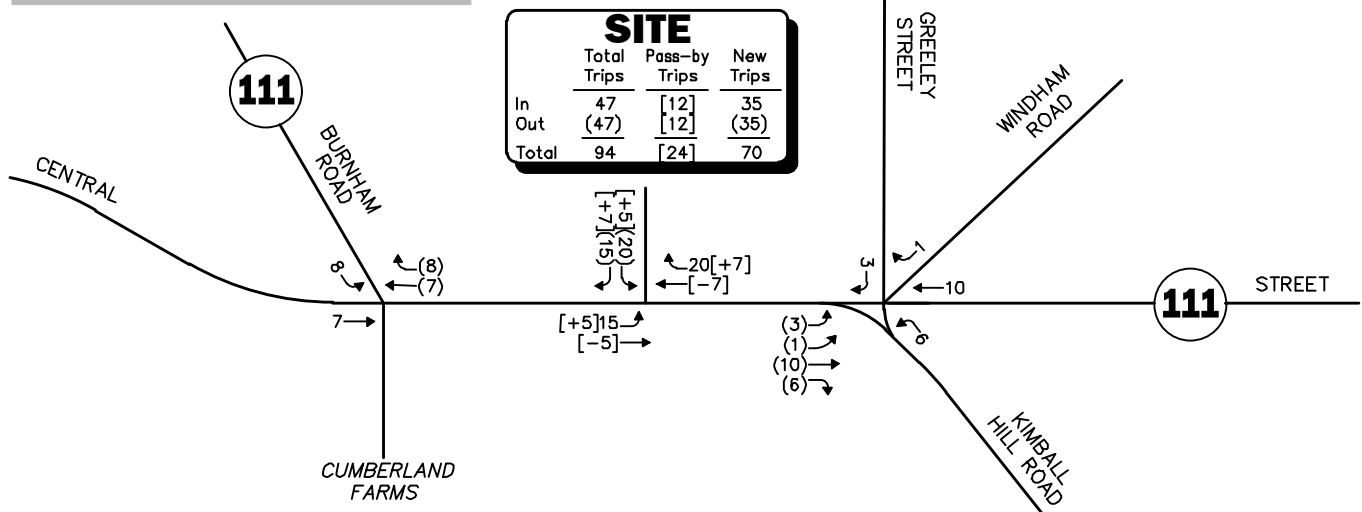
Trip Distribution Map



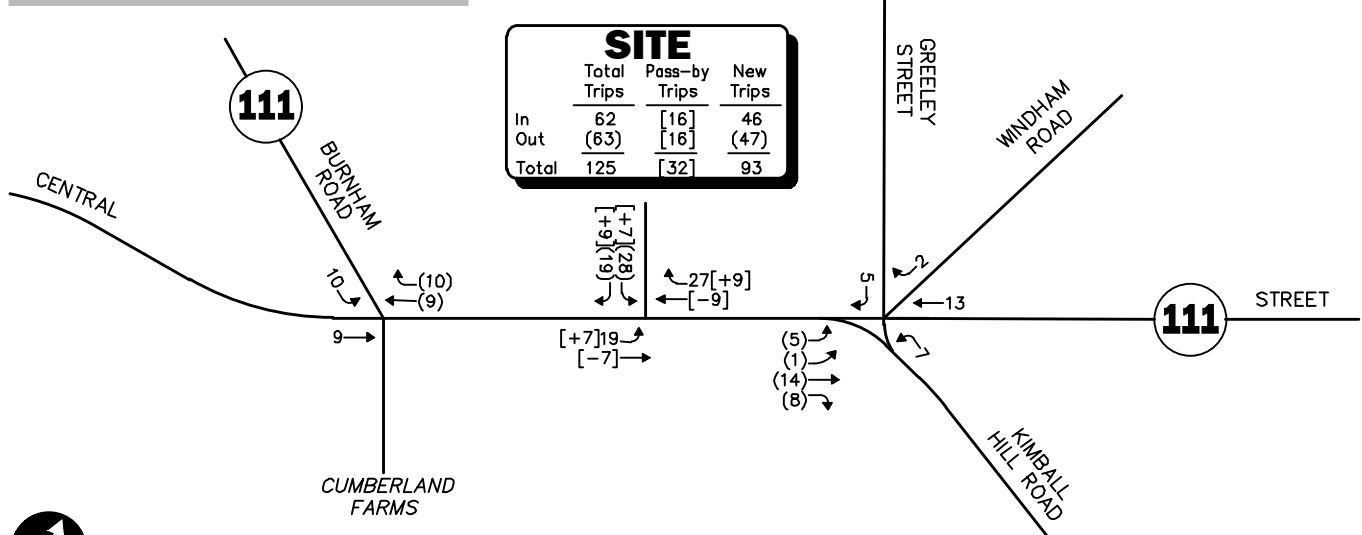
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Not To Scale

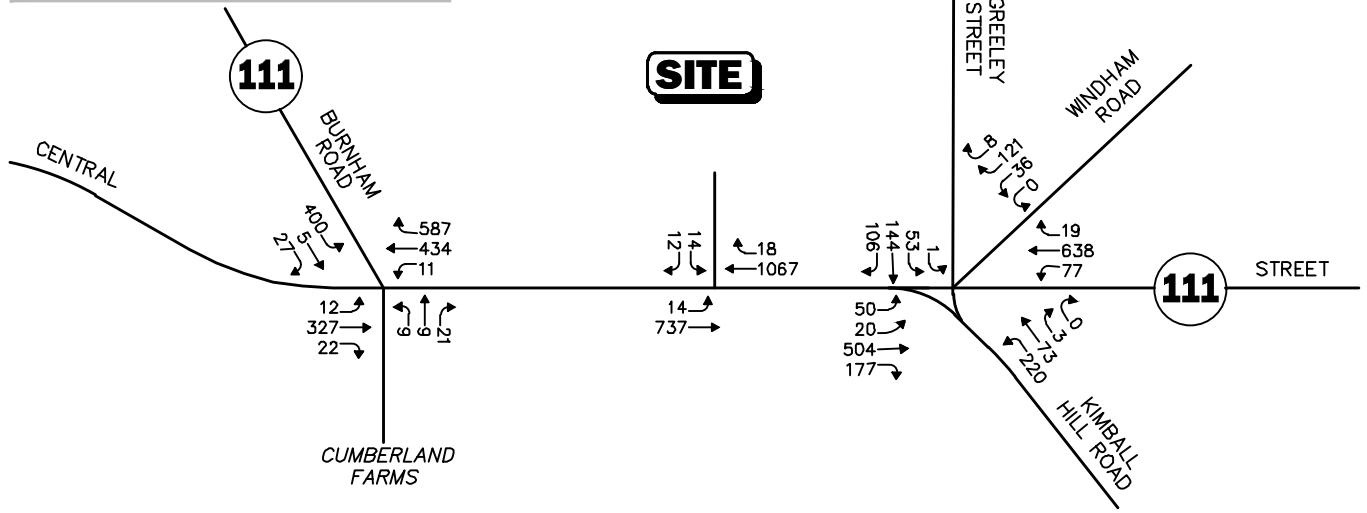
Figure 9



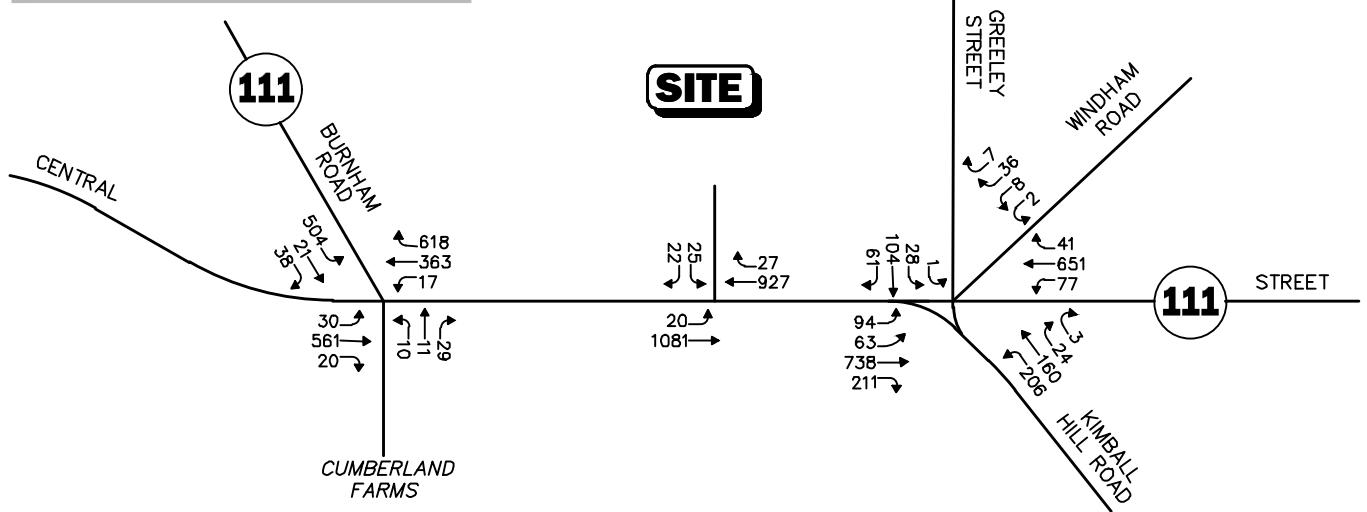
Site-Generated Peak Month Peak-Hour Traffic Volumes

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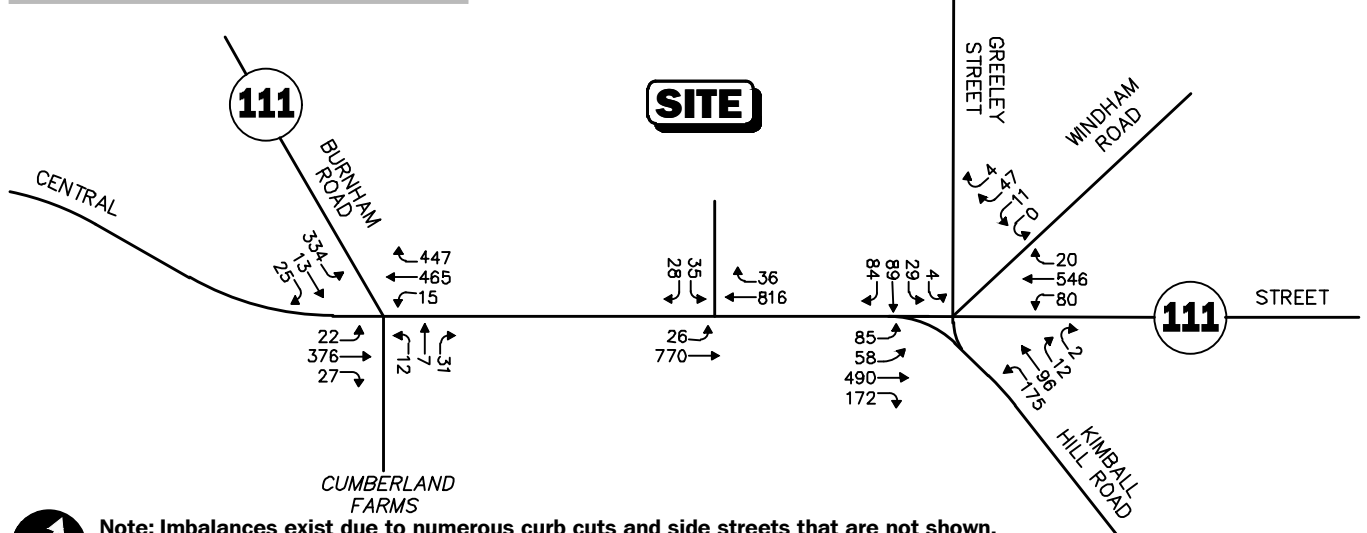
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

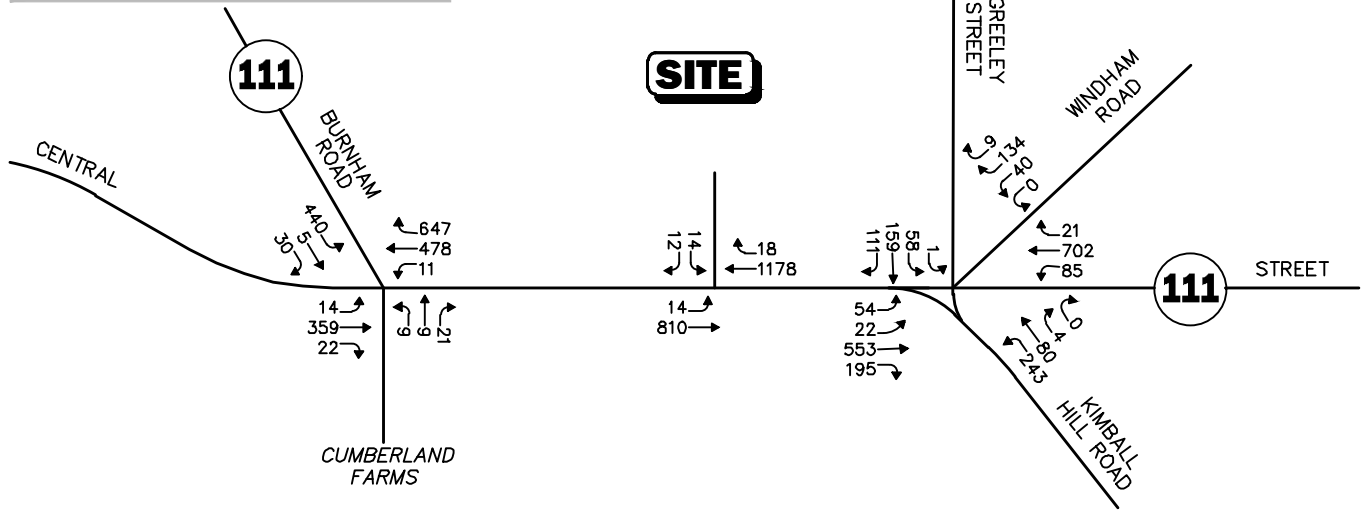
Not To Scale

Figure 10

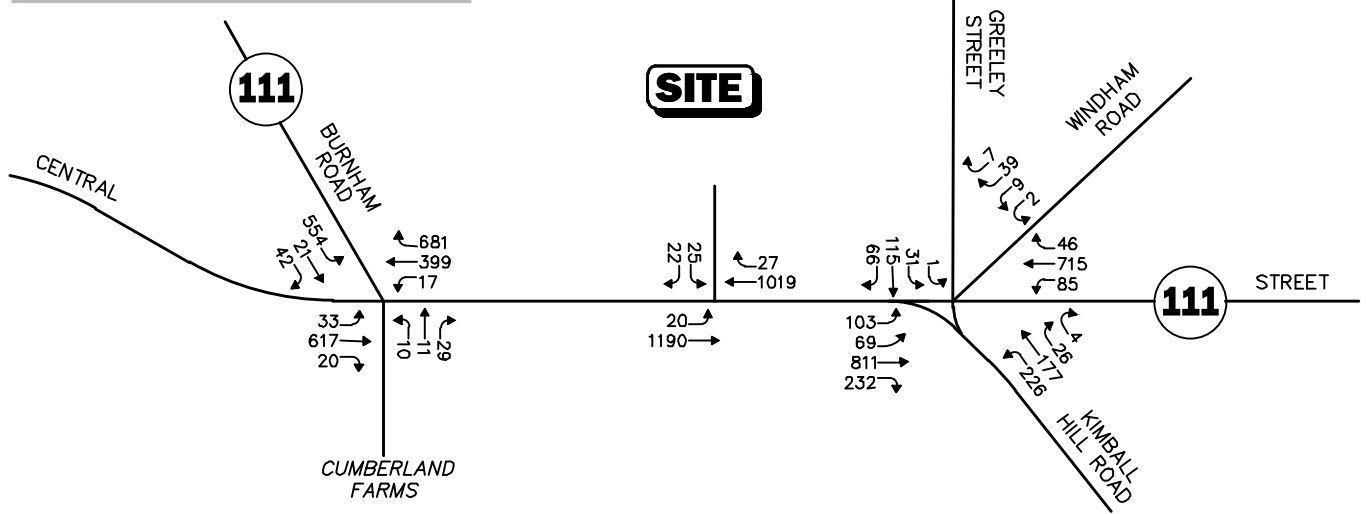
**2027 Build
Peak Month
Peak-Hour Traffic Volumes**



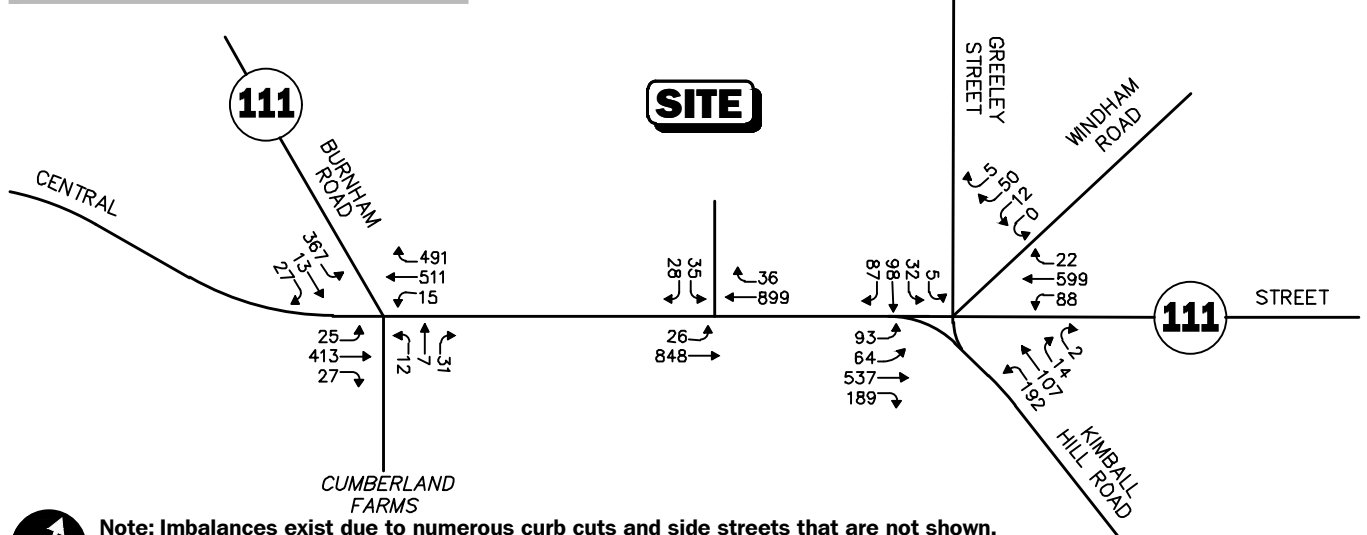
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 11

**2037 Build
Peak Month
Peak-Hour Traffic Volumes**



Table 6
PEAK-MONTH PEAK-HOUR TRAFFIC-VOLUME INCREASES

Location/Peak Hour	2027 No-Build	2027 Build	2037 No-Build	2037 Build	Traffic- Volume Increase Over No-Build	Percent Increase Over No-Build
<i>NH Route 111, north of Central Street:</i>						
Weekday Morning	1,030	1,040	1,135	1,145	10	1.0/0.9
Weekday Evening	1,206	1,222	1,326	1,342	16	1.3/1.2
Saturday MIDDAY	828	848	910	930	20	2.4/2.2
<i>Greeley Street, north of NH Route 111:</i>						
Weekday Morning	450	454	495	499	4	0.9/0.8
Weekday Evening	490	496	540	546	6	1.2/1.1
Saturday MIDDAY	401	411	444	454	10	2.5/2.3
<i>Kimball Hill Road, south of NH Route 111:</i>						
Weekday Morning	723	730	799	806	7	1.0/0.9
Weekday Evening	781	793	862	874	12	1.5/1.4
Saturday MIDDAY	622	637	687	702	15	2.4/2.2
<i>NH Route 111, east of Kimball Hill Road:</i>						
Weekday Morning	1,279	1,291	1,407	1,419	12	0.9/0.9
Weekday Evening	1,520	1,540	1,674	1,694	20	1.3/1.2
Saturday MIDDAY	1,140	1,167	1,253	1,280	27	2.4/2.2
<i>Central Street, west of NH Route 111:</i>						
Weekday Morning	822	831	903	912	9	1.1/1.0
Weekday Evening	1,008	1,022	1,107	1,121	14	1.4/1.3
Saturday MIDDAY	909	927	997	1,015	18	2.0/1.8
<i>Windham Road, northwest of NH Route 111:</i>						
Weekday Morning	187	189	208	210	2	1.1/1.0
Weekday Evening	139	141	151	153	2	1.4/1.3
Saturday MIDDAY	133	136	149	152	3	2.3/2.0

As shown in Table 6, Project-related traffic volume increases external to the study area relative to 2027 and 2037 No-Build conditions are anticipated to range from 2 to 27 vehicles or 0.8 to 2.5 percent during the peak periods.

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the Project site driveway intersection with NH Route 111 in accordance with NHDOT and the American Association of State Highway and Transportation Officials (AASHTO)³ recommendations. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance recommended to be provided by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD is the sight distance recommended to be provided to a driver entering or crossing an intersecting

³A Policy on Geometric Design of Highway and Streets, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

roadway in order to be perceived by an oncoming vehicle and not require the oncoming vehicle to reduce their speed to less than 70 percent of their initial speed. For this evaluation, the required 400-foot “all-season safe sight distance” required by the NHDOT Driveway Permit Policy⁴ was also included in this study. Table 7 summarizes the sight distances available at the proposed driveway location.

Table 7
SIGHT DISTANCE MEASUREMENTS

Intersection/Sight Distance Measurement	Recommended Minimum Distances (Feet)			Measured Distance
	AASHTO ^{a,b}		NHDOT All-Season Safe Sight Distance ^c	
	Minimum Recommended	Desirable		
<i>NH Route 111 at the Proposed Site Driveway</i>				
<i>Stopping Sight Distance:</i>				
NH Route 111 approaching from the east	280	--	--	500+
NH Route 111 approaching from the west	270	--	--	500+
<i>Intersection Sight Distance^d:</i>				
Looking to the east from the driveway	280	450	400	500+
Looking to the west from the driveway	270	440	400	500+

^aRecommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018.

^bBased on 85th percentile speed of 37 mph eastbound and 38 mph westbound.

^cAs defined in the NHDOT Driveway Permit Policy (Page 16).

As shown in Table 7, the available lines of sight at the proposed site driveway were found to exceed the AASHTO recommended minimum values for SSD, the desirable values for ISD, and the NHDOT’s requirements for all-season safe sight distance.

TRAFFIC OPERATIONS ANALYSIS

Level-of-service analyses were conducted for 2026 Existing, 2027 Opening-Year No-Build, 2027 Opening-Year No-Build with Burger King, 2027 Opening-Year Build, 2037 Design-Year No-Build, 2037 Design-Year No-Build with Burger King, and 2037 Design-Year Build conditions for the study area intersections. The results of the intersection capacity analysis within the study area are described below, with a tabular summary provided in Tables 8 and 9.

⁴NHDOT Policy for Permitting Driveways on State Highways, Item 8.a, Driveway Limitation, p. 16.

Table 8
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Signalized Intersection/ Peak Hour/Movement	2026 Existing				2027 No-Build				2027 No-Build with Burger King				2027 Build				2037 No-Build				2037 No-Build with Burger King				2037 Build			
	V/C ^a	Delay ^b	LOS ^c	Queue ^d Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th	V/C	Delay	LOS	Queue Avg/95 th
NH Route 111 at Central Street and Cumberland Farms Driveway																												
<i>Weekday Morning:</i>																												
NH Route 111 EB LT	0.29	58.6	E	9/37	0.28	59.8	E	9/37	0.29	61.2	E	9/37	0.28	58.0	E	9/38	0.33	64.1	E	11/41	0.33	64.2	E	11/41	0.33	64.4	E	11/41
NH Route 111 EB TH/RT	0.51	26.5	C	188/354	0.52	27.4	C	207/372	0.54	28.2	C	223/385	0.54	27.9	C	206/378	0.58	30.0	C	244/414	0.59	30.5	C	252/426	0.58	30.3	C	248/420
Central Street WB LT	0.29	58.6	E	8/34	0.29	60.2	E	9/34	0.29	61.1	E	9/34	0.26	57.6	E	8/34	0.27	61.9	E	8/35	0.27	62.6	E	9/35	0.27	62.3	E	9/35
Central Street WB TH	0.73	33.2	C	285/472	0.75	34.9	C	314/497	0.77	36.1	D	335/509	0.73	33.7	C	283/511	0.78	38.1	D	344/574	0.79	39.1	D	352/587	0.79	38.6	D	347/580
Central Street WB RT	0.45	6.6	A	2/10	0.48	6.7	A	5/13	0.49	6.7	A	6/15	0.44	6.5	A	1/15	0.49	6.7	A	7/23	0.50	6.8	A	8/25	0.50	6.8	A	8/24
NH Route 111 SB LT/TH	0.17	47.1	D	15/51	0.17	48.8	D	15/51	0.17	49.9	D	16/51	0.14	47.0	D	12/59	0.15	50.8	D	13/58	0.15	51.6	D	14/58	0.15	51.2	D	13/58
NH Route 111 SB RT	0.70	33.8	C	232/521	0.72	35.5	D	252/557	0.73	36.1	D	263/590	0.72	34.0	C	241/576	0.76	37.4	D	288/667	0.77	38.5	D	300/690	0.77	38.0	D	295/682
Cumberland Farms Dwy NB LT/TH/RT	0.02	22.1	C	0/0	0.02	22.6	C	0/0	0.02	22.7	C	0/0	0.02	21.7	C	0/0	0.02	22.6	C	0/0	0.02	22.8	C	0/0	0.02	22.6	C	0/0
Overall	--	24.0	C	--	--	25.0	C	--	--	25.6	C	--	--	24.5	C	--	--	26.8	C	--	--	27.4	C	--	--	27.1	C	--
<i>Weekday Evening:</i>																												
NH Route 111 EB LT	0.42	64.1	E	24/70	0.43	66.5	E	25/70	0.43	67.0	E	25/70	0.43	66.9	E	25/70	0.49	70.7	E	30/76	0.36	63.8	E	30/76	0.36	63.8	E	30/76
NH Route 111 EB TH/RT	0.82	41.0	D	409/667	0.86	46.6	D	436/706	0.87	47.0	D	444/719	0.87	47.0	D	442/717	0.90	49.8	D	502/854	0.90	50.3	D	513/872	0.90	50.2	D	511/872
Central Street WB LT	0.39	69.2	E	13/45	0.39	71.3	E	13/45	0.39	71.5	E	13/45	0.39	71.4	E	13/45	0.39	73.3	E	14/45	0.39	73.5	E	15/45	0.39	73.5	E	15/45
Central Street WB TH	0.52	30.9	C	240/337	0.55	33.1	C	255/356	0.56	33.2	C	261/363	0.56	33.2	C	260/363	0.58	32.8	C	288/399	0.61	34.7	C	295/408	0.61	34.7	C	295/408
Central Street WB RT	0.40	6.4	A	0/13	0.41	6.5	A	0/13	0.42	6.5	A	0/13	0.42	6.5	A	0/13	0.46	6.7	A	0/13	0.46	7.4	A	0/13	0.46	7.4	A	0/13
NH Route 111 SB LT/TH	0.20	54.5	D	18/63	0.20	56.6	E	18/63	0.20	56.7	E	18/63	0.19	56.5	E	17/68	0.19	58.5	E	18/68	0.19	58.8	E	18/68	0.19	58.8	E	18/68
NH Route 111 SB RT	0.81	42.3	D	346/751	0.83	43.7	D	382/802	0.84	45.6	D	397/824	0.84	45.4	D	394/822	0.94	62.0	E	496/917	0.96	67.0	E	517/939	0.96	66.7	E	514/937
Cumberland Farms Dwy NB LT/TH/RT	0.03	23.6	C	0/0	0.03	23.7	C	0/0	0.03	23.9	C	0/0	0.03	23.8	C	0/0	0.03	25.7	C	0/0	0.03	26.0	C	0/0	0.03	26.0	C	0/0
Overall	--	31.0	C	--	--	33.3	C	--	--	33.9	C	--	--	33.8	C	--	--	38.5	D	--	--	40.3	D	--	--	40.1	D	--
<i>Saturday Midday:</i>																												
NH Route 111 EB LT	0.29	50.1	D	16/53	0.30	52.6	D	17/54	0.31	54.4	D	18/54	0.30	53.0	D	17/54	0.36	57.5	E	22/61	0.36	58.9	E	22/61	0.36	58.6	E	22/61
NH Route 111 EB TH/RT	0.56	24.8	C	192/401	0.57	25.6	C	215/418	0.59	26.6	C	233/435	0.56	25.6	C	216/432	0.59	26.7	C	255/467	0.60	27.6	C	275/485	0.60	27.4	C	269/479
Central Street WB LT	0.33	55.7	E	11/40	0.33	57.6	E	11/40	0.33	59.5	E	12/41	0.33	58.2	E	11/41	0.35	62.4	E	12/41	0.34	63.1	E	13/41	0.34	62.8	E	13/41
Central Street WB TH	0.68	29.4	C	276/471	0.69	30.5	C	307/495	0.71	31.6	C	328/513	0.70	30.8	C	317/508	0.74	33.0	C	377/561	0.75	34.1	C	402/579	0.75	33.8	D	396/576
Central Street WB RT	0.29	6.4	A	0/12	0.31	6.3	A	1/13	0.32	6.2	A	2/15	0.32	6.3	A	2/14	0.35	6.3	A	6/19	0.36	6.3	A	7/21	0.36	6.3	A	6/20
NH Route 111 SB LT/TH	0.14	43.1	D	13/62	0.15	45.2	D	14/63	0.15	46.8	D	15/63	0.15	45.8	D	14/64	0.16	48.8	D	16/65	0.16	50.1	D	16/65	0.16	49.8	D	16/65
NH Route 111 SB RT	0.65	32.0	C	224/388	0.67	34.0	C	250/423	0.69	35.2	D	272/452	0.67	34.3	C	251/446	0.71	37.3	D	294/491	0.73	38.5	D	317/514	0.73	38.2	D	311/508
Cumberland Farms Dwy NB LT/TH/RT	0.02	22.7	C	0/0	0.02	23.4	C	0/0	0.02	23.6	C	0/0	0.02	23.7	C	0/0	0.02	24.7	C	0/0	0.02	25.0	C	0/0	0.02	24.9	C	0/0
Overall	--	24.1	C	--	--	25.0	C	--	--	25.8	C	--	--	25.1	C	--	--	26.6	C	--	--	27.4	C	--	--	27.2	C	--

See notes at the end of the table.

**Table 9
UN SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

Unsignalized Intersection/Peak Hour/Movement	2027 No-Build with Burger King				2027 Build				2037 No-Build with Burger King				2037 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
<i>NH Route 111 at Project Site Driveway</i>																
<i>Weekday Morning:</i>																
Project Site Driveway SB LT/RT	81	237.0	F	7	26	62.2	F	1	81	355.6	F	8	26	91.6	F	2
<i>Weekday Evening:</i>																
Project Site Driveway SB LT/RT	75	229.4	F	6	47	123.8	F	3	75	440.7	F	8	47	228.3	F	5
<i>Saturday Midday:</i>																
Project Site Driveway SB LT/RT	123	228.4	F	9	63	67.3	F	3	123	346.5	F	11	63	107.3	F	4

^aDemand in vehicles per hour.

^bAverage control delay per vehicle (in seconds).

^cLevel of service.

^dQueue length in vehicles.

SB = southbound; LT = left-turning movements; RT = right-turning movements.

Operations Summary

As shown in Tables 8 and 9, the intersection operations with the proposed car wash are generally improved from the operations with the former Burger King restaurant. This includes both off-site intersections as well as the intersection of the site driveway with NH Route 111. The site driveway is projected to have a worst-case maximum queue of 5 vehicles with the proposed car wash and a maximum queue of 11 vehicles with the former Burger King restaurant. As referenced previously, NH Route 111 in front of the site driveway has an 11-foot wide two-way left-turn lane, which will provide space for three to four vehicles turning left into the site to queue if needed.

RECOMMENDATIONS

The following recommendations are offered with respect to the design and operation of the Project site driveway:

- The driveway should be placed under STOP-sign (*Manual on Uniform Traffic Control Devices (MUTCD)*⁵ R1-1) control, with a painted STOP-bar included.
- All signs and other pavement markings to be installed within the Project site shall conform to the applicable standards of the current MUTCD.
- Signs and landscaping adjacent to the Project site driveway should be designed and maintained to remain below 24 inches above the driveway so as not to restrict lines of sight.
- Snow windrows within sight triangle areas of the Project site driveway should be promptly removed where such accumulations would impede sightlines.

CONCLUSIONS

VAI has prepared this TIS in order to identify traffic impacts associated with a proposed car wash to be located at 224 Central Street (NH Route 111) in Hudson, New Hampshire. We have the following conclusions:

- The Project is expected to generate approximately 986 vehicle trips on an average weekday (two-way, 24-hour volume), with 58 vehicle trips (32 entering and 26 exiting) during the weekday morning peak hour and 94 vehicle trips (47 entering and exiting) during the weekday evening peak hour. On Saturday, the existing site was expected to generate 1,000 vehicle trips, with 125 vehicle trips (62 entering and 63 exiting) during the Saturday midday peak hour.
- Traffic-volume increases related to the Project, external to the study, are anticipated to range from 2 to 27 vehicles or 0.8 to 2.5 percent, during peak periods.
- Lines of sight at the Project site driveway intersection with NH Route 111 were found to exceed the AASHTO recommended minimum values for SSD, the desirable values for ISD, and meet the NHDOT's requirements for all-season safe sight distance based on the measured 85th percentile vehicle speeds.
- The Project will generally not have a significant impact on motorist delays or vehicle queuing at

⁵*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

study area intersections compared to anticipated future conditions without the Project (No-Build conditions).

As documented in this study, Project-related traffic increases will generally result in fewer traffic volumes and lower traffic delays within the study area compared to the Burger King being reoccupied. In general, Project-related traffic can be adequately accommodated within the existing infrastructure with minimal impact on the traffic operations within the study area.

cc: File

APPENDIX

TRAFFIC COUNT DATA
SEASONAL ADJUSTMENT DATA
PUBLIC TRANSPORTATION DATA
VEHICLE SPEED DATA
GROWTH RATE DATA
BACKGROUND DEVELOPMENT FIGURES
BURGER KING TRIP GENERATION DATA AND FIGURE
TRIP GENERATION DATA
SIGNAL TIMING SHEETS
CAPACITY ANALYSIS METHODOLOGY
CAPACITY ANALYSIS

TRAFFIC COUNT DATA

National Data & Surveying Services Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/19/2026

Data - Total

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	1	1	2	0	82	2	2	0	4	54	3	0	3	72	114	0	340
7:15 AM	3	4	6	0	88	2	6	0	3	70	9	0	2	111	123	0	427
7:30 AM	2	0	4	0	92	1	11	0	3	79	2	0	3	125	137	0	459
7:45 AM	3	2	6	0	73	1	4	0	4	67	7	0	5	68	132	0	372
8:00 AM	1	3	5	0	88	1	3	0	1	61	4	0	1	68	114	0	350
8:15 AM	3	4	1	0	82	1	6	0	6	66	2	0	2	71	118	0	362
8:30 AM	0	1	4	0	69	5	5	0	3	67	2	0	4	82	118	0	360
8:45 AM	3	3	7	0	76	6	2	0	0	82	2	0	1	84	87	0	353
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	23.19%	26.09%	50.72%	0.00%	91.81%	2.68%	5.51%	0.00%	3.99%	90.85%	5.16%	0.00%	1.28%	41.40%	57.33%	0.00%	3023
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	9	9	21	0	341	5	24	0	11	277	22	0	11	372	506	0	1608
PEAK HR FACTOR :	0.750	0.563	0.875	0.000	0.927	0.625	0.545	0.000	0.688	0.877	0.611	0.000	0.550	0.744	0.923	0.000	0.876
			0.750				0.889				0.923				0.839		
PM	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	4	3	10	0	95	3	9	0	5	108	6	0	7	72	85	0	407
4:15 PM	4	1	5	0	114	2	9	0	8	131	2	0	4	61	127	0	468
4:30 PM	3	1	8	0	95	6	9	0	5	129	6	0	6	82	135	0	485
4:45 PM	4	3	7	0	117	4	8	0	2	106	0	0	5	73	114	0	443
5:00 PM	2	3	4	0	115	4	5	0	10	117	4	0	4	77	138	0	483
5:15 PM	1	4	10	0	99	7	12	0	10	127	10	0	2	74	144	0	500
5:30 PM	4	2	8	0	106	2	9	0	5	110	3	0	2	89	116	0	456
5:45 PM	5	1	5	0	77	2	3	0	4	98	6	0	3	53	107	0	364
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	26.47%	17.65%	55.88%	0.00%	89.69%	3.29%	7.02%	0.00%	4.84%	91.50%	3.66%	0.00%	2.09%	36.77%	61.14%	0.00%	3606
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	10	11	29	0	426	21	34	0	27	479	20	0	17	306	531	0	1911
PEAK HR FACTOR :	0.625	0.688	0.725	0.000	0.910	0.750	0.708	0.000	0.675	0.928	0.500	0.000	0.708	0.933	0.922	0.000	0.956
			0.833				0.932				0.895				0.957		

National Data & Surveying Services Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/19/2026

Data - Cars

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	1	1	1	0	81	2	2	0	4	52	2	0	3	68	108	0	325
7:15 AM	3	4	6	0	88	2	5	0	3	67	9	0	2	106	119	0	414
7:30 AM	2	0	4	0	86	1	9	0	3	72	2	0	3	118	135	0	435
7:45 AM	3	2	6	0	71	1	4	0	4	65	7	0	5	62	130	0	360
8:00 AM	1	3	5	0	85	1	3	0	1	53	4	0	1	65	107	0	329
8:15 AM	3	4	1	0	77	1	6	0	6	56	2	0	2	66	113	0	337
8:30 AM	0	1	4	0	64	5	4	0	3	59	2	0	4	78	113	0	337
8:45 AM	3	3	7	0	75	6	1	0	0	74	2	0	1	77	85	0	334
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	23.53%	26.47%	50.00%	0.00%	92.21%	2.79%	5.00%	0.00%	4.35%	90.22%	5.43%	0.00%	1.34%	40.74%	57.92%	0.00%	2871
PEAK HR :	07:15 AM - 08:15 AM				330	5	21	0	11	257	22	0	11	351	491	0	TOTAL
PEAK HR VOL :	9	9	21	0	0.938	0.625	0.583	0.000	0.688	0.892	0.611	0.000	0.550	0.744	0.909	0.000	1538
PEAK HR FACTOR :	0.750	0.563	0.875	0.000	0.927				0.918				0.833				0.884

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	4	3	10	0	93	3	9	0	4	105	6	0	7	68	84	0	396
4:15 PM	4	1	5	0	111	2	9	0	8	128	2	0	4	60	122	0	456
4:30 PM	3	1	8	0	94	6	9	0	5	126	6	0	6	82	132	0	478
4:45 PM	4	3	7	0	113	4	8	0	2	103	0	0	5	71	112	0	432
5:00 PM	2	3	3	0	112	4	5	0	10	114	3	0	4	77	136	0	473
5:15 PM	1	4	10	0	98	7	11	0	10	123	10	0	2	73	142	0	491
5:30 PM	4	2	8	0	105	2	9	0	5	110	3	0	2	88	115	0	453
5:45 PM	5	1	5	0	77	2	3	0	4	96	6	0	3	52	106	0	360
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	26.73%	17.82%	55.45%	0.00%	89.62%	3.35%	7.03%	0.00%	4.85%	91.51%	3.64%	0.00%	2.12%	36.77%	61.11%	0.00%	3539
PEAK HR :	04:30 PM - 05:30 PM				417	21	33	0	27	466	19	0	17	303	522	0	TOTAL
PEAK HR VOL :	10	11	28	0	0.923	0.750	0.750	0.000	0.675	0.925	0.475	0.000	0.708	0.924	0.919	0.000	1874
PEAK HR FACTOR :	0.625	0.688	0.700	0.000	0.942				0.895				0.957				0.954

National Data & Surveying Services Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/19/2026

Data - HT

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
7:00 AM	0	0	1	0	0	1	0	0	0	1	2	1	0	0	4	6	0	15
7:15 AM	0	0	0	0	0	0	1	0	0	0	3	0	0	0	5	4	0	13
7:30 AM	0	0	0	0	6	0	2	0	0	0	7	0	0	0	7	2	0	24
7:45 AM	0	0	0	0	2	0	0	0	0	0	2	0	0	0	6	2	0	12
8:00 AM	0	0	0	0	3	0	0	0	0	0	8	0	0	0	3	7	0	21
8:15 AM	0	0	0	0	5	0	0	0	0	0	10	0	0	0	5	5	0	25
8:30 AM	0	0	0	0	5	0	1	0	0	0	8	0	0	0	4	5	0	23
8:45 AM	0	0	0	0	1	0	1	0	0	0	8	0	0	0	7	2	0	19
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	82.14%	0.00%	17.86%	0.00%	0.00%	97.96%	2.04%	0.00%	0.00%	55.41%	44.59%	0.00%	152	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL	
PEAK HR VOL :	0	0	0	0	11	0	3	0	0	20	0	0	0	21	15	0	70	
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.458	0.000	0.375	0.000	0.000	0.625	0.000	0.000	0.000	0.750	0.536	0.000	0.729	
							0.438				0.625				0.900			
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	4:00 PM	0	0	0	0	2	0	0	0	1	3	0	0	0	4	1	0	11
4:15 PM	0	0	0	0	3	0	0	0	0	3	0	0	0	1	5	0	12	
4:30 PM	0	0	0	0	1	0	0	0	0	3	0	0	0	0	3	0	7	
4:45 PM	0	0	0	0	4	0	0	0	0	3	0	0	0	2	2	0	11	
5:00 PM	0	0	1	0	3	0	0	0	0	3	1	0	0	0	2	0	10	
5:15 PM	0	0	0	0	1	0	1	0	0	4	0	0	0	1	2	0	9	
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	3	
5:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	4	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	93.75%	0.00%	6.25%	0.00%	4.35%	91.30%	4.35%	0.00%	0.00%	37.04%	62.96%	0.00%	67	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL	
PEAK HR VOL :	0	0	1	0	9	0	1	0	0	13	1	0	0	3	9	0	37	
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.563	0.000	0.250	0.000	0.000	0.813	0.250	0.000	0.000	0.375	0.750	0.000	0.841	
			0.250				0.625				0.875				0.750			

National Data & Surveying Services
Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
 City: Hudson
 Control: Signalized

Project ID: 26-600012-002
 Date: 3/19/2026

Data - Bikes

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
	0.00%				100.00%				0.00%				0.00%				
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500
													0.500				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	100.00%				0.00%				0.00%				0.00%				
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
													0.250				

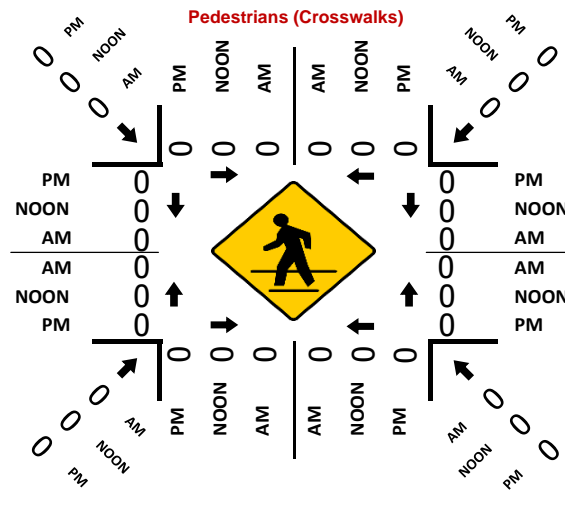
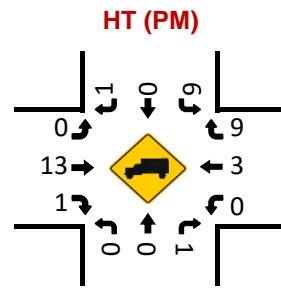
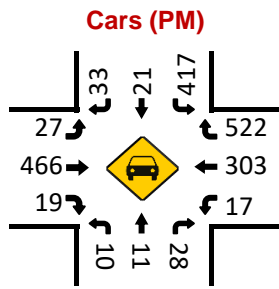
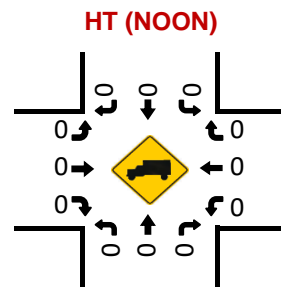
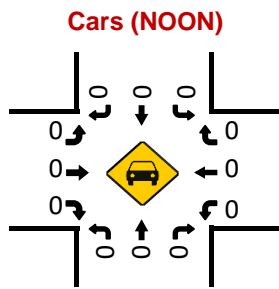
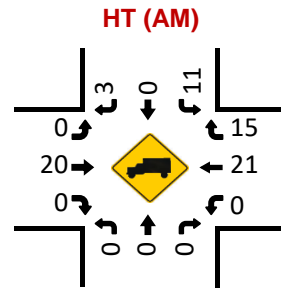
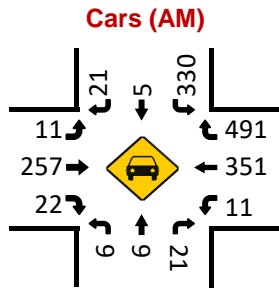
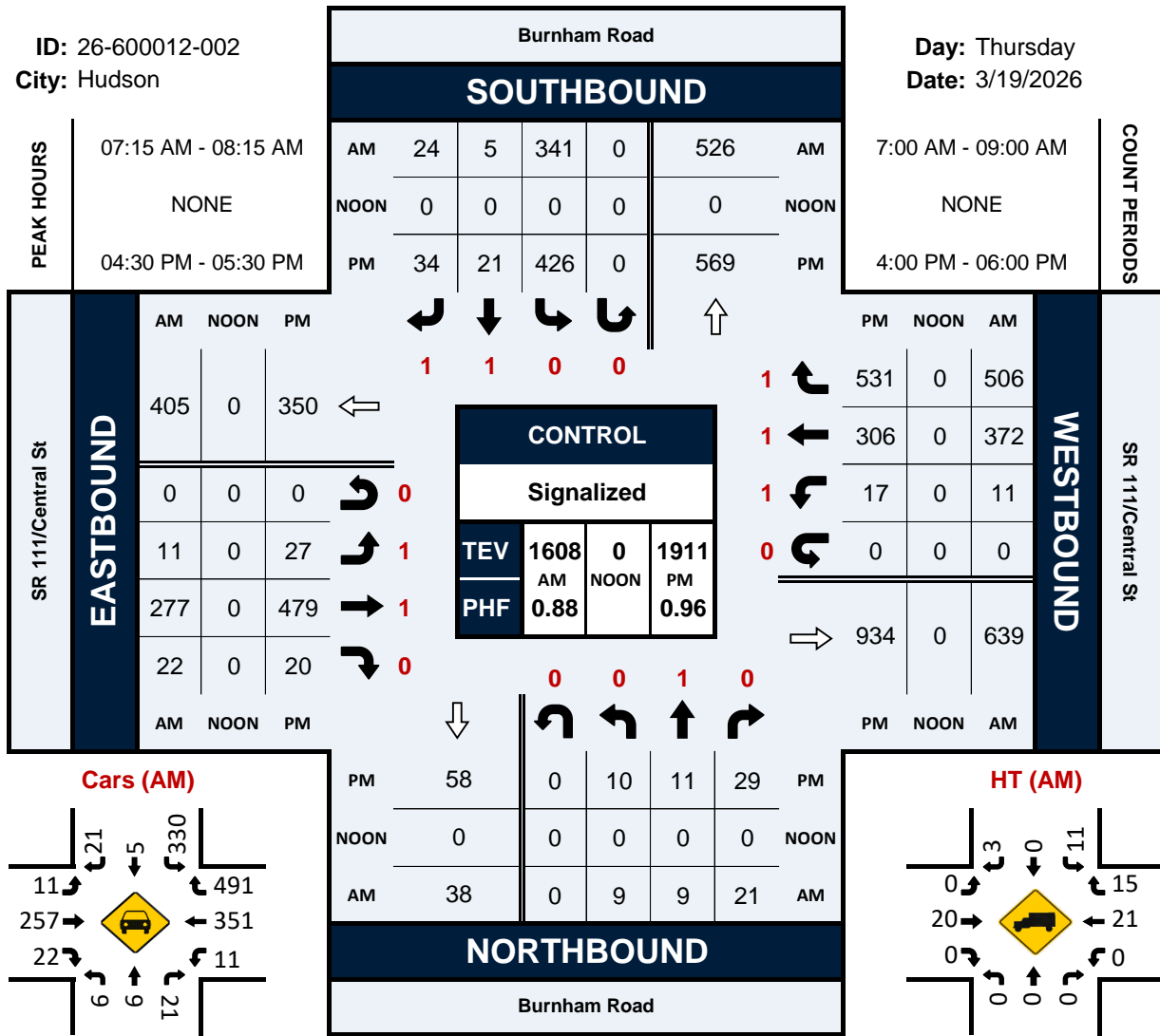
Prepared by National Data & Surveying Services

Burnham Road & SR 111/Central St

Peak Hour Turning Movement Count

ID: 26-600012-002
City: Hudson

Day: Thursday
Date: 3/19/2026



Project ID: 26-600012-002
 Location: Burnham Road & SR 111/Central St
 City: Hudson

Day: Thursday
 Date: 3/19/2026

Start Time	Groups Printed - Cars, PU, Vans - Heavy Trucks																								
	Burnham Road Northbound					Burnham Road Southbound					SR 111/Central St Eastbound					SR 111/Central St Westbound									
	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	1	2	0	0	0	86	4	54	3	0	0	61	3	72	114	0	0	169	3	72	114	0	0	169	340
7:15 AM	3	4	6	0	0	13	88	2	2	0	0	96	3	70	9	0	0	82	2	111	123	0	0	236	427
7:30 AM	2	0	4	0	0	6	92	1	11	0	104	3	79	2	0	0	84	3	125	137	0	0	265	459	
7:45 AM	3	2	6	0	0	11	73	1	4	0	78	4	67	7	0	0	78	5	68	132	0	0	205	372	
Total	9	7	18	0	0	34	335	6	23	0	364	14	270	21	0	0	305	13	376	506	0	0	895	1598	
8:00 AM	1	3	5	0	0	9	88	1	3	0	92	1	61	4	0	0	66	1	68	114	0	0	183	350	
8:15 AM	3	4	1	0	0	8	82	1	6	0	1	89	6	66	2	0	0	74	2	71	118	0	0	191	362
8:30 AM	0	1	4	0	1	5	69	5	5	0	79	3	67	2	0	0	72	4	82	118	0	0	204	360	
8:45 AM	3	3	7	0	0	13	76	6	2	0	84	0	82	2	0	0	84	1	84	87	0	0	172	353	
Total	7	11	17	0	1	35	315	13	16	0	344	10	276	10	0	0	296	8	305	437	0	0	750	1425	
BREAK																									
4:00 PM	4	3	10	0	0	17	95	3	9	0	0	107	5	108	6	0	0	119	7	72	85	0	0	164	407
4:15 PM	4	1	5	0	0	10	114	2	9	0	0	125	8	131	2	0	0	141	4	61	127	0	0	192	468
4:30 PM	3	1	8	0	0	12	95	6	9	0	0	110	5	129	6	0	0	140	6	82	135	0	0	223	485
4:45 PM	4	3	7	0	0	14	117	4	8	0	0	129	2	106	0	0	0	108	5	73	114	0	0	192	443
Total	15	8	30	0	0	53	421	15	35	0	0	471	20	474	14	0	0	508	22	288	461	0	0	771	1803
5:00 PM	2	3	4	0	0	9	115	4	5	0	0	124	10	117	4	0	0	131	4	77	138	0	0	219	483
5:15 PM	1	4	10	0	0	15	99	7	12	0	0	118	10	127	10	0	0	147	2	74	144	0	0	220	500
5:30 PM	4	2	8	0	0	14	106	2	9	0	0	117	5	110	3	0	0	118	2	89	116	0	0	207	456
5:45 PM	5	1	5	0	1	11	77	2	3	0	0	82	4	88	6	0	0	108	3	53	107	0	0	163	364
Total	12	10	27	0	1	49	397	15	29	0	0	441	29	452	23	0	0	504	11	293	505	0	0	809	1803
Grand Total	43	36	92	0	2	171	1468	49	103	0	1	1620	73	1472	68	0	0	1613	54	1262	1909	0	0	3225	6629
Approch %	25.1	21.1	53.8	0.0	1.2	90.6	3.0	6.4	0.0	0.1	0.0	4.5	91.3	4.2	0.0	0.0	0.0	1.7	39.1	59.2	0.0	0.0	0.0	0.0	66.29
Total %	0.6	0.5	1.4	0.0	0.0	2.6	22.1	0.7	1.6	0.0	0.0	24.4	1.1	22.2	1.0	0.0	0.0	24.3	0.8	19.0	28.8	0.0	0.0	48.6	64.10
Cars, PU Vans	43	36	90	0	0	169	1430	49	97	0	0	1576	72	1403	66	0	0	1541	54	1211	1859	0	0	3124	6410
% Cars, PU Vans	100.0	100.0	97.8	0.0	0.0	98.8	97.4	100.0	94.2	0.0	0.0	97.3	98.6	95.3	97.1	0.0	0.0	95.5	100.0	96.0	97.4	0.0	0.0	96.9	96.7
Heavy Trucks	0	0	2	0	0	2	38	0	6	0	0	44	1	69	2	0	0	72	0	51	50	0	0	101	219
% Heavy Trucks	0.0	0.0	2.2	0.0	0.0	1.2	2.6	0.0	5.8	0.0	0.0	2.7	1.4	4.7	2.9	0.0	0.0	4.5	0.0	4.0	2.6	0.0	0.0	3.1	3.3

Project ID: 26-600012-002
 Location: Burnham Road & SR 111/Central St
 City: Hudson

Day: Thursday
 Date: 3/19/2026

PEAK HOURS

AM

Start Time	Burnham Road Northbound				Burnham Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total				
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn		App. Total			
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
7:15 AM	3	4	6	0	13	88	2	6	0	96	3	70	9	0	82	2	111	123	0	236	427
7:30 AM	2	0	4	0	6	92	1	11	0	104	3	79	2	0	84	3	125	137	0	265	469
7:45 AM	3	2	6	0	11	73	1	4	0	78	4	67	7	0	78	5	68	132	0	205	372
8:00 AM	1	3	5	0	9	88	1	3	0	92	1	61	4	0	66	1	68	114	0	183	350
Total Volume	9	9	21	0	39	341	5	24	0	370	11	277	22	0	310	11	372	506	0	889	1608
% App. Total	23.1	23.1	53.8	0.0	100	92.2	1.4	6.5	0.0	100	3.5	89.4	7.1	0.0	100	1.2	41.8	56.9	0.0	100	0.839
PHF																		0.833	0.876		
Cars, P.U. Vans	9	9	21	0	39	330	5	21	0	356	11	257	22	0	290	11	351	491	0	853	1538
% Cars, P.U. Vans	100.0	100.0	100.0	0.0	100.0	96.8	100.0	87.5	0.0	96.2	100.0	92.8	100.0	0.0	93.5	100.0	94.4	97.0	0.0	96.0	95.6
Heavy Trucks	0	0	0	0	0	11	0	3	0	14	0	20	0	0	20	0	21	15	0	36	70
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	3.2	0.0	12.5	0.0	3.8	0.0	7.2	0.0	0.0	6.5	0.0	5.6	3.0	0.0	4.0	4.4

PM

Start Time	Burnham Road Northbound				Burnham Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total				
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn		App. Total			
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
4:30 PM	3	1	8	0	12	95	6	9	0	110	5	129	6	0	140	6	82	135	0	223	485
4:45 PM	4	3	7	0	14	117	4	8	0	129	2	106	0	0	108	5	73	114	0	192	443
5:00 PM	2	3	4	0	9	115	4	5	0	124	10	117	4	0	131	4	77	138	0	219	483
5:15 PM	1	4	10	0	15	99	7	12	0	118	10	127	10	0	147	2	74	144	0	220	500
Total Volume	10	11	29	0	50	426	21	34	0	481	27	479	20	0	526	17	306	531	0	854	1911
% App. Total	20.0	22.0	58.0	0.0	100	88.6	4.4	7.1	0.0	100	5.1	91.1	3.8	0.0	100	2.0	35.8	62.2	0.0	100	0.957
PHF																		0.833	0.956		
Cars, P.U. Vans	10	11	28	0	49	417	21	33	0	471	27	466	19	0	512	17	303	522	0	842	1874
% Cars, P.U. Vans	100.0	100.0	96.6	0.0	98.0	97.9	100.0	97.1	0.0	97.9	100.0	97.3	95.0	0.0	97.3	100.0	99.0	98.3	0.0	98.6	98.1
Heavy Trucks	0	0	1	0	1	9	0	1	0	10	0	13	1	0	14	0	3	9	0	12	37
% Heavy Trucks	0.0	0.0	3.4	0.0	2.0	2.1	0.0	2.9	0.0	2.1	0.0	2.7	5.0	0.0	2.7	0.0	1.0	1.7	0.0	1.4	1.9

**National Data & Surveying Services
Intersection Turning Movement Count**

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/21/2026

Data - Total

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
NOON	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	1 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL
11:00 AM	1	3	5	0	62	4	6	0	8	88	7	0	2	91	67	0	344
11:15 AM	5	3	6	0	76	6	5	0	1	65	4	0	4	103	85	0	363
11:30 AM	2	3	6	0	76	3	2	0	4	73	5	0	2	89	96	0	361
11:45 AM	8	1	5	0	55	4	5	0	0	82	4	0	6	81	92	0	343
12:00 PM	2	2	9	0	70	3	4	0	4	81	8	0	2	87	77	0	349
12:15 PM	6	2	3	0	62	2	4	0	8	79	4	0	7	108	86	0	371
12:30 PM	2	1	9	0	77	3	9	0	2	95	6	0	1	106	100	0	411
12:45 PM	2	2	10	0	67	5	5	0	6	61	9	0	5	92	111	0	375
1:00 PM	5	1	6	0	64	4	8	0	7	75	6	0	3	78	69	0	326
1:15 PM	3	3	6	0	50	4	3	0	1	90	3	0	1	63	71	0	298
1:30 PM	3	1	7	0	71	2	4	0	4	90	4	0	4	70	89	0	349
1:45 PM	2	0	4	0	73	2	6	0	8	76	4	0	4	75	87	1	342
TOTAL VOLUMES :	NL 41	NT 22	NR 76	NU 0	SL 803	ST 42	SR 61	SU 0	EL 53	ET 955	ER 64	EU 0	WL 41	WT 1043	WR 1030	WU 1	TOTAL 4232
APPROACH %'s :	29.50%	15.83%	54.68%	0.00%	88.63%	4.64%	6.73%	0.00%	4.94%	89.09%	5.97%	0.00%	1.94%	49.31%	48.70%	0.05%	
PEAK HR :	12:00 PM - 01:00 PM																
PEAK HR VOL :	12	7	31	0	276	13	22	0	20	316	27	0	15	393	374	0	1506
PEAK HR FACTOR :	0.500	0.875	0.775	0.000	0.896	0.650	0.611	0.000	0.625	0.832	0.750	0.000	0.536	0.910	0.842	0.000	0.916
	0.893				0.874				0.881				0.940				

Attachment "F"

National Data & Surveying Services Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/21/2026

Data - Cars

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
NOON	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	1 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL
11:00 AM	1	3	5	0	59	4	6	0	8	88	6	0	2	90	64	0	336
11:15 AM	5	3	5	0	74	6	5	0	1	65	4	0	4	101	84	0	357
11:30 AM	2	3	6	0	73	3	2	0	4	72	5	0	2	87	95	0	354
11:45 AM	8	1	5	0	54	4	5	0	0	81	4	0	6	80	92	0	340
12:00 PM	2	2	9	0	67	3	4	0	4	80	8	0	2	87	75	0	343
12:15 PM	6	2	3	0	61	2	4	0	8	77	4	0	7	105	85	0	364
12:30 PM	2	1	9	0	75	3	9	0	2	95	6	0	1	105	100	0	408
12:45 PM	2	2	10	0	67	5	5	0	6	61	9	0	5	91	108	0	371
1:00 PM	5	1	6	0	62	4	7	0	7	74	6	0	3	78	66	0	319
1:15 PM	3	3	6	0	50	4	3	0	1	88	3	0	1	60	71	0	293
1:30 PM	3	1	7	0	69	2	4	0	4	90	4	0	4	70	88	0	346
1:45 PM	2	0	4	0	72	2	6	0	8	74	4	0	4	75	85	1	337
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	41	22	75	0	783	42	60	0	53	945	63	0	41	1029	1013	1	4168
	29.71%	15.94%	54.35%	0.00%	88.47%	4.75%	6.78%	0.00%	5.00%	89.07%	5.94%	0.00%	1.97%	49.38%	48.61%	0.05%	
PEAK HR :	12:00 PM - 01:00 PM																
PEAK HR VOL :	12	7	31	0	270	13	22	0	20	313	27	0	15	388	368	0	1486
PEAK HR FACTOR :	0.500	0.875	0.775	0.000	0.900	0.650	0.611	0.000	0.625	0.824	0.750	0.000	0.536	0.924	0.852	0.000	0.911
	0.893				0.876				0.874				0.936				

Attachment "F"

National Data & Surveying Services Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/21/2026

Data - HT

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
NOON	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
11:00 AM	0	0	0	0	3	0	0	0	0	0	1	0	0	1	3	0	8
11:15 AM	0	0	1	0	2	0	0	0	0	0	0	0	0	2	1	0	6
11:30 AM	0	0	0	0	3	0	0	0	0	1	0	0	0	2	1	0	7
11:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
12:00 PM	0	0	0	0	3	0	0	0	0	1	0	0	0	0	2	0	6
12:15 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	3	1	0	7
12:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	3
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4
1:00 PM	0	0	0	0	2	0	1	0	0	1	0	0	0	0	3	0	7
1:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
1:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
1:45 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	5
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	1	0	20	0	1	0	0	10	1	0	0	14	17	0	64
	0.00%	0.00%	100.00%	0.00%	95.24%	0.00%	4.76%	0.00%	0.00%	90.91%	9.09%	0.00%	0.00%	45.16%	54.84%	0.00%	
PEAK HR :	12:00 PM - 01:00 PM																
PEAK HR VOL :	0	0	0	0	6	0	0	0	0	3	0	0	0	5	6	0	20
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.417	0.500	0.000	0.714
					0.500				0.375				0.688				

National Data & Surveying Services
Intersection Turning Movement Count

Location: Burnham Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-002
Date: 3/21/2026

Data - Bikes

NS/EW Streets:	Burnham Road				Burnham Road				SR 111/Central St				SR 111/Central St				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
NOON	0	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	5
PEAK HR :	12:00 PM - 01:00 PM				100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR VOL :	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250

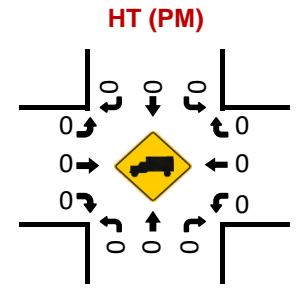
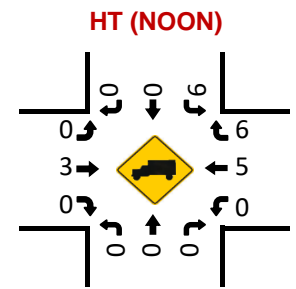
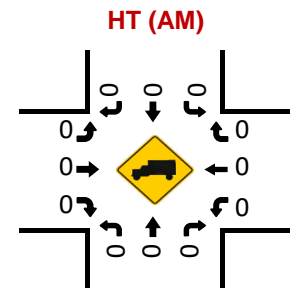
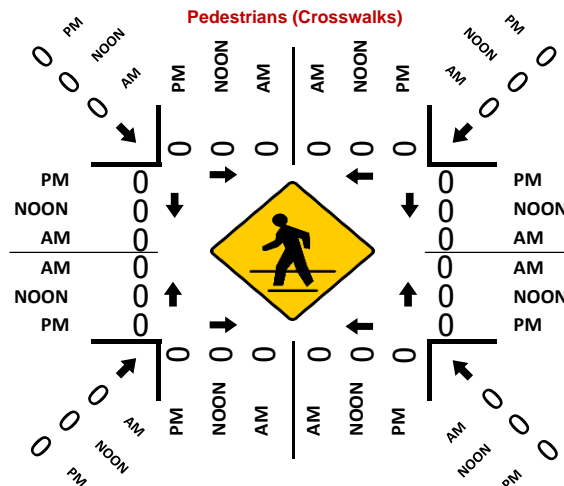
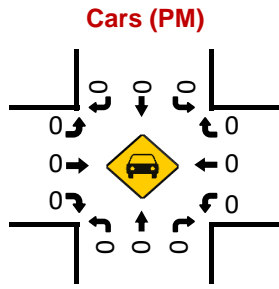
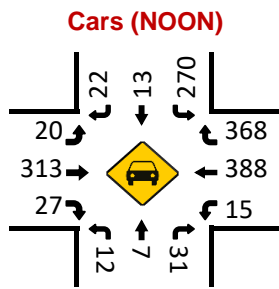
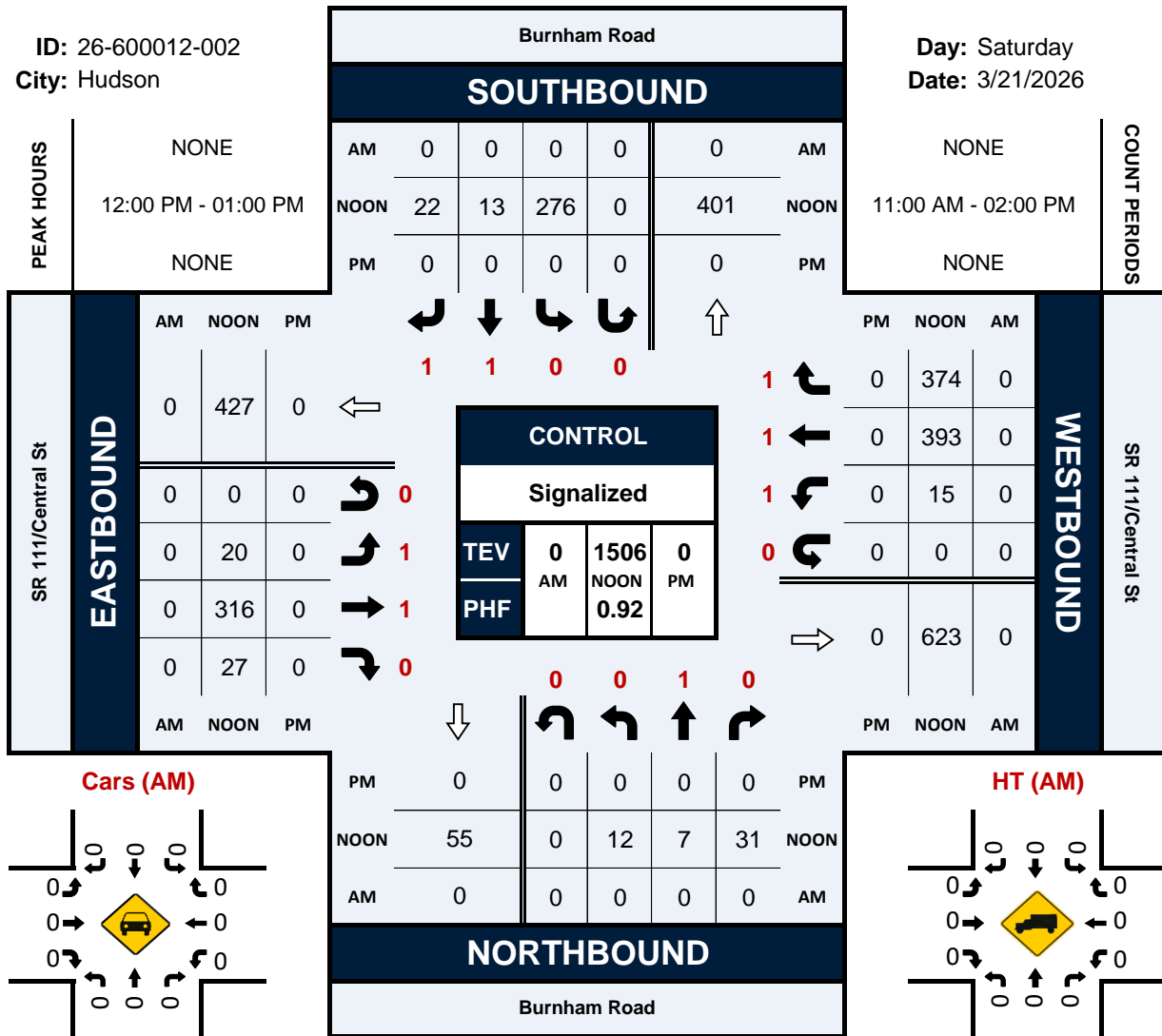
Prepared by National Data & Surveying Services

Burnham Road & SR 111/Central St

Peak Hour Turning Movement Count

ID: 26-600012-002
City: Hudson

Day: Saturday
Date: 3/21/2026



Project ID: 26-600012-002
 Location: Burnham Road & SR 111/Central St
 City: Hudson

Day: Saturday
 Date: 3/21/2026

Start Time	Burnham Road Northbound											Burnham Road Southbound											SR 111/Central St Eastbound											SR 111/Central St Westbound											Int. Total
	Left			Thru			Rgt			Uturn			Peds			App. Total			Left			Thru			Rgt			Uturn			Peds			App. Total											
	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total															
11:00 AM	1	3	5	0	0	0	9	62	4	6	0	0	72	8	88	7	0	0	103	2	91	67	0	0	160	344																			
11:15 AM	5	3	6	0	0	14	76	6	5	0	0	87	1	65	4	0	0	70	4	103	85	0	0	192	363																				
11:30 AM	2	3	6	0	0	11	76	3	2	0	0	81	4	73	5	0	0	82	2	89	96	0	0	187	361																				
11:45 AM	8	1	5	0	0	14	55	4	5	0	0	64	0	62	4	0	0	66	6	81	92	0	0	179	343																				
Total	16	10	22	0	0	48	269	17	18	0	0	304	13	308	20	0	0	341	14	364	340	0	0	718	1411																				
12:00 PM	2	2	9	0	0	13	70	3	4	0	0	77	4	81	8	0	0	93	2	87	77	0	0	166	349																				
12:15 PM	6	2	3	0	0	11	62	2	4	0	0	68	8	79	4	0	0	91	7	108	86	0	0	201	371																				
12:30 PM	2	1	9	0	0	12	77	3	9	0	0	89	2	95	6	0	0	103	1	106	100	0	0	207	411																				
12:45 PM	2	2	10	0	0	14	67	5	5	0	0	77	6	61	9	0	0	76	5	92	111	0	0	208	375																				
Total	12	7	31	0	0	50	276	13	22	0	0	311	20	316	27	0	0	363	15	393	374	0	0	782	1506																				
1:00 PM	5	1	6	0	0	12	64	4	8	0	0	76	7	75	6	0	0	88	3	78	69	0	0	150	326																				
1:15 PM	3	3	6	0	1	12	50	4	3	0	0	57	1	90	3	0	0	94	1	63	71	0	0	135	298																				
1:30 PM	3	1	7	0	0	11	71	2	4	0	0	77	4	90	4	0	0	98	4	70	89	0	0	163	349																				
1:45 PM	2	0	4	0	0	6	73	2	6	0	2	81	8	76	4	0	4	88	4	75	87	1	0	167	342																				
Total	13	5	23	0	1	41	258	12	21	0	2	291	20	331	17	0	4	368	12	286	316	1	0	615	1315																				
***BREAK**																																													
Grand Total	41	22	76	0	1	139	803	42	61	0	2	906	53	955	64	0	4	1072	41	1043	1030	1	0	2115	4232																				
Approch %	29.5	15.8	54.7	0.0	0.7		88.6	4.6	6.7	0.0	0.2		4.9	89.1	6.0	0.0	0.4		1.9	49.3	48.7	0.0	0.0																						
Total %	1.0	0.5	1.8	0.0	0.0	3.3	19.0	1.0	1.4	0.0	0.0	21.4	1.3	22.6	1.5	0.0	0.1	25.3	1.0	24.6	24.3	0.0	0.0																						
Cars, PU, Vans	41	22	75	0	138	783	42	60	0	885	53	945	63	0	1061	41	1029	1013	1	2084	4168																								
% Cars, PU, Vans	100.0	100.0	98.7	0.0	99.3	97.5	100.0	98.4	0.0	97.7	100.0	99.0	98.4	0.0	99.0	100.0	98.7	98.3	100.0	98.5	98.5																								
Heavy Trucks	0	0	1	0	0	1	20	0	1	0	2	21	0	10	1	0	1	11	0	14	17	0	0	31	64																				
% Heavy Trucks	0.0	0.0	1.3	0.0	0.7	2.5	0.0	1.6	0.0	2.3	0.0	1.0	1.6	0.0	1.0	0.0	1.3	1.7	0.0	1.5	1.5																								

Project ID: 26-600012-002
 Location: Burnham Road & SR 111/Central St
 City: Hudson

Day: Saturday
 Date: 3/21/2026

PEAK HOURS

NOON

Start Time	Burnham Road Northbound				Burnham Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total				
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn					
Peak Hour Analysis from 11:00 AM - 02:00 PM																					
12:00 PM	2	2	9	0	13	70	3	4	0	77	4	81	8	0	93	2	87	77	0	166	349
12:15 PM	6	2	3	0	11	62	2	4	0	68	8	79	4	0	91	7	108	86	0	201	371
12:30 PM	2	1	9	0	12	77	3	9	0	89	2	95	6	0	103	1	106	100	0	207	411
12:45 PM	2	2	10	0	14	67	5	5	0	77	6	61	9	0	76	5	92	111	0	208	375
Total Volume	12	7	31	0	50	276	13	22	0	311	20	316	27	0	363	15	393	374	0	782	1506
% App. Total	24.0	14.0	62.0	0.0	100.0	88.7	4.2	7.1	0.0	100.0	5.5	87.1	7.4	0.0	100.0	1.9	50.3	47.8	0.0	100.0	0.940
PHF																		0.893	0.874	0.881	0.916
Cars, P.U. Vans	12	7	31	0	50	270	13	22	0	305	20	313	27	0	360	15	388	368	0	771	1486
% Cars, P.U. Vans	100.0	100.0	100.0	0.0	100.0	97.8	100.0	100.0	0.0	98.1	100.0	99.1	100.0	0.0	99.2	100.0	98.7	98.4	0.0	98.6	98.7
Heavy Trucks	0	0	0	0	0	6	0	0	0	6	0	3	0	0	3	0	5	6	0	11	20
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	1.9	0.0	0.9	0.0	0.0	0.8	0.0	1.3	1.6	0.0	1.4	1.3

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Contract: Solarized

Project ID: 26-60002-001
Date: 3/31/2026

Data - Total

NS/EW Streets	Greeley St/Kimball Hill Road										SR 111/Central St					SR 111/Central St					WESTBOUND				TOTAL
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					W21.2	W21.7	W21.2	W21.7	
AM	NL	NT	NR	NJ	NR2	SL	ST	SR	SJ	SR2	EL	ET	ER	EJ	ET2	WL	WT	WR	WJ	WR2	W21.2	W21.7	W21.2	W21.7	
7:00 AM	39	25	0	0	0	14	28	20	0	0	7	95	22	0	0	12	145	7	0	0	5	12	2	0	433
7:15 AM	51	18	0	0	0	16	32	24	0	0	6	97	29	0	2	16	128	5	0	0	7	22	1	0	474
7:30 AM	60	10	0	0	0	10	34	30	0	1	8	117	52	0	7	16	136	1	0	0	7	34	1	0	524
7:45 AM	41	12	0	0	3	7	38	8	0	0	18	111	37	0	7	25	138	4	0	0	13	30	3	0	500
8:00 AM	28	19	0	0	1	11	32	26	0	0	9	103	31	0	5	11	141	0	0	0	3	8	2	0	430
8:15 AM	44	11	1	0	1	12	23	14	0	0	6	109	26	0	1	18	146	5	0	0	3	15	2	0	422
8:30 AM	39	10	0	0	0	10	12	20	0	0	9	101	31	0	4	21	151	10	0	0	3	8	0	0	429
8:45 AM	31	15	0	0	1	14	20	9	0	0	5	72	29	0	7	38	130	7	0	0	4	6	0	0	369
TOTAL VOLUMES	333	120	1	0	6	94	215	181	0	1	68	801	267	0	33	137	1115	39	0	0	45	144	11	0	3591
APPROACH %	77.32%	28.00%	0.24%	0.00%	1.30%	19.56%	45.62%	34.18%	0.00%	0.71%	5.83%	68.52%	22.84%	0.00%	7.82%	10.61%	86.37%	3.02%	0.00%	0.00%	27.50%	72.00%	5.50%	0.00%	
PEAK HR VOL	191	65	0	0	3	47	128	92	0	1	39	420	150	0	16	69	547	17	0	0	32	107	7	0	1931
PEAK HR FACTOR	0.746	0.480	0.000	0.000	0.750	0.714	0.641	0.676	0.000	0.750	0.547	0.897	0.771	0.000	0.671	0.680	0.643	0.607	0.000	0.000	0.615	0.686	0.583	0.000	0.921
PM	NORTHBOUND										SOUTHBOUND					EASTBOUND					WESTBOUND				TOTAL
4:00 PM	43	38	0	0	10	13	26	17	0	0	10	148	27	0	8	10	126	10	0	1	1	9	1	0	
4:15 PM	50	40	1	0	4	3	16	17	0	0	20	145	51	0	14	12	128	5	0	0	3	6	3	0	519
4:30 PM	42	29	0	0	6	10	25	7	0	0	25	159	44	0	19	18	135	12	0	0	0	8	1	0	540
4:45 PM	40	17	1	0	4	6	28	11	0	0	17	160	40	0	8	17	146	11	0	0	1	7	1	1	536
5:00 PM	41	37	1	0	7	6	24	13	0	1	17	162	43	0	14	22	137	9	0	0	3	9	1	1	548
5:15 PM	51	38	1	0	4	7	24	10	0	0	16	171	34	0	6	15	130	4	0	0	2	9	1	0	614
5:30 PM	41	28	0	0	3	10	20	9	0	0	20	138	46	0	18	22	133	13	0	0	4	8	0	0	513
5:45 PM	29	25	1	0	3	3	19	10	0	0	22	119	47	0	6	15	123	7	0	0	0	8	0	0	437
TOTAL VOLUMES	337	272	5	0	42	58	182	94	0	1	147	1202	235	0	93	135	1058	71	0	1	15	62	8	2	4119
APPROACH %	51.37%	41.66%	0.76%	0.00%	6.40%	17.31%	54.33%	28.06%	0.00%	0.30%	8.27%	67.64%	18.85%	0.00%	5.23%	10.67%	83.64%	5.61%	0.00%	0.00%	16.28%	72.09%	9.30%	2.33%	
PEAK HR VOL	173	143	3	0	21	25	93	48	0	1	79	626	179	0	55	69	546	37	0	0	7	30	6	2	2143
PEAK HR FACTOR	0.805	0.891	0.750	0.000	0.750	0.620	0.830	0.706	0.000	0.250	0.790	0.866	0.861	0.000	0.724	0.784	0.935	0.771	0.000	0.000	0.383	0.833	0.500	0.500	0.938

Explanation for extra leg movements

Movements entering the extra leg
 W21.2 Movements coming from SR on Greeley St entering into the Extra Leg (Winthum Rd)
 W21.7 Movements coming from SR on SR 111/Central St entering into the Extra Leg (Winthum Rd)
 W21.2 Movements coming from SR on Kimball Hill Road entering into the Extra Leg (Winthum Rd)
 W21.7 Movements coming from SR on SR 111/Central St entering into the Extra Leg (Winthum Rd)

Movements within the extra leg
 W21.2 Movements entering from Extra Leg (Winthum Rd) entering into Greeley St NB
 W21.7 Movements entering from Extra Leg (Winthum Rd) entering into Kimball Hill Road SB
 W21.2 Movements exiting from Extra Leg (Winthum Rd) entering into SR 111/Central St WB
 W21.7 Movements exiting from Extra Leg (Winthum Rd) entering into SR 111/Central St EB



National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
 City: Hudson
 Control: Signalized

Project ID: 26-600012-001
 Date: 3/31/2026

Data - Cars

NS/EW Streets	Greeley St/Kimball Hill Road										Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					WESTBOUND2					TOTAL
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					WESTBOUND2										
	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0		
AM	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL						
7:00 AM	39	23	0	0	0	12	27	17	0	0	5	91	22	0	0	12	135	3	0	0	5	12	1	0	0	404					
7:15 AM	46	18	0	0	0	12	32	32	0	0	6	93	39	0	2	16	126	3	0	0	7	21	1	0	0	454					
7:30 AM	59	9	0	0	0	8	34	29	0	1	6	106	50	0	6	16	159	0	0	0	7	34	1	0	0	494					
7:45 AM	40	12	0	0	2	5	30	8	0	0	15	104	36	0	7	24	134	2	0	0	13	38	3	0	0	473					
8:00 AM	27	18	0	0	1	9	31	24	0	0	5	99	29	0	4	11	134	0	0	0	3	8	1	0	0	404					
8:15 AM	39	9	1	0	1	11	22	14	0	0	3	100	25	0	0	18	135	2	0	0	3	15	2	0	0	400					
8:30 AM	36	9	0	0	0	7	11	16	0	0	9	95	28	0	4	21	140	7	0	0	3	8	0	0	0	394					
8:45 AM	30	14	0	0	1	7	20	9	0	0	5	68	27	0	7	18	122	5	0	0	4	6	0	0	0	343					
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL						
APPROACH %'s:	316	112	1	0	5	71	207	148	0	1	54	756	256	0	30	136	1055	22	0	0	45	142	9	0	0	3366					
PEAK HR:	72.81%	25.81%	0.23%	0.00%	1.15%	16.63%	48.48%	34.66%	0.00%	0.23%	4.93%	68.98%	23.36%	0.00%	2.74%	11.21%	86.97%	1.81%	0.00%	0.00%	22.96%	72.45%	4.59%	0.00%	TOTAL						
PEAK HR VOL:	184	62	0	0	2	37	123	85	0	1	32	394	147	0	15	68	524	8	0	0	32	105	6	0	0	1825					
PEAK HR FACTOR:	0.780	0.674	0.000	0.000	0.250	0.771	0.904	0.664	0.000	0.250	0.533	0.929	0.735	0.000	0.536	0.708	0.970	0.667	0.000	0.000	0.615	0.691	0.500	0.000	0.924						
	0.912					0.809					0.875					0.938															
	07:00 AM - 08:00 AM																														
PM	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	TOTAL						
4:00 PM	41	37	0	0	9	11	26	17	0	0	16	142	27	0	8	16	119	10	0	1	1	9	1	0	491						
4:15 PM	50	40	1	0	4	3	15	16	0	0	20	142	52	0	14	12	127	4	0	0	2	6	3	0	511						
4:30 PM	42	29	0	0	6	10	25	7	0	0	24	155	44	0	19	18	131	12	0	0	0	8	1	0	531						
4:45 PM	40	37	1	0	4	6	27	11	0	0	16	153	40	0	8	17	143	9	0	0	1	7	1	1	522						
5:00 PM	41	36	1	0	7	6	23	13	0	1	17	160	43	0	14	22	134	9	0	0	3	9	1	1	541						
5:15 PM	51	37	1	0	5	7	23	10	0	0	10	170	36	0	6	13	129	4	0	0	2	6	1	0	511						
5:30 PM	40	28	0	0	3	10	20	9	0	0	19	135	46	0	18	21	130	13	0	0	4	8	0	0	504						
5:45 PM	29	25	1	0	3	3	19	10	0	0	22	117	47	0	6	15	121	7	0	0	0	7	0	0	432						
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL						
APPROACH %'s:	334	269	5	0	41	56	178	93	0	1	144	1174	335	0	93	134	1034	68	0	1	13	60	8	2	4043						
PEAK HR:	51.46%	41.45%	0.77%	0.00%	6.32%	17.07%	54.37%	28.35%	0.00%	0.30%	8.25%	67.24%	19.19%	0.00%	5.33%	10.83%	83.59%	5.50%	0.00%	0.08%	15.66%	72.29%	9.64%	2.41%	TOTAL						
PEAK HR VOL:	173	142	3	0	21	25	90	47	0	1	77	610	179	0	55	69	535	34	0	0	6	30	6	2	2105						
PEAK HR FACTOR:	0.865	0.888	0.750	0.000	0.750	0.625	0.833	0.734	0.000	0.250	0.802	0.953	0.861	0.000	0.724	0.784	0.935	0.708	0.000	0.000	0.500	0.833	0.500	0.500	0.973						
	0.892					0.926					0.951					0.944															
	04:15 PM - 05:15 PM																														

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-60012-001
Date: 3/31/2026

Data - HT

NS/EW Streets	Greeley St/Kimball Hill Road					Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					TOTAL				
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
AM	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
7:00 AM	0	2	0	0	0	2	1	3	0	0	2	4	0	0	0	0	10	4	0	0	0	0	1	0	29
7:15 AM	5	0	0	0	0	4	0	2	0	0	0	4	0	0	0	0	2	2	0	0	0	1	0	0	20
7:30 AM	1	1	0	0	0	2	0	2	0	0	2	11	2	0	1	0	7	1	0	0	0	0	0	0	30
7:45 AM	1	0	0	0	1	2	4	0	0	0	3	7	1	0	0	1	4	2	0	0	0	1	0	0	27
8:00 AM	1	1	0	0	0	2	1	2	0	0	4	4	2	0	1	0	7	0	0	0	0	0	1	0	26
8:15 AM	5	2	0	0	0	1	1	0	0	0	3	4	1	0	1	0	11	3	0	0	0	0	0	0	32
8:30 AM	3	1	0	0	0	3	1	4	0	0	0	6	3	0	0	0	11	3	0	0	0	0	0	0	35
8:45 AM	1	1	0	0	0	7	0	0	0	0	0	5	2	0	0	0	8	2	0	0	0	0	0	0	26
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
APPROACH %'s:	65.38%	30.77%	0.00%	0.00%	3.85%	52.27%	18.18%	29.55%	0.00%	0.00%	19.18%	61.64%	15.07%	0.00%	4.11%	1.28%	76.92%	21.79%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	225
PEAK HR:	07:00 AM - 08:00 AM					10	5	7	0	0	7	26	3	0	1	1	23	9	0	0	0	2	1	0	TOTAL
PEAK HR VOL:	7	3	0	0	1	10	5	7	0	0	7	26	3	0	1	1	23	9	0	0	0	2	1	0	106
PEAK HR FACTOR:	0.350	0.375	0.000	0.000	0.250	0.625	0.313	0.583	0.000	0.000	0.583	0.591	0.375	0.000	0.250	0.250	0.575	0.563	0.000	0.000	0.000	0.500	0.250	0.000	0.883
PM	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
4:00 PM	2	1	0	0	1	2	0	0	0	0	0	6	0	0	0	0	7	0	0	0	0	0	0	0	19
4:15 PM	0	0	0	0	0	0	1	1	0	0	0	3	0	0	0	0	1	0	0	0	1	0	0	0	8
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	4	0	0	0	0	0	0	0	9
4:45 PM	0	0	0	0	0	0	1	0	0	0	1	7	0	0	0	0	3	2	0	0	0	0	0	0	14
5:00 PM	0	1	0	0	0	0	1	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	7
5:15 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	5
5:30 PM	1	0	0	0	0	0	0	0	0	0	1	3	0	0	0	1	3	0	0	0	0	0	0	0	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	1	0	0	5
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
APPROACH %'s:	42.86%	42.86%	0.00%	0.00%	14.29%	28.57%	57.14%	14.29%	0.00%	0.00%	9.68%	90.32%	0.00%	0.00%	0.00%	3.57%	85.71%	10.71%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	76
PEAK HR:	04:15 PM - 05:15 PM					0	3	1	0	0	2	16	0	0	0	0	11	3	0	0	1	0	0	0	TOTAL
PEAK HR VOL:	0	1	0	0	0	0	3	1	0	0	2	16	0	0	0	0	11	3	0	0	1	0	0	0	38
PEAK HR FACTOR:	0.000	0.250	0.000	0.000	0.000	0.000	0.750	0.250	0.000	0.000	0.500	0.571	0.000	0.000	0.000	0.000	0.688	0.375	0.000	0.000	0.250	0.000	0.000	0.000	0.679

Attachment "F"

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-60012-001
Date: 3/31/2026

Data - Bikes

NS/EW Streets	Greeley St/Kimball Hill Road					Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					TOTAL				
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
AM	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2
PEAK HR :	07:00 AM - 08:00 AM																				TOTAL				
PEAK HR VOL :	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR :	04:15 PM - 05:15 PM																				TOTAL				
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

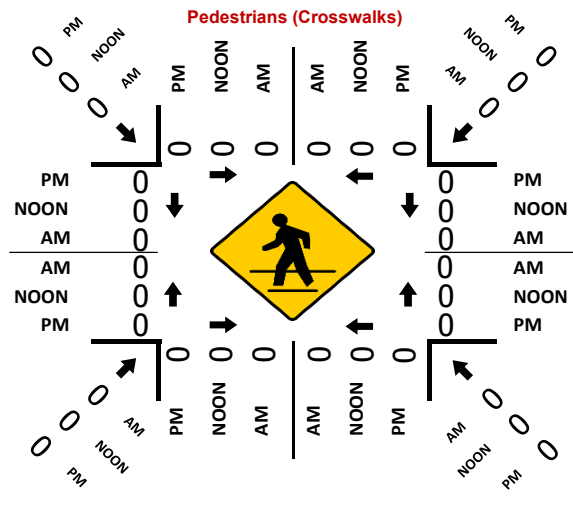
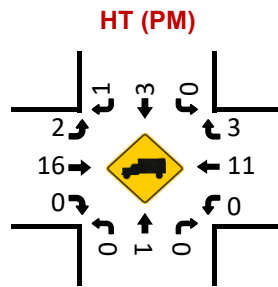
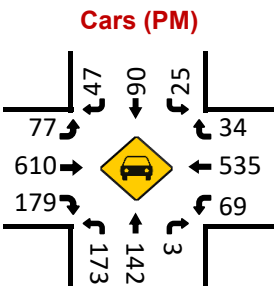
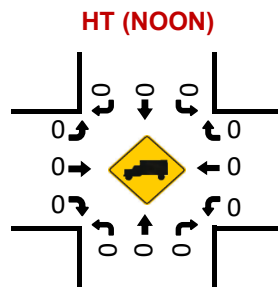
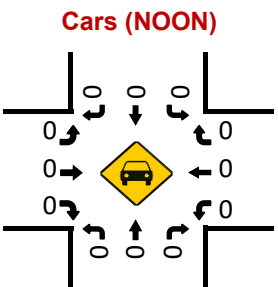
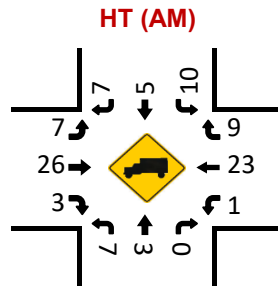
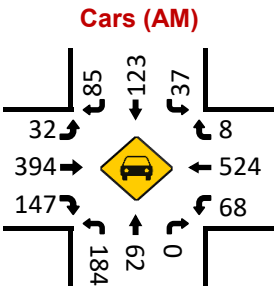
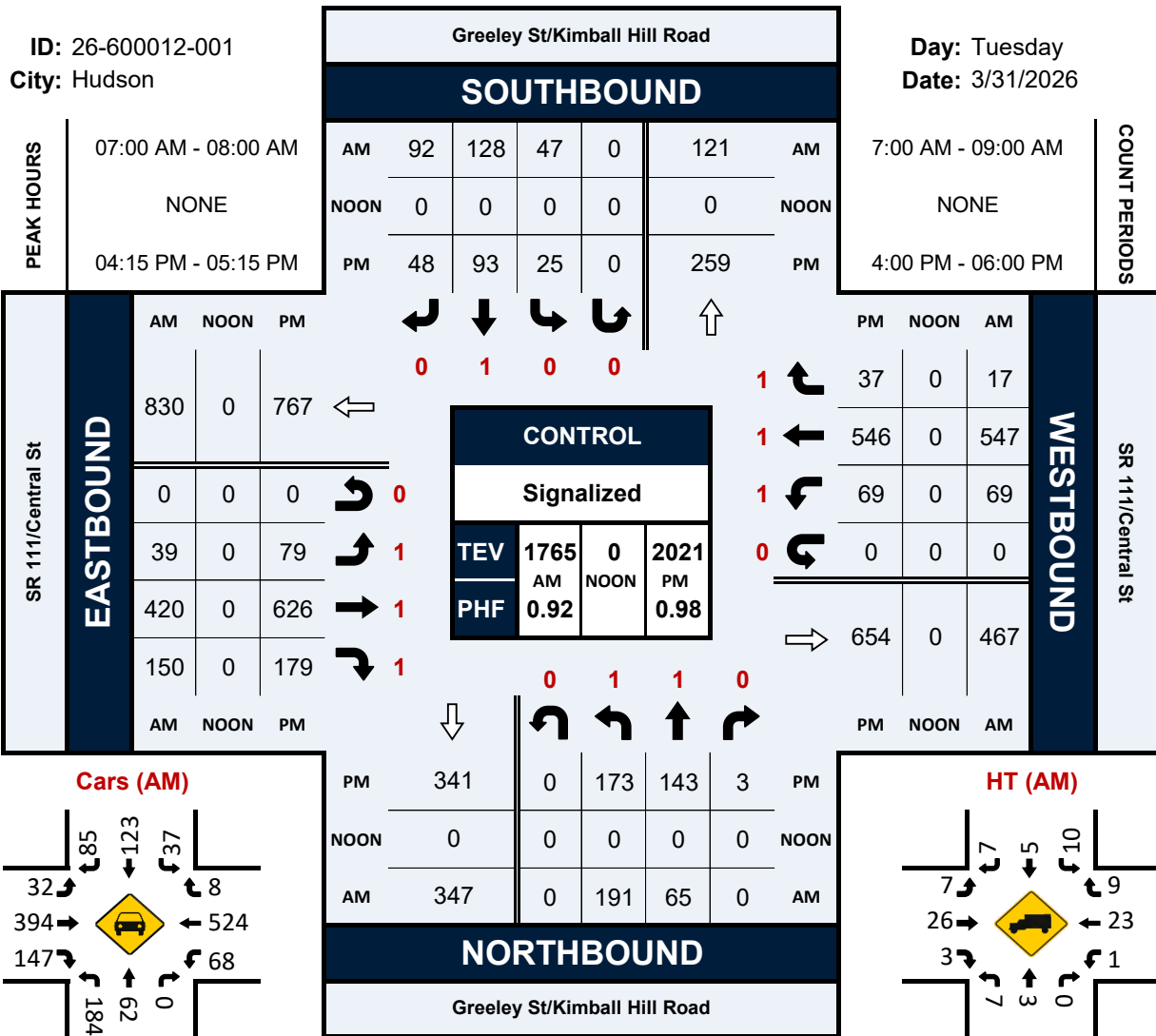
Prepared by National Data & Surveying Services

Greeley St/Kimball Hill Road & SR 111/Central St

Peak Hour Turning Movement Count

ID: 26-600012-001
City: Hudson

Day: Tuesday
Date: 3/31/2026



Project ID: 26-600012.001
 Location: Greeley St/Kimball Hill Road & SR 111/Central St
 City: Hudson
 Day: Tuesday
 Date: 3/31/2026

Start Time	Greeley St/Kimball Hill Road Northbound							Greeley St/Kimball Hill Road Southbound							SR 111/Central St Eastbound							SR 111/Central St Westbound						
	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	39	25	0	0	0	64	0	14	28	20	0	0	62	0	7	95	22	0	0	124	0	12	145	7	0	0	164	414
7:15 AM	51	18	0	0	0	69	0	16	32	34	0	0	82	0	6	97	39	0	0	142	0	16	128	5	0	0	149	442
7:30 AM	60	10	0	0	0	70	0	10	34	30	0	0	74	0	8	117	52	0	0	177	0	16	136	1	0	0	153	474
7:45 AM	41	12	0	0	0	53	0	7	34	8	0	0	49	0	18	111	37	0	0	166	25	138	4	0	0	0	167	435
Total	191	65	0	0	0	256	0	47	128	92	0	0	267	0	39	420	150	0	0	609	69	547	17	0	0	0	633	1765
8:00 AM	28	19	0	0	0	47	0	11	32	26	0	0	69	0	9	103	31	0	0	143	11	141	0	0	0	0	152	411
8:15 AM	44	11	1	0	0	56	0	12	23	14	0	0	49	0	6	104	26	0	0	136	18	146	5	0	0	0	169	410
8:30 AM	39	10	0	0	0	49	0	10	12	20	0	0	42	0	9	101	31	0	0	141	21	151	10	0	0	0	182	414
8:45 AM	31	15	0	0	0	46	0	14	20	9	0	0	43	0	5	73	29	0	0	107	18	130	7	0	0	0	155	351
Total	142	55	1	0	0	198	0	47	87	69	0	0	203	0	29	381	117	0	0	527	68	568	22	0	0	0	658	1586
BREAK																												
4:00 PM	43	38	0	0	0	81	0	13	26	17	0	0	56	0	16	148	27	0	0	191	16	126	10	0	0	0	152	480
4:15 PM	50	40	1	0	0	91	0	3	16	17	0	0	36	0	20	145	52	0	0	217	12	128	5	0	0	0	145	489
4:30 PM	42	29	0	0	0	71	0	10	25	7	0	0	42	0	25	159	44	0	0	228	16	135	12	0	0	0	165	506
4:45 PM	40	37	1	0	0	78	0	6	28	11	0	0	45	0	17	160	49	0	0	217	17	146	11	0	0	0	174	514
Total	175	144	2	0	0	321	0	32	95	52	0	0	179	0	78	612	163	0	0	853	63	535	38	0	0	0	636	1989
5:00 PM	41	37	1	0	0	79	0	6	24	13	0	0	43	0	17	162	43	0	0	222	22	137	9	0	0	0	168	512
5:15 PM	51	38	1	0	0	90	0	7	24	10	0	0	41	0	10	171	36	0	0	217	13	130	4	0	0	0	147	495
5:30 PM	41	28	0	0	1	69	0	10	20	9	0	0	39	0	20	138	46	0	0	204	22	133	13	0	0	0	168	480
5:45 PM	29	25	1	0	0	55	0	3	19	10	0	0	32	0	22	119	47	0	0	188	15	123	7	0	0	0	145	420
Total	162	128	3	0	1	293	0	26	87	42	0	0	155	0	69	590	172	0	0	831	72	523	33	0	0	0	628	1907
Grand Total	670	392	6	0	1	1068	0	152	397	255	0	0	804	0	215	2003	602	0	0	2820	272	2173	110	0	0	0	2555	7247
Approch. %	62.7	36.7	0.6	0.0	0.1	18.9	0.0	49.4	31.7	0.0	0.0	0.0	7.6	71.0	21.3	0.0	0.0	0.0	10.6	85.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	9.2	5.4	0.1	0.0	0.0	14.7	0.0	2.1	5.5	3.5	0.0	0.0	11.1	3.0	27.6	8.3	0.0	0.0	38.9	3.8	30.0	1.5	0.0	0.0	35.3	0.0		
Cars, PU Vans	650	381	6	0	0	1037	0	127	365	241	0	0	753	188	1930	591	0	0	2719	270	2089	90	0	0	2449	6956		
% Cars, PU Vans	97.0	97.2	100.0	0.0	0.0	97.1	0.0	83.6	97.0	94.5	0.0	0.0	93.7	92.1	96.4	98.2	0.0	0.0	96.4	99.3	96.1	81.8	0.0	0.0	95.9	96.0		
Heavy Trucks	20	11	0	0	0	31	0	25	12	14	0	0	51	17	73	11	0	0	101	2	84	20	0	0	106	289		
% Heavy Trucks	3.0	2.8	0.0	0.0	0.0	2.9	0.0	16.4	3.0	5.5	0.0	0.0	6.3	7.9	3.6	1.8	0.0	0.0	3.6	0.7	3.9	18.2	0.0	0.0	4.1	4.0		

Project ID: 26-600012.001
 Location: Greeley S/Kimball Hill Road & SR 111/Central St
 City: Hudson
PEAK HOURS
 Day: Tuesday
 Date: 3/31/2026

AM

Start Time	Greeley S/Kimball Hill Road Northbound				Greeley S/Kimball Hill Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total	
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn		
7:00 AM	39	25	0	0	14	28	20	0	7	95	22	0	12	145	7	0	164	414
7:15 AM	51	18	0	0	16	32	34	0	6	97	39	0	16	128	5	0	149	442
7:30 AM	60	10	0	0	7	34	30	0	8	117	52	0	17	166	1	0	153	474
7:45 AM	41	12	0	0	7	34	8	0	18	111	37	0	25	138	4	0	167	435
Total Volume	191	65	0	0	47	128	92	0	39	420	150	0	69	547	17	0	633	1765
% App. Total	74.6	25.4	0.0	0.0	17.6	47.9	34.5	0.0	6.4	69.0	24.6	0.0	10.9	86.4	2.7	0.0	100	100
PHF	0.925																	
Cars, P.U. Vans	184	62	0	0	37	123	85	0	32	384	147	0	68	524	8	0	600	1664
% Cars, P.U. Vans	96.3	95.4	0.0	0.0	78.7	96.1	92.4	0.0	82.1	93.8	96.0	0.0	94.1	96.6	47.1	0.0	94.8	94.3
Heavy Trucks	7	3	0	0	10	5	7	0	7	26	3	0	3	1	23	9	33	10
% Heavy Trucks	3.7	4.6	0.0	0.0	21.3	3.9	7.6	0.0	17.9	6.2	2.0	0.0	5.9	1.4	4.2	52.9	0.0	5.2

PM

Start Time	Greeley S/Kimball Hill Road Northbound				Greeley S/Kimball Hill Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total		
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn			
4:15 PM	50	40	1	0	3	16	17	0	20	145	52	0	12	128	5	0	145	489	
4:30 PM	42	29	0	0	10	25	7	0	25	159	44	0	228	18	135	12	0	165	
4:45 PM	40	37	1	0	6	28	11	0	17	160	40	0	217	17	146	11	0	174	
5:00 PM	41	37	1	0	6	24	13	0	43	17	162	43	0	222	22	137	9	0	
Total Volume	173	143	3	0	25	93	48	0	166	79	626	179	0	884	69	546	37	0	
% App. Total	54.2	44.8	0.9	0.0	15.1	56.0	28.9	0.0	100	8.9	70.8	20.2	0.0	100	10.6	83.7	5.7	0.0	
PHF	0.895																		
Cars, P.U. Vans	173	142	3	0	25	90	47	0	162	77	610	179	0	866	69	535	34	0	
% Cars, P.U. Vans	100.0	99.3	100.0	0.0	99.7	96.8	97.9	0.0	97.6	97.5	97.4	100.0	0.0	98.0	100.0	98.0	91.9	0.0	
Heavy Trucks	0	1	0	0	0	3	1	0	4	2	16	0	0	18	0	11	3	0	14
% Heavy Trucks	0.0	0.7	0.0	0.0	0.3	3.2	2.1	0.0	2.4	2.5	2.6	0.0	0.0	2.0	0.0	8.1	0.0	2.1	

Peak Hour Analysis from 07:00 AM - 09:00 AM
 Peak Hour for Entire Intersection Begins at 07:00 AM

Peak Hour Analysis from 04:00 PM - 06:00 PM
 Peak Hour for Entire Intersection Begins at 04:15 PM

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Contract: Solarized

Project ID: 26-600012-001
Date: 3/28/2026

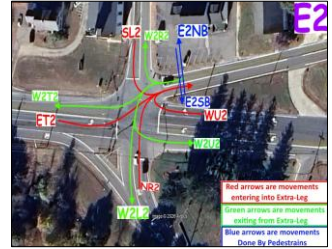
Data - Total

NS/EW Streets	Greeley St/Kimball Hill Road				Greeley St/Kimball Hill Road				SR 111/Central St				SR 111/Central St				TOTAL								
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND												
NOON	NL	NT	NR	NB	NB2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WL2	W2L2	W2T2	W2R2	W2U2	TOTAL
11:00 AM	29	14	0	0	2	9	20	22	0	0	8	94	39	0	7	11	102	6	0	0	4	8	0	0	375
11:15 AM	30	12	0	0	2	3	26	14	0	0	11	61	20	0	6	26	83	6	0	0	1	14	0	0	315
11:30 AM	36	14	1	0	2	11	17	13	0	0	20	107	45	0	15	27	116	4	0	0	4	4	1	0	437
11:45 AM	41	17	0	0	2	5	20	21	0	2	15	78	25	0	13	13	114	7	0	0	0	10	2	0	385
12:00 PM	35	23	0	0	3	6	14	15	0	0	12	96	40	0	10	19	123	2	0	0	3	9	0	0	408
12:15 PM	40	21	1	0	2	7	21	18	0	1	24	104	46	0	9	29	117	4	0	0	2	9	1	0	442
12:30 PM	30	25	1	0	4	8	24	15	0	1	17	124	30	0	18	19	105	5	0	0	5	12	1	0	444
12:45 PM	38	19	0	0	2	7	28	16	0	3	11	92	38	0	10	15	87	9	0	0	3	12	1	1	359
1:00 PM	27	18	0	0	3	6	13	13	0	0	13	113	45	0	9	17	104	3	0	0	2	8	0	1	393
1:15 PM	31	21	1	0	0	7	14	7	0	1	12	109	31	0	4	19	86	6	0	0	6	14	0	0	369
1:30 PM	25	13	0	0	0	5	16	14	0	0	11	96	38	0	11	20	109	7	0	0	2	8	0	0	375
1:45 PM	30	14	0	0	2	5	15	14	0	0	11	93	36	0	8	20	102	5	0	0	3	8	0	0	364
TOTAL VOLUMES	NL	NT	NR	NB	NB2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	WL2	W2L2	W2T2	W2R2	W2U2	TOTAL
APPROACH %	41.84%	13.66%	0.64%	0.00%	1.88%	16.36%	45.53%	36.44%	0.00%	1.66%	8.82%	62.14%	22.62%	0.00%	6.42%	14.74%	81.08%	4.17%	0.00%	0.00%	22.01%	72.96%	3.77%	1.20%	TOTAL
PEAK HR VOL	146	86	7	0	11	26	79	69	0	4	68	400	141	0	60	71	454	18	0	0	10	40	4	0	1474
PEAK HR FACTOR	0.890	0.860	0.300	0.000	0.688	0.813	0.823	0.821	0.000	0.500	0.708	0.806	0.766	0.000	0.694	0.888	0.923	0.643	0.000	0.000	0.500	0.833	0.500	0.000	0.945

Estimation for extra leg movements

Movements entering the extra leg
 E2 Movements across from SR on Greeley St entrance into the Extra Leg (Wintham Rd)
 E2E Movements across from SR on SR 111/Central St entrance into the Extra Leg (Wintham Rd)
 NB2 Movements across from NB on Kimball Hill Road entrance into the Extra Leg (Wintham Rd)
 W2U2 Movements across from WB on SR 111/Central St entrance into the Extra Leg (Wintham Rd)

Movements exiting the extra leg
 W2R2 Movements across from Extra Leg (Wintham Rd) entrance into Greeley St NB
 W2L2 Movements across from Extra Leg (Wintham Rd) entrance into Kimball Hill Road SB
 W2T2 Movements across from Extra Leg (Wintham Rd) entrance into SR 111/Central St WB
 W2U2 Movements across from Extra Leg (Wintham Rd) entrance into SR 111/Central St EB



National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-001
Date: 3/28/2026

Data - Cars

NS/EW Streets:	Greeley St/Kimball Hill Road					Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					TOTAL				
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND									
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EJ	ET2	WL	WT	WR	WU	WU2		W2L2	W2T2	W2R2	W2U2
NOON																									
11:00 AM	28	14	0	0	2	9	20	21	0	0	8	91	38	0	6	11	100	5	0	0	4	8	0	0	365
11:15 AM	29	12	0	0	2	3	25	14	0	0	11	59	20	0	6	24	80	6	0	0	1	14	0	0	306
11:30 AM	36	14	1	0	2	11	17	11	0	0	20	104	44	0	15	25	116	4	0	0	4	4	1	0	429
11:45 AM	40	16	0	0	2	5	20	20	0	2	15	78	25	0	13	12	112	7	0	0	0	10	2	0	379
12:00 PM	35	22	0	0	3	6	14	15	0	0	12	92	39	0	9	19	123	2	0	0	3	9	0	0	403
12:15 PM	40	21	1	0	2	7	21	17	0	1	24	104	46	0	9	20	108	4	0	0	2	9	1	0	437
12:30 PM	30	25	1	0	4	8	22	15	0	1	17	123	29	0	18	19	104	5	0	0	5	12	0	0	438
12:45 PM	30	19	0	0	2	7	20	10	0	3	11	90	28	0	10	15	95	8	0	0	3	12	1	1	355
1:00 PM	27	15	0	0	3	5	13	12	0	0	13	109	44	0	9	17	101	3	0	0	2	8	0	1	382
1:15 PM	31	21	1	0	0	6	13	7	0	1	12	108	31	0	4	18	81	6	0	0	6	14	0	0	360
1:30 PM	24	12	0	0	0	5	16	14	0	0	11	94	36	0	11	20	107	7	0	0	2	8	0	0	367
1:45 PM	28	12	0	0	2	5	15	13	0	0	11	91	35	0	8	20	100	5	0	0	3	8	0	0	356
TOTAL VOLUMES:	378	203	4	0	24	77	216	169	0	8	165	1143	415	0	118	220	1217	62	0	0	35	116	5	2	4577
APPROACH %:	62.07%	33.33%	0.66%	0.00%	3.94%	16.38%	45.96%	35.96%	0.00%	1.70%	8.96%	62.09%	22.34%	0.00%	6.41%	14.68%	81.19%	4.14%	0.00%	0.00%	22.15%	73.42%	3.16%	1.27%	
PEAK HR:	11:45 AM - 12:45 PM																								
PEAK HR VOL:	145	84	2	0	11	26	77	67	0	4	68	397	139	0	49	70	447	18	0	0	10	40	3	0	1657
PEAK HR FACTOR:	0.906	0.840	0.500	0.000	0.688	0.813	0.875	0.838	0.000	0.500	0.708	0.807	0.755	0.000	0.681	0.875	0.909	0.643	0.000	0.000	0.500	0.833	0.375	0.000	0.946

Attachment "F"

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 26-600012-001
Date: 3/28/2026

Data - HT

NS/EW Streets:	Greeley St/Kimball Hill Road					Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					TOTAL					
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND										
NOON	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EJ	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2		
11:00 AM	1	0	0	0	0	0	0	1	0	0	0	3	1	0	1	0	2	1	0	0	0	0	0	0	0	10
11:15 AM	1	0	0	0	0	0	1	0	0	0	0	2	0	0	0	2	3	0	0	0	0	0	0	0	0	9
11:30 AM	0	0	0	0	0	0	0	2	0	0	0	3	1	0	0	2	0	0	0	0	0	0	0	0	0	8
11:45 AM	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	6
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	5
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5
12:30 PM	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	0	6
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	4
1:00 PM	0	1	0	0	0	1	0	1	0	0	0	4	1	0	0	0	3	0	0	0	0	0	0	0	0	11
1:15 PM	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	5	0	0	0	0	0	0	0	0	9
1:30 PM	1	1	0	0	0	0	0	0	0	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	8
1:45 PM	2	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	8
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EJ	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL	
APPROACH %:	50.00%	50.00%	0.00%	0.00%	0.00%	15.38%	30.77%	53.85%	0.00%	0.00%	0.00%	65.52%	27.59%	0.00%	6.90%	17.65%	76.47%	5.88%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	89	
PEAK HR:	11:45 AM - 12:45 PM																									
PEAK HR VOL:	1	2	0	0	0	0	2	2	0	0	0	3	2	0	1	1	7	0	0	0	0	0	1	0	22	
PEAK HR FACTOR:	0.250	0.500	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.375	0.500	0.000	0.250	0.250	0.438	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.917	

Attachment "F"

National Data & Surveying Services Intersection Turning Movement Count

Location: Greeley St/Kimball Hill Road & SR 111/Central St
City: Hudson
Control: Signalized

Project ID: 25-600012-001
Date: 3/28/2025

Data - Bikes

NS/EW Streets:	Greeley St/Kimball Hill Road					Greeley St/Kimball Hill Road					SR 111/Central St					SR 111/Central St					TOTAL					
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND										
NOON	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EJ	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EJ	ET2	WL	WT	WR	WU	WU2	W2L2	W2T2	W2R2	W2U2	TOTAL	
APPROACH %:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
PEAK HR:	11:45 AM - 12:45 PM																				0					
PEAK HR VOL:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PEAK HR FACTOR:	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	

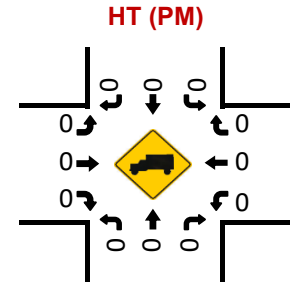
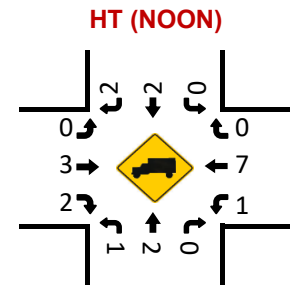
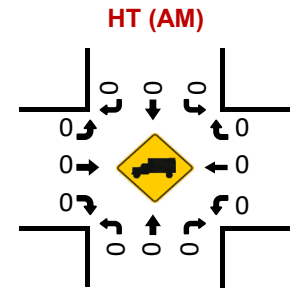
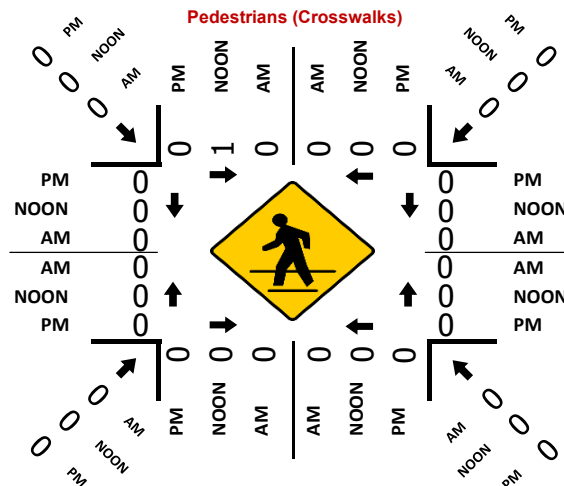
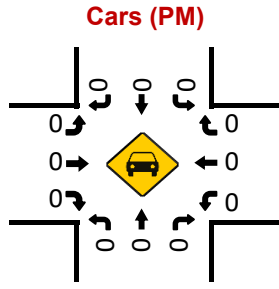
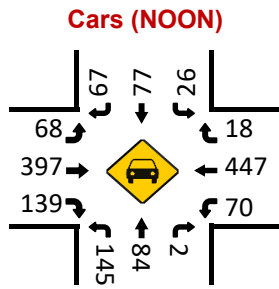
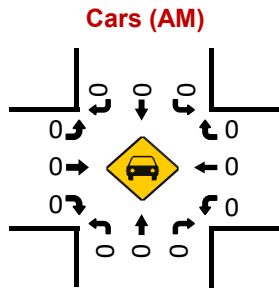
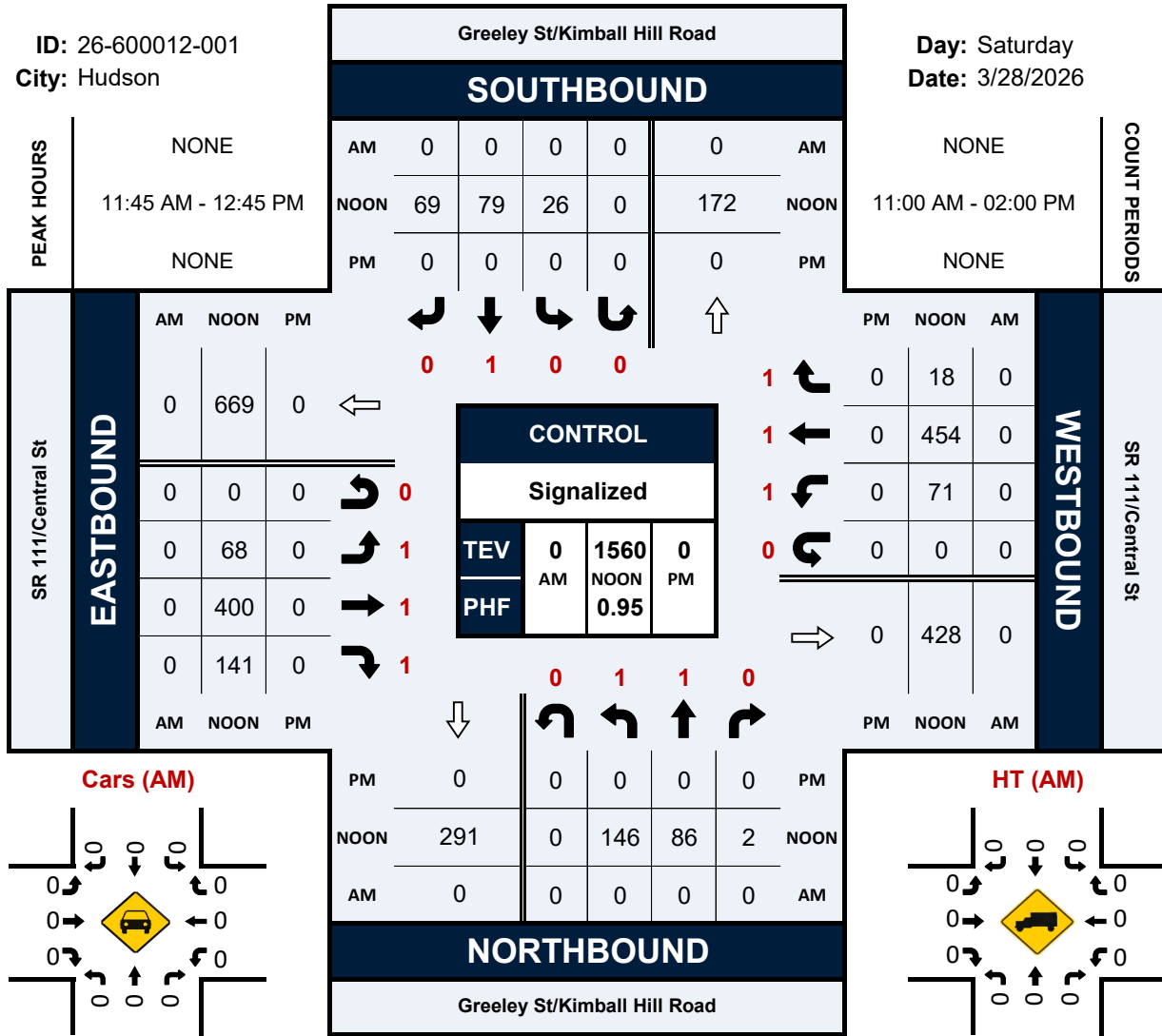
Prepared by National Data & Surveying Services

Greeley St/Kimball Hill Road & SR 111/Central St

Peak Hour Turning Movement Count

ID: 26-600012-001
City: Hudson

Day: Saturday
Date: 3/28/2026



Project ID: 26-600012.001
 Location: Greeley S/Kimball Hill Road & SR 111/Central St
 City: Hudson
 Day: Saturday
 Date: 3/28/2026

PEAK HOURS

Start Time	Greeley S/Kimball Hill Road Northbound				Greeley S/Kimball Hill Road Southbound				SR 111/Central St Eastbound				SR 111/Central St Westbound				Int. Total				
	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn	Left	Thru	Rgt	Uturn					
11:45 AM	41	17	0	0	5	20	21	0	46	15	78	25	0	118	13	114	7	0	134	356	
12:00 PM	35	23	0	0	6	14	15	0	35	12	94	40	0	146	19	123	2	0	144	383	
12:15 PM	40	21	1	0	7	21	18	0	46	24	104	46	0	174	20	112	4	0	136	418	
12:30 PM	30	25	1	0	8	24	15	0	47	17	124	30	0	171	19	105	5	0	129	403	
Total Volume	146	86	2	0	234	26	79	69	174	68	400	141	0	609	71	454	18	0	543	1560	
% App. Total	62.4	36.8	0.9	0.0	100	14.9	45.4	39.7	0.0	100	11.2	65.7	23.2	0.0	100	13.1	83.6	3.3	0.0	100	0.943
PHF	0.957				0.927				0.872				0.943				0.945				
Cars, P.U. Vans	145	84	2	0	231	26	77	67	170	68	397	139	0	604	70	447	18	0	535	1540	
% Cars, P.U. Vans	99.3	97.7	100.0	0.0	98.7	100.0	97.5	97.1	0.0	97.7	100.0	96.3	0.0	99.2	98.6	98.5	100.0	0.0	98.5	98.7	
Heavy Trucks	1	2	0	0	3	0	2	2	0	4	0	3	2	0	5	1	7	0	0	8	20
% Heavy Trucks	0.7	2.3	0.0	0.0	1.3	0.0	2.5	2.9	0.0	2.3	0.0	0.8	1.4	0.0	0.8	1.4	1.5	0.0	0.0	1.5	1.3

Peak Hour Analysis from 11:00 AM - 02:00 PM
 Peak Hour for Entire Intersection Begins at 11:45 AM

SEASONAL ADJUSTMENT DATA

Attachment "F"

Group 4 Averages: Urban Highways

Month	MADT	Adjustment		GROUP	Station	TOWN	LOCATION
		Average	nt to Peak				
January	14,556	1.04	1.09	04	02051003	Bow	NH 3A south of Robinson Rd
February	15,385	0.98	1.03	04	02089001	Chichester	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
March	14,276	1.06	1.11	04	02091001	Claremont	NH 12/103 east of Vermont SL
April	14,515	1.04	1.10	04	02125001	Dover	Dover Point Rd south of Thornwood Ln
May	15,571	0.97	1.02	04	02133021	Durham	US 4 east of NH 108
June	15,918	0.95	1.00	04	02229022	Hudson	Circumferential Hwy east of Nashua TL
July	15,765	0.96	1.01	04	02253025	Lebanon	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
August	15,856	0.95	1.00	04	02255001	Barrington	NH 125 (Calef Hwy) north of Pinkham Rd
September	15,571	0.97	1.02	04	02287001	Marlborou	NH 12 at Swanzey TL
October	15,698	0.96	1.01	04	02297001	Merrimack	US 3 (Daniel Webster Hwy) north of Hilton Dr
November	14,429	1.05	1.10	04	02303001	Amherst	NH 101A at Amherst TL (west of Overlook Dr)
December	13,960	1.08	1.14	04	02315051	Hudson	NH 111 (Bridge / Ferry St) at Hudson TL
Average All	15,125			04	02339001	Newport	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
Peak ADT:	15,918			04	02345001	North Har	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	Pleasant St
				04	82101033	Conway	White Mountain Hwy at Pleasant St
				04	82169060	Gilford	Weirs Rd Rte: NH 11B
				04	82197076	Hampton	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

PUBLIC TRANSPORTATION DATA

SOME HELPFUL SCHEDULING TIPS

You must make your reservation two business days in advance. We will ask you to pre-schedule your return ride, if one is necessary.

Please try to schedule a realistic time. If you expect to be ready to return at 3:00pm, please ask for a 3:15pm or 3:30pm return trip so you do not miss your ride if you are delayed.

If you are going to be delayed, please call NTS. We will attempt to honor your new requested time, but we will not be able to guarantee that you will not have to wait for an available vehicle.

SAME DAY CHANGES IN DESTINATIONS OR SCHEDULED PICK-UP TIMES ARE NOT ALLOWED.

WHAT ARE THE SERVICE HOURS?

Monday– Friday: 8:00AM – 5:00PM

Service is NOT available on weekends or on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

NASHUA TRANSIT SYSTEM

Phone: (603) 880-0100
Nashua Transit System
11 Riverside Street
Nashua, NH 03062
ridebigblue.com

FOR SAFETY'S SAKE...

If you use a three wheeled mobility device, the driver will ask you to transfer to a seat in the vehicle and your mobility device can be properly secured.

ALL PASSENGERS MUST WEAR A SEATBELT!

You may not operate any audio or visual equipment that may infringe upon the comfort of other passengers or impair the driver's ability to transport his/her passengers in a safe manner. We cannot allow any inappropriate behavior, activities or conversations onboard that may interfere with the safety and comfort of our passengers. Failure to follow appropriate decorum could result in suspension of your service.

Please report any concerns that you may have. You can do this by informing the driver or by calling the NTS administrative office at (603)880-0100

WHEN YOU CALL, PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE:

- Full name
- Telephone number
- Date of trip
- Pick-up address and drop off address
- Times you would like to arrive and return from your destination.
- Whether you use a mobility device
- Whether a personal attendant/ PCA or companion will be riding with you
- Whether you will need any assistance from the driver at your pick up or drop off location.



Nashua Transit System

**CITY LIFT RIDE GUIDE
PARATRANIST SERVICES**

FOR RESIDENTS OF:

THE TOWN OF MERRIMACK

AND

THE TOWN OF HUDSON

NASHUA TRANSIT SYSTEMS CITY LIFT SERVICE IS A PUBLIC TRANSPORTATION SERVICE FOR INDIVIDUALS WITH DISABILITIES AND RESIDENTS OF HUDSON AND MERRIMACK.

SERVICE IS AVAILABLE ON A SPACE AVAILABLE BASIS.

Attachment "F"



OTHER IMPORTANT HOW-TO-RIDE TIPS!

Please be prepared to meet the vehicle at the curb if you do not need assistance. If assistance is needed getting to the vehicle, and you have told us so, please be ready at the building entrance door that you specified while making your reservation.

The vehicle may arrive anytime within a thirty (30) minute "window", up to fifteen (15) minutes before and fifteen (15) minutes after your scheduled pick-up time. If you are not available or not ready to take your trip, the driver will leave.

If the vehicle has not yet arrived within fifteen (15) minutes of the scheduled time, please call us at (603) 880-0100 extension 1.

We have a 2 bag limit on all parcels. You must be able to carry your packages and hold onto them at all times while in the vehicle.

Please remember City Lift IS NOT a taxi service or a Medical Transportation service.

WHAT ARE THE FARES?

MERRIMACK

To NASHUA: \$4.00
To HUDSON: \$6.00
To: MERRIMACK: \$2.00

HUDSON

To NASHUA : \$5.50
To HUDSON: \$3.50
To MERRIMACK: \$7.50

WHAT IF I NO LONGER NEED A RIDE?

It is very important that you call NTS if you are not going to need a scheduled trip by 5:00pm the day before. To cancel a trip, please call 880-0100 extension 1.

Failure to cancel a trip more than one (1) hour before the scheduled trip time is considered a No-Show. NTS would like to meet all of the transit needs in its service area. However, misuse of our service such as excessive No-Shows or Cancellations, prevents NTS from providing as much service as would be possible otherwise.

A NO-SHOW IS DEFINED AS:

Failure to be at the scheduled pick-up location within five (5) minutes at the arrival of our vehicle. Failure to give NTS at least one (1) hour notice that you will no longer need a scheduled trip. Trips missed because of service related problems or for reasons beyond an individuals control are not considered "NO SHOWS."

MAY I BRING SOMEONE WITH ME?

If you have a registered personal attendant/PCA with NTS, he/she may accompany you at any time at no additional charge. You must inform dispatch when scheduling a trip.

Family members or friend (companions) are also welcome to ride with you on a space available basis. An additional fare equal to what you pay is required.

As in the case of fixed route service (City Bus), companions less than six (6) years of age ride free.

In order to travel with you, your personal attendants or companions must have the same origin, destination, and pick-up times as you. Reservations are accepted up to two weeks prior to requested trip.

Service Animals are allowed. Please Remind NTS at the time you schedule your ride that a service animal will be riding with you. Pets are not allowed.

VEHICLE SPEED DATA

Attachment "F"



Job Hudson, NH
Location At Site Drive
Calculated By: S.R.F.
Checked By: _____

Job # 10614
Date 3/25/2016

Street: Route 111
Direction: Southbound

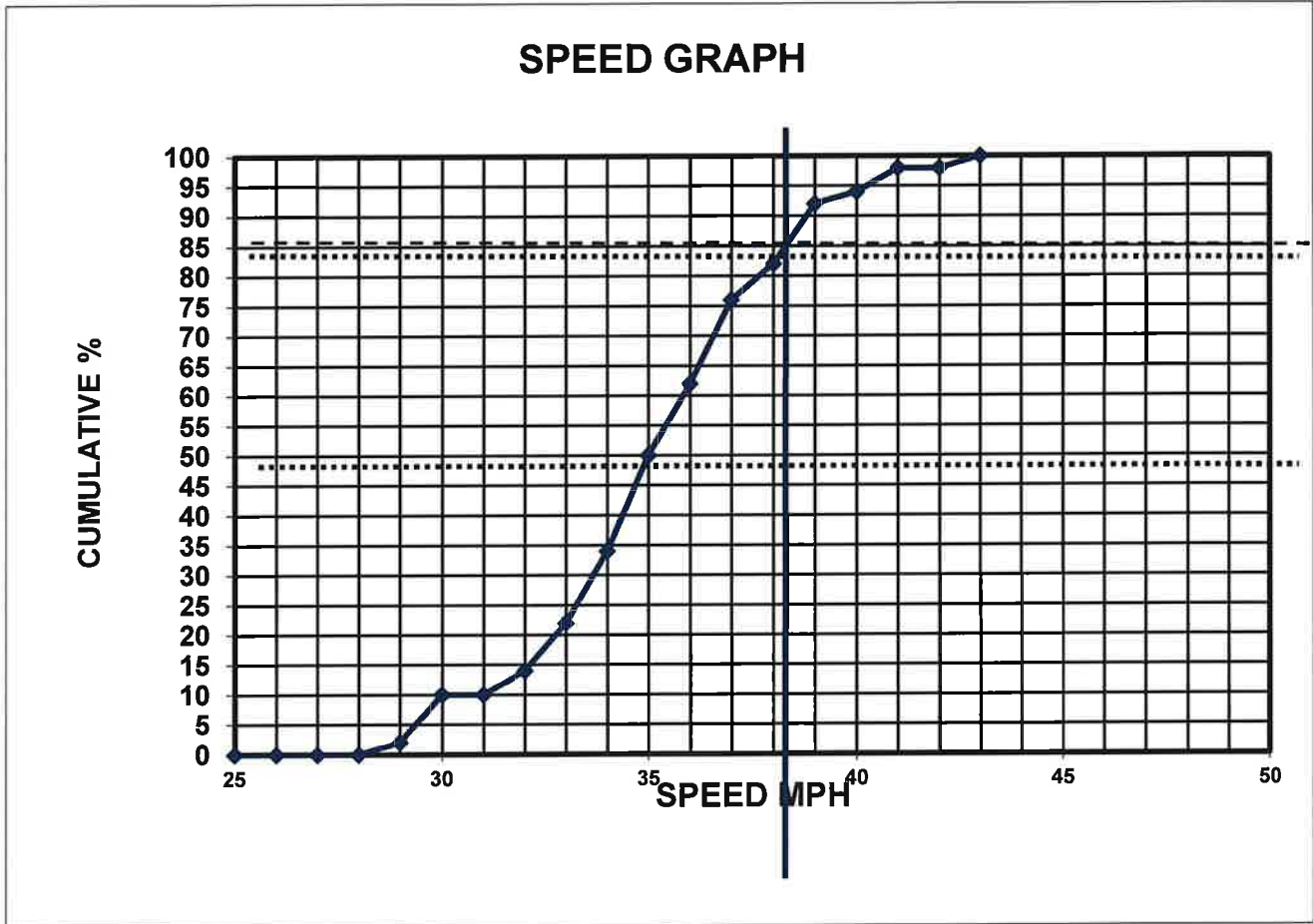
Speed Limit: 35
Time of Day 2:45 p.m.
Observations 50

Speed	# of Observation	CUM. # Of OBS	% OF TOTAL OBS	CUM %
55				
54				
53				
52				
51				
50				
49				
48				
47				
46				
45				
44				
43	1	1	2	100
42	0	1	0	98
41	2	3	4	98
40	1	4	2	94
39	5	9	10	92
38	3	12	6	82
37	7	19	14	76
36	6	25	12	62
35	8	33	16	50
34	6	39	12	34
33	4	43	8	22
32	2	45	4	14
31	0	45	0	10
30	4	49	8	10
29	1	50	2	2
28				
27				
26				
25				
24				
23				
22				
21				
20				

Average: 35.56
Comments: 85% = 38.3 m.p.h.

Street: Route 111
Direction: Southbound

Job # 10614
Date 3/25/2016



Attachment "F"



Job Hudson, NH
Location At Site Drive
Calculated By: S.R.F.
Checked By: _____

Job # 10614
Date 3/25/2026

Street: Route 111
Direction: Northbound

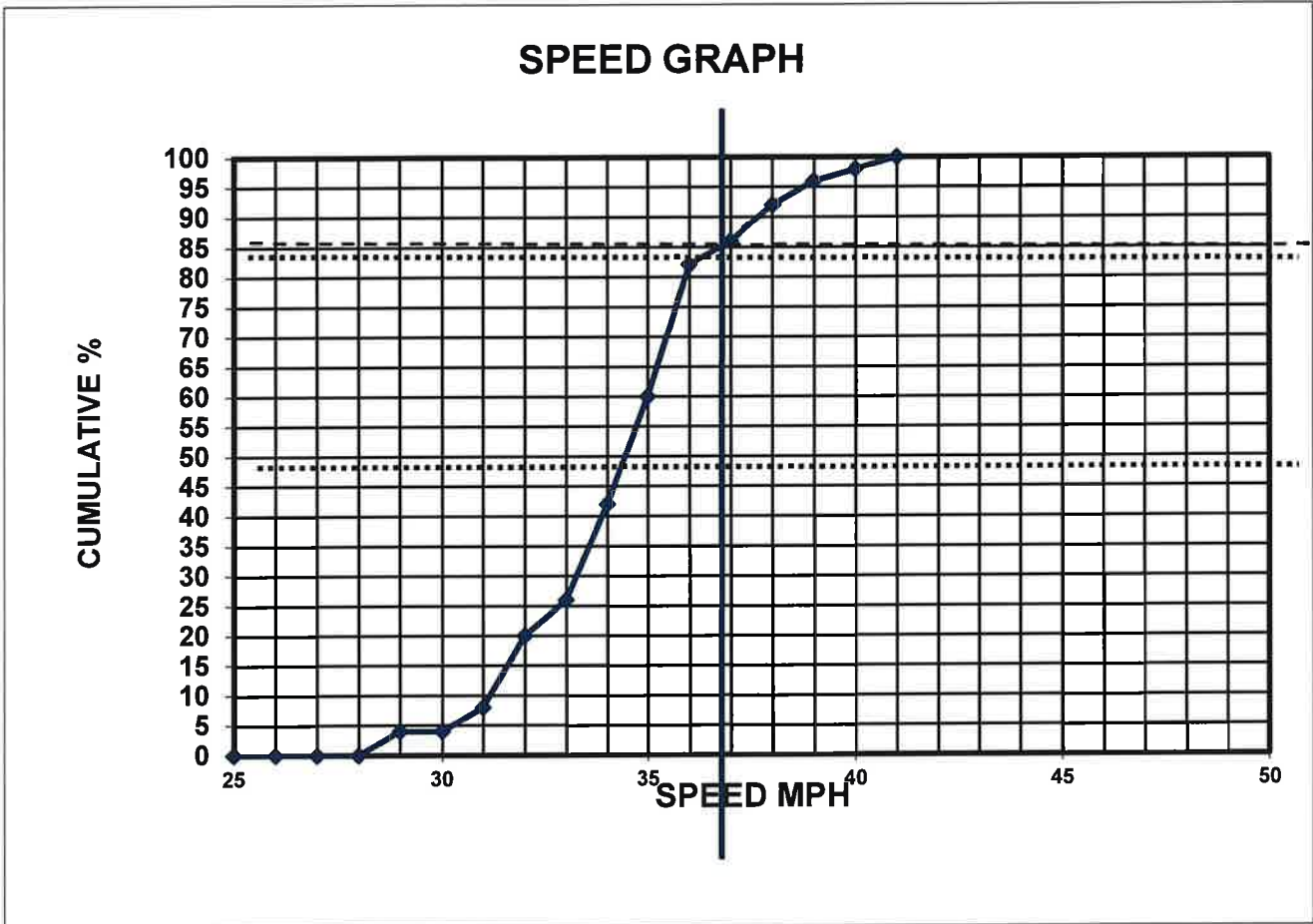
Speed Limit: 35
Time of Day 2:45 p.m.
Observations 50

Speed	# of Observation	CUM. # Of OBS	% OF TOTAL OBS	CUM %
55				
54				
53				
52				
51				
50				
49				
48				
47				
46				
45				
44				
43				
42				
41	1	1	2	100
40	1	2	2	98
39	2	4	4	96
38	3	7	6	92
37	2	9	4	86
36	11	20	22	82
35	9	29	18	60
34	8	37	16	42
33	3	40	6	26
32	6	46	12	20
31	2	48	4	8
30	0	48	0	4
29	2	50	4	4
28				
27				
26				
25				
24				
23				
22				
21				
20				

Average: 34.82
Comments: 85% = 36.8 m.p.h.

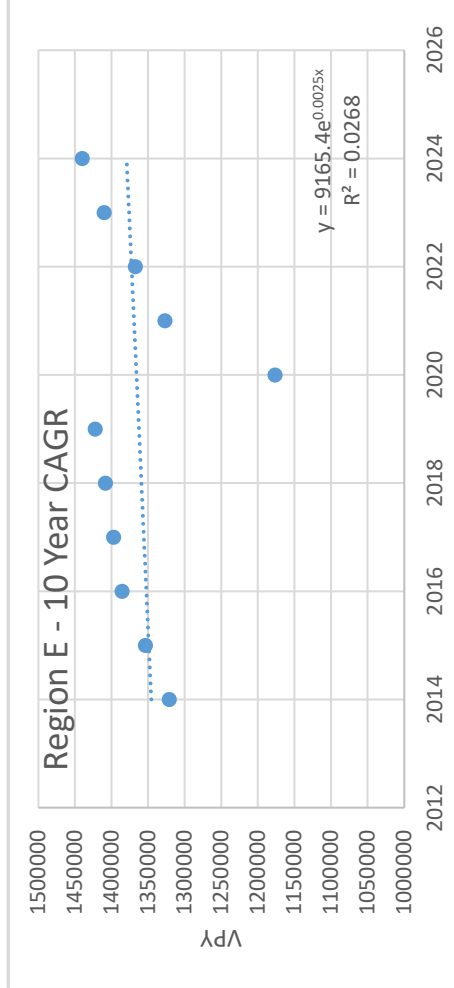
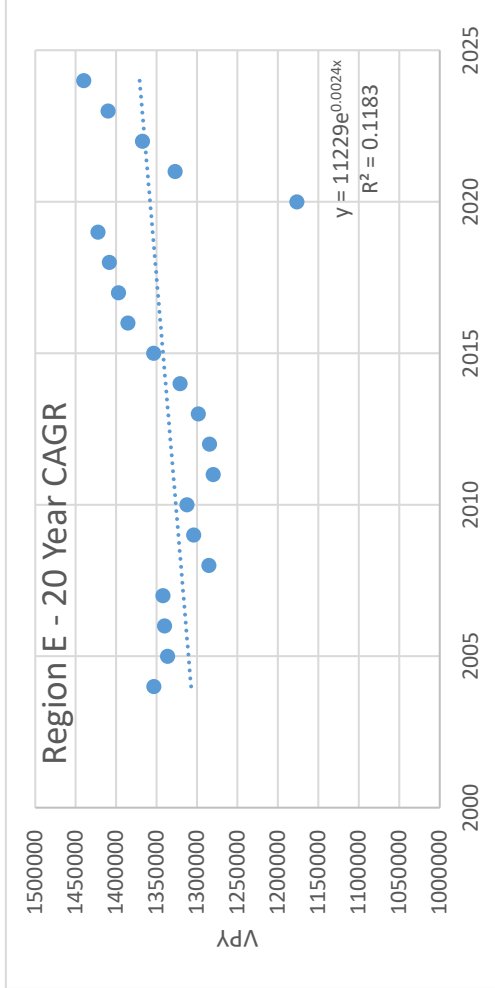
Street: Route 111
Direction: Northbound

Job # 10614
Date 3/25/2026



GROWTH RATE DATA

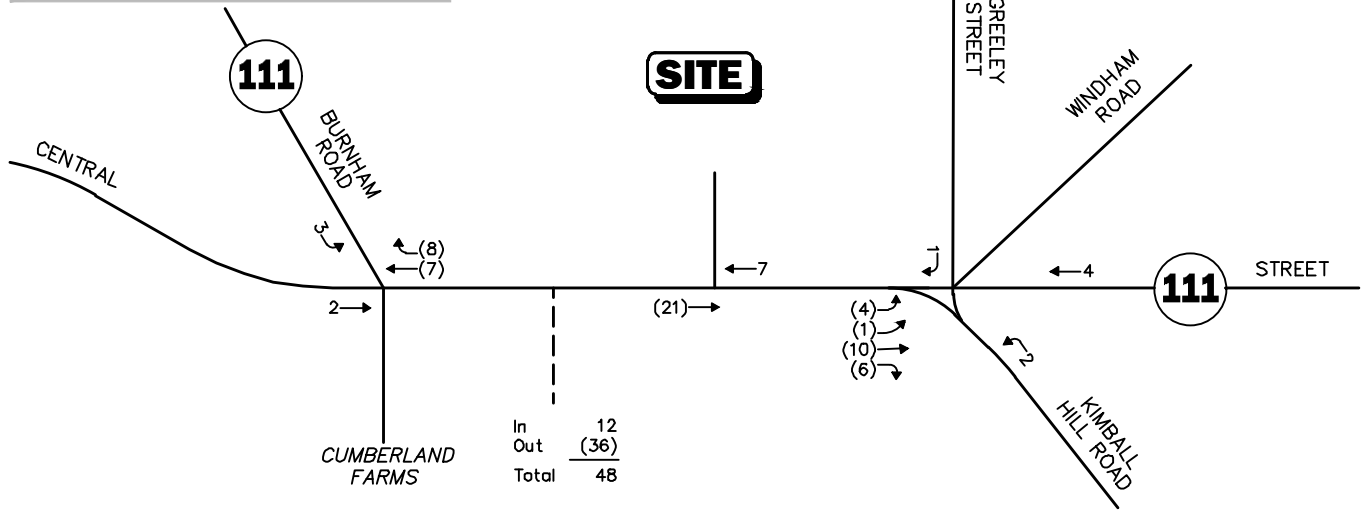
Region E		
Year	VPY	Annual Change
2004	1,353,263	
2005	1,336,129	-1.27%
2006	1,340,011	0.29%
2007	1,341,995	0.15%
2008	1,285,116	-4.24%
2009	1,303,948	1.47%
2010	1,312,251	0.64%
2011	1,279,824	-2.47%
2012	1,284,314	0.35%
2013	1,298,171	1.08%
2014	1,320,862	1.75%
2015	1,353,486	2.47%
2016	1,385,361	2.36%
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%



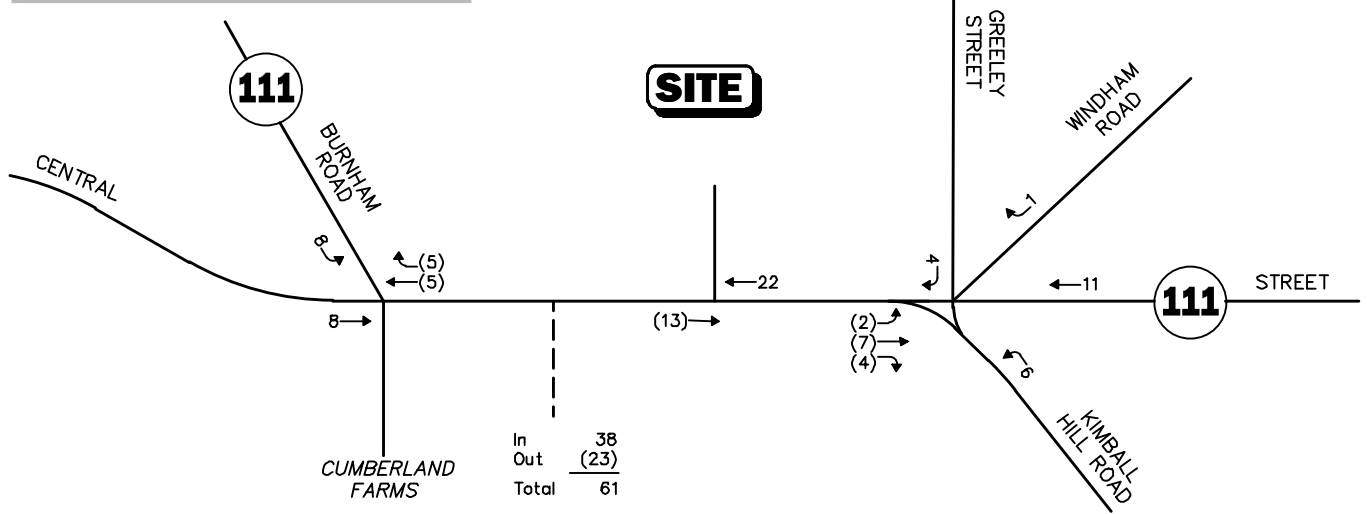
Year CAGR:	0.31%	10 Year CAGR:	0.87%
10 Year EXP:	0.24%	10 Year EXP:	0.25%
10-Average:	0.27%	10-Average:	0.56%

BACKGROUND DEVELOPMENT FIGURES

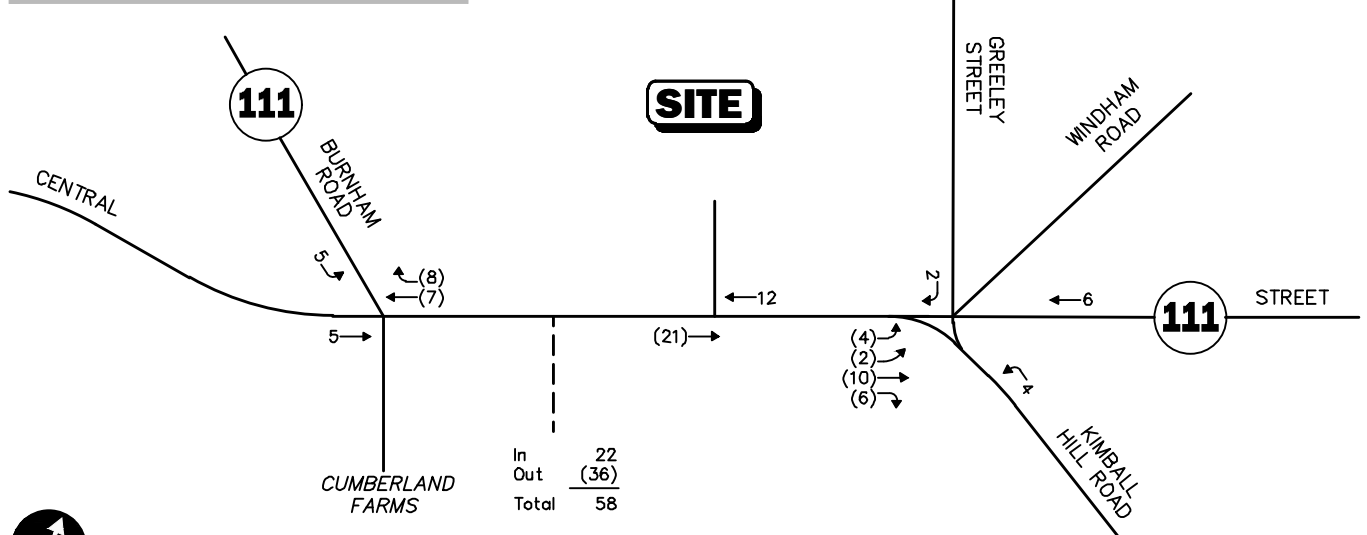
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Not To Scale

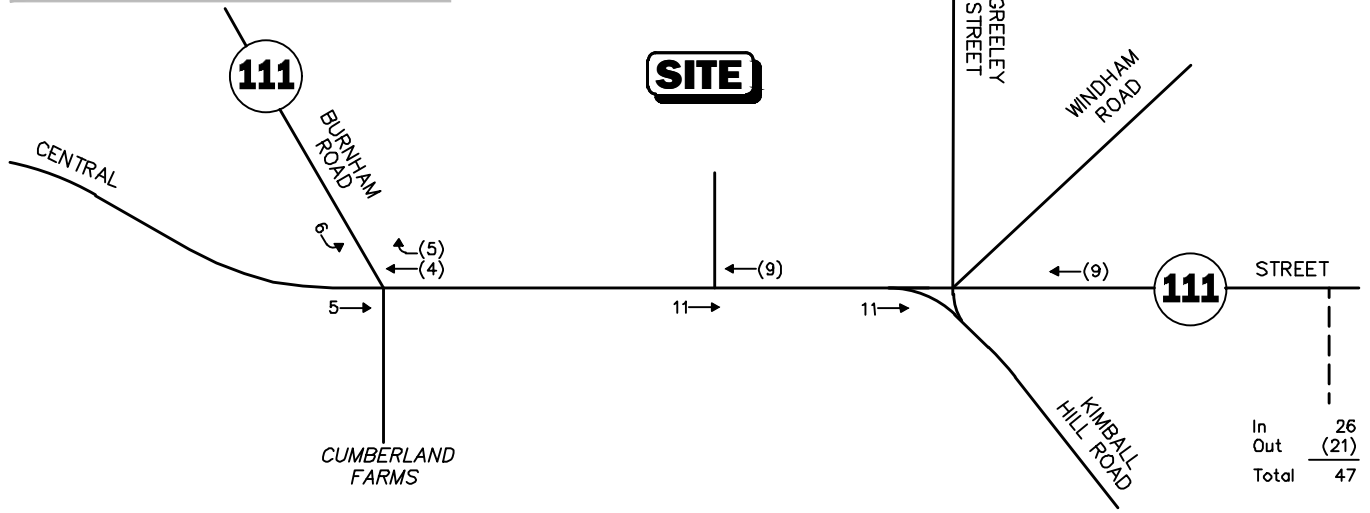
Figure A-1

**Background Development
207 Central Street
Peak-Hour Traffic Volumes**

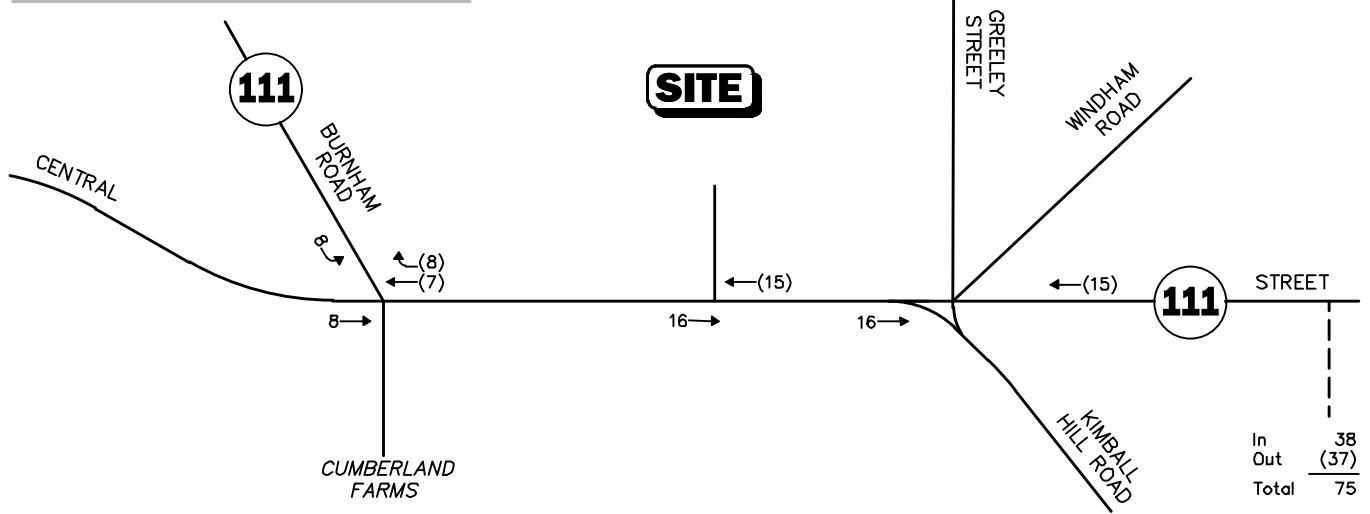


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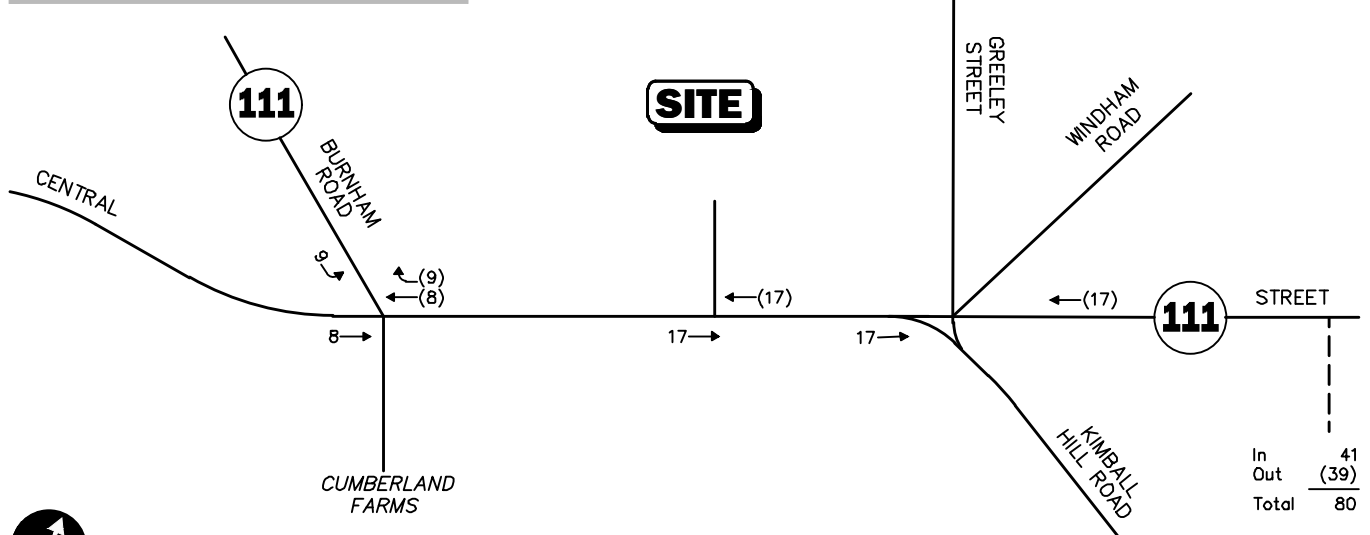
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



 Not To Scale

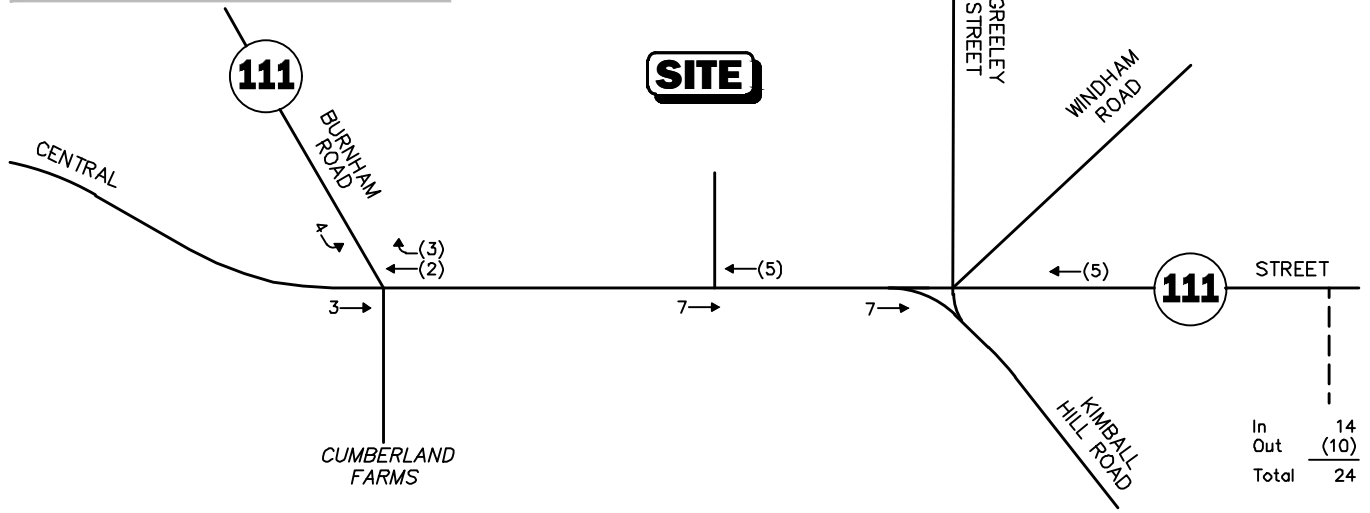
Figure A-2

**Background Development
1 Bockes Road
Peak-Hour Traffic Volumes**

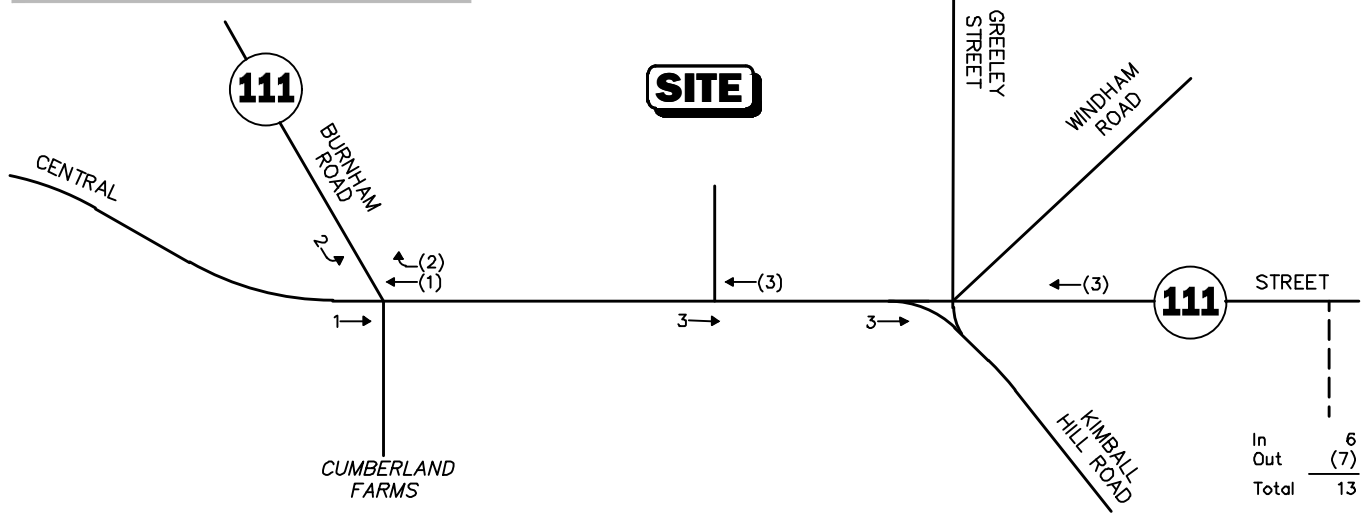


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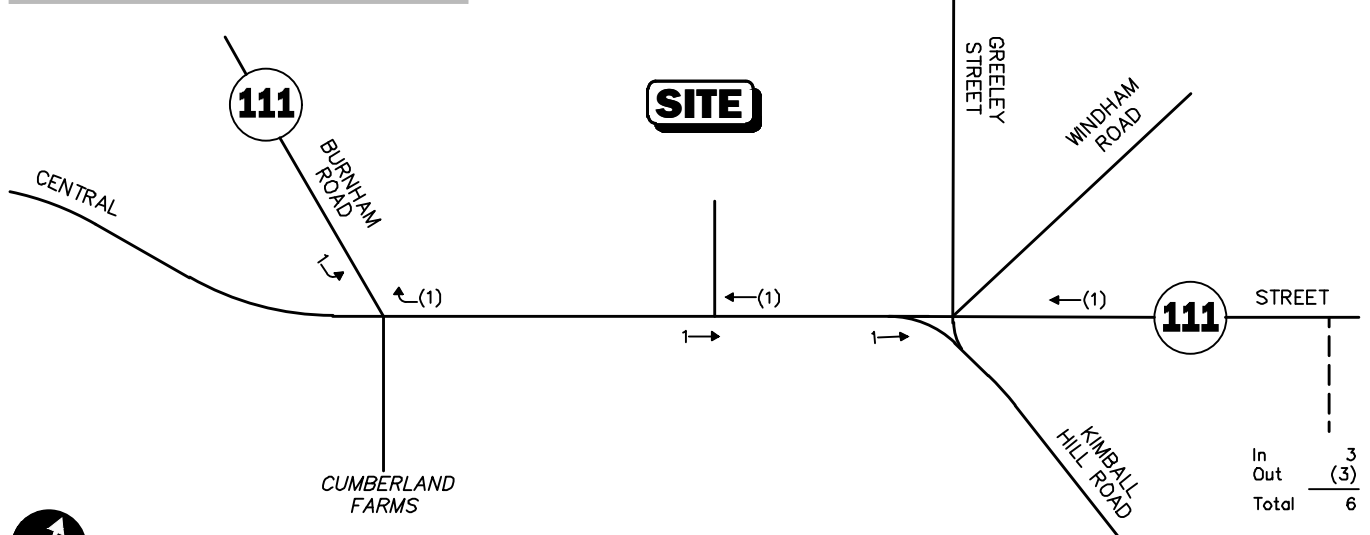
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Not To Scale

Figure A-3

**Background Development
3 Sullivan Road
Peak-Hour Traffic Volumes**



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BURGER KING TRIP GENERATION DATA AND FIGURE

Institute of Transportation Engineers (ITE)

Trip Generation , 12th Edition

Land Use Code (LUC) 934 - Fast-Food Restaurant with Drive-Through Window

Average Vehicle Trips Ends vs: 1000 Square Feet Gross Floor Area
Independent Variable (X): 4.958

AVERAGE WEEKDAY DAILY

$$T = 448.12 * (X)$$

$$T = 448.12 * 4.958$$

$$T = 2221.78$$

$$T = 2,222 \text{ vehicle trips}$$

with 50% (1,111 vpd) entering and 50% (1,111 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 33.24 * (X)$$

$$T = 33.24 * 4.958$$

$$T = 164.80$$

$$T = 165 \text{ vehicle trips}$$

with 51% (84 vph) entering and 49% (81 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 31.60 * (X)$$

$$T = 31.60 * 4.958$$

$$T = 156.67$$

$$T = 157 \text{ vehicle trips}$$

with 52% (82 vph) entering and 48% (75 vph) exiting.

SATURDAY DAILY

$$T = 522.28 * (X)$$

$$T = 522.28 * 4.958$$

$$T = 2589.46$$

$$T = 2,590 \text{ vehicle trips}$$

with 50% (1,295 vpd) entering and 50% (1,295 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$T = 50.75 * (X)$$

$$T = 50.75 * 4.958$$

$$T = 251.62$$

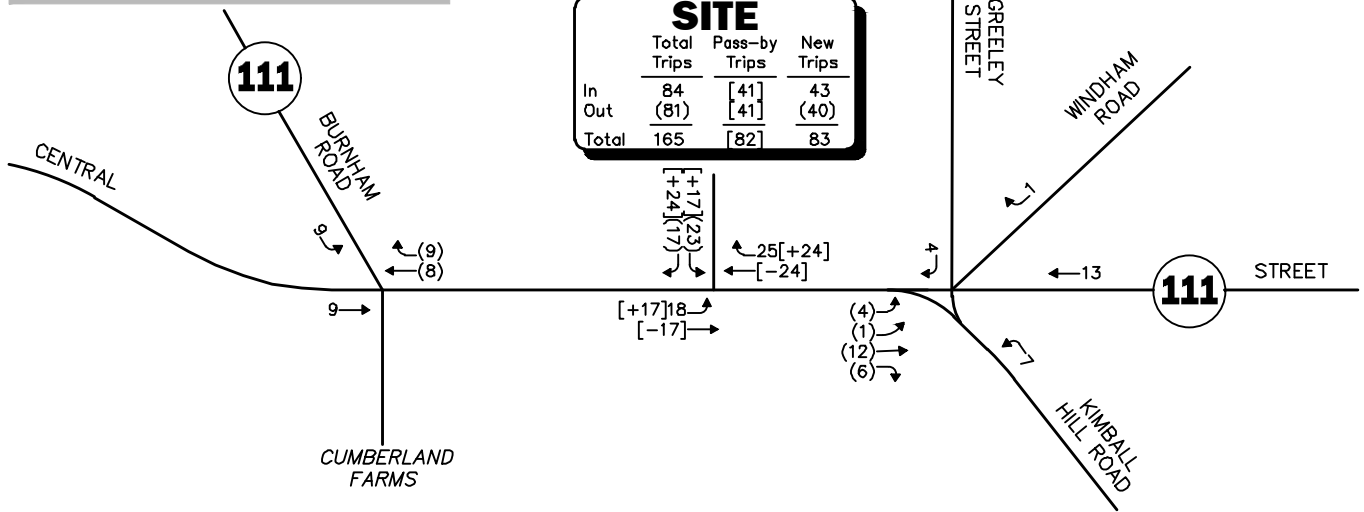
$$T = 252 \text{ vehicle trips}$$

with 51% (129 vph) entering and 49% (123 vph) exiting.

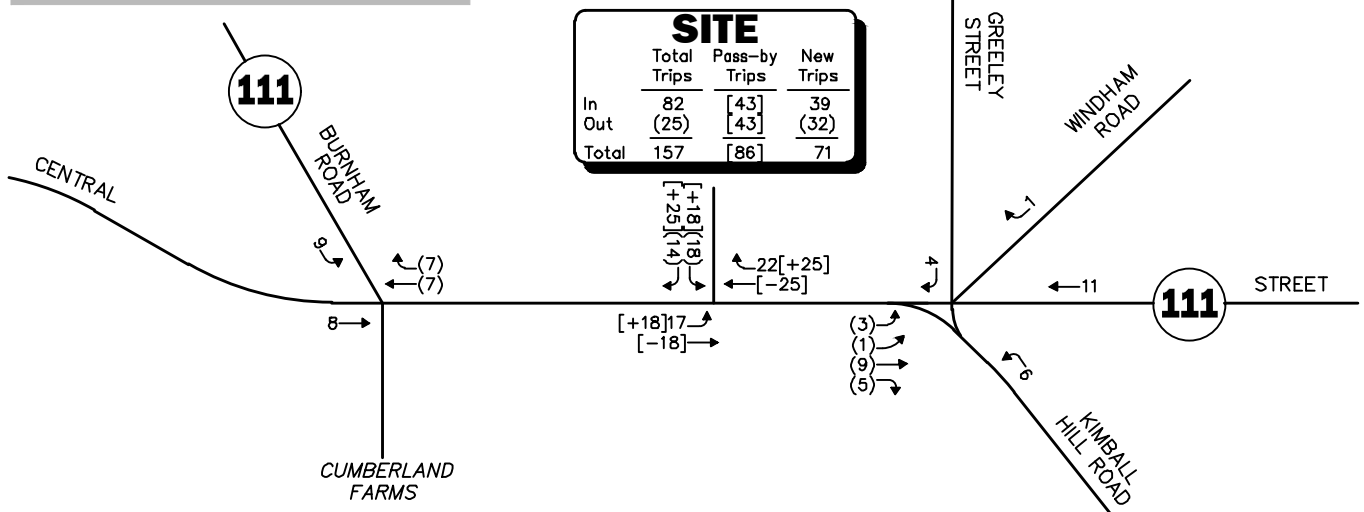
Vehicle Pass-By Rates by Land Use									
Source: ITE <i>Trip Generation Manual</i> , 12th Edition									
Land Use Code	934								
Land Use	Fast-Food Restaurant with Drive-Through Window								
Setting	General Urban/Suburban								
Time Period	Weekday AM Peak Period								
# Data Sites	5								
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

Vehicle Pass-By Rates by Land Use									
Source: ITE Trip Generation Manual , 12th 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

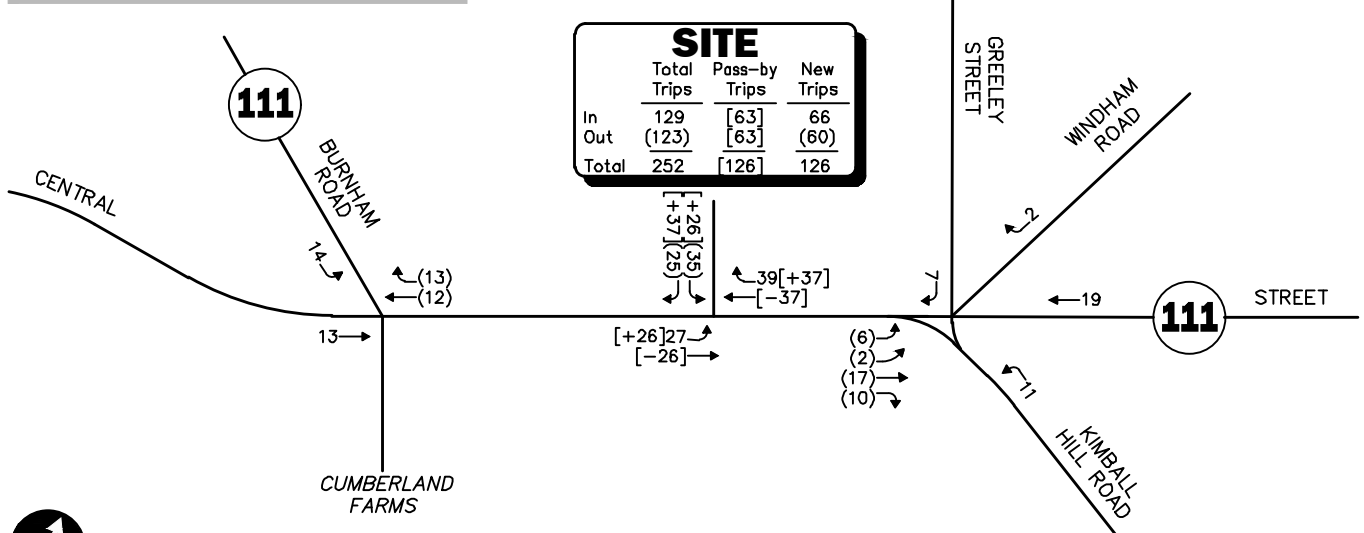
WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



SATURDAY MIDDAY PEAK HOUR



Not To Scale

Figure A-4

Burger King Reoccupied Peak-Hour Traffic Volumes



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TRIP GENERATION DATA

**Institute of Transportation Engineers (ITE)
Trip Generation , 12th Edition
Land Use Code (LUC) 947 - Self-Service Car Wash**

Average Vehicle Trips Ends vs: 1 Wash Stall
Independent Variable (X): 2

WEEKDAY DAILY

$$\frac{\text{WEEKDAY DAILY LUC 947}}{\text{WEEKDAY EVENING PEAK HOUR LUC 947}} = \frac{\text{WEEKDAY DAILY LUC 948}}{\text{WEEKDAY EVENING PEAK HOUR LUC 948}}$$

$$\frac{\text{LUC 947}}{4.69} = \frac{253.51}{24.4} \quad X = \quad 48.73$$

T = 48.73* (X)
T = 48.73 * 2
T = 97.46
T = 98 vehicle trips
with 50% (49 vph) entering and 50% (49 vph) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$\frac{\text{WEEKDAY MORNING PEAK HOUR LUC 947}}{\text{WEEKDAY EVENING PEAK HOUR LUC 947}} = \frac{\text{WEEKDAY MORNING PEAK HOUR LUC 948}}{\text{WEEKDAY EVENING PEAK HOUR LUC 948}}$$

$$\frac{\text{LUC 947}}{4.69} = \frac{14.89}{24.4} \quad X = \quad 2.86$$

T = 2.86* (X)
T = 2.86 * 2
T = 5.72
T = 6 vehicle trips
with 55% (3 vph) entering and 45% (3 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 4.69 * (X)
T = 4.69 * 2.000
T = 9.38
T = 9 vehicle trips
with 51% (5 vph) entering and 49% (4 vph) exiting.

Saturday Daily

$$\frac{\text{SATURDAY DAILY LUC 947}}{\text{SATURDAY MIDDAY PEAK HOUR LUC 947}} = \frac{\text{SATURDAY DAILY LUC 948}}{\text{SATURDAY MIDDAY PEAK HOUR LUC 948}}$$

$$\frac{\text{LUC 947}}{6.33} = \frac{256.37}{32.1} \quad X = \quad 50.56$$

T = 50.56* (X)
T = 50.56 * 2
T = 101.12
T = 102 vehicle trips
with 50% (51 vph) entering and 50% (51 vph) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 6.33 * (X)
T = 6.33 * 2.000
T = 12.66
T = 13 vehicle trips
with 47% (6 vph) entering and 53% (7 vph) exiting.

Institute of Transportation Engineers (ITE)
Trip Generation , 12th Edition
Land Use Code (LUC) 948 - Automated Car Wash

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area
Independent Variable (X): 3.500

WEEKDAY DAILY

$T = 253.51 * (X)$
 $T = 253.51 * 3.500$
 $T = 887.29$
 $T = 888$ vehicle trips
with 50% (444 vph) entering and 50% (444 vph) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 14.89 * (X)$
 $T = 14.89 * 3.500$
 $T = 52.12$
 $T = 52$ vehicle trips
with 55% (29 vph) entering and 45% (23 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 24.40 * (X)$
 $T = 24.40 * 3.500$
 $T = 85.40$
 $T = 85$ vehicle trips
with 49% (42 vph) entering and 51% (43 vph) exiting.

Saturday Daily

$T = 256.37 * (X)$
 $T = 256.37 * 3.500$
 $T = 897.30$
 $T = 898$ vehicle trips
with 50% (449 vph) entering and 50% (449 vph) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$T = 32.10 * (X)$
 $T = 32.10 * 3.500$
 $T = 112.35$
 $T = 112$ vehicle trips
with 50% (56 vph) entering and 50% (56 vph) exiting.

SIGNAL TIMING SHEETS



Attachment "F"



CAPACITY ANALYSIS METHODOLOGY

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.¹ The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best-operating conditions and LOS F representing congested or constrained operating conditions.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than *LOS A*.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop, and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*² and implemented as a part of the Synchro® software, as required by NHDOT. The Percentile Delay Method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on “percentile” delay. Level-of-service designations are based on the criterion of percentile delay per vehicle and are a measure of: i) driver discomfort; ii) motorist frustration; and iii) fuel consumption; and include a uniform delay based on percentile volumes using a Poisson arrival pattern, an initial queue move-up time, and a queue interaction delay that accounts for delays resulting from queues extending from adjacent intersections. Table A summarizes the relationship between level-of-service and

¹The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual 7th Edition*; Transportation Research Board; Washington, DC; 2022.

²*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

percentile delay and uses the same numerical delay thresholds as the *Highway Capacity Manual*³ method. The tabulated percentile delay criterion may be applied in assigning level-of-service designations to individual lane groups, individual intersection approaches, or to entire intersections.

Table A
LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Percentile Delay Per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The levels of service of unsignalized intersections are determined by application of a procedure described in the *Highway Capacity Manual 7th Edition*.⁴ Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the *Highway Capacity Manual 7th Edition*. Table B summarizes the relationship between level of service and average control delay for two-way STOP-controlled and all-way STOP-controlled intersections.

³*Highway Capacity Manual 7th Edition*; Transportation Research Board; Washington, DC; 2022.

⁴*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2023.

Table B
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS^a

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay (Seconds Per Vehicle)
v/c ≤ 1.0	v/c > 1.0	
A	F	≤10.0
B	F	10.1 to 15.0
C	F	15.1 to 25.0
D	F	25.1 to 35.0
E	F	35.1 to 50.0
F	F	>50.0

^aSource: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2023.

Following NHDOT Synchro guidelines,⁵ under the future 2026 Opening-Year Build and 2036 Design-Year Build conditions, a peak-hour factor (PHF) of 0.90 was applied to lanes where calculations indicated a PHF below 0.90, as well as at intersections, where capacity is being increased through geometric improvements. The truck percentages at all analysis conditions were adjusted to the approach weighted average with the removal of the volumes at the approach with truck percentage above 8 percent.

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection’s ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro® intersection capacity analysis software, which is based upon the methodology and procedures presented in the 7th Edition *Highway Capacity Manual*. The Synchro® vehicle queue analysis methodology is a simulation-based model that reports the number of vehicles that experience a delay of 6 seconds or more at an intersection. For signalized intersections, Synchro® reports both the average (50th percentile) and the 95th percentile vehicle queue. For unsignalized intersections, Synchro® reports the 95th percentile vehicle queue. Vehicle queue lengths are a function of the capacity of the movement under study and the volume of traffic being processed by the intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately 3 minutes out of 60 minutes during the peak one hour of the day (during the remaining 57 minutes, the vehicle queue length will be less than the 95th percentile queue length).

⁵NHDOT Synchro Inputs Checklist, Revised August 16, 2021.

CAPACITY ANALYSIS

2026 Existing Weekday Morning Peak Hour
2026 Existing Weekday Evening Peak Hour
2026 Existing Saturday Midday Peak Hour
2027 Opening Year No-Build Weekday Morning Peak Hour
2027 Opening Year No-Build Weekday Evening Peak Hour
2027 Opening Year No-Build Saturday Midday Peak Hour
2027 Opening Year No-Build with Burger King Weekday Morning Peak Hour
2027 Opening Year No-Build with Burger King Weekday Evening Peak Hour
2027 Opening Year No-Build with Burger King Saturday Midday Peak Hour
2027 Opening Year Build Weekday Morning Peak Hour
2027 Opening Year Build Weekday Evening Peak Hour
2027 Opening Year Build Saturday Midday Peak Hour
2037 Design-Year No-Build Weekday Morning Peak Hour
2037 Design-Year No-Build Weekday Evening Peak Hour
2037 Design-Year No-Build Saturday Midday Peak Hour
2037 Design-Year No-Build with Burger King Weekday Morning Peak Hour
2037 Design-Year No-Build with Burger King Weekday Evening Peak Hour
2037 Design-Year No-Build with Burger King Saturday Midday Peak Hour
2037 Design-Year Build Weekday Morning Peak Hour
2037 Design-Year Build Weekday Evening Peak Hour
2037 Design-Year Build Saturday Midday Peak Hour





















2026 Existing Weekday Morning Peak Hour

Attachment "F"

1 - 2026 Existing Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	307	22	11	413	562	9	9	21	379	5	27
Future Volume (vph)	12	307	22	11	413	562	9	9	21	379	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990				0.850		0.927				0.850
Flt Protected	0.950			0.950				0.989			0.953	
Satd. Flow (prot)	1761	1835	0	1727	1757	1494	0	1974	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989			0.953	
Satd. Flow (perm)	1761	1835	0	1727	1757	1494	0	1974	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				644			28			96
Link Speed (mph)		37			38			30			30	
Link Distance (ft)		925			1792			547			544	
Travel Time (s)		17.0			32.2			12.4			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	13	334	24	13	492	669	12	12	28	426	6	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	358	0	13	492	669	0	52	0	0	432	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

1 - 2026 Existing Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 104.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated

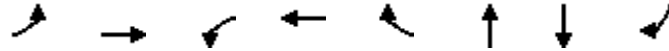
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1 14 s	#1 Ø2 66 s	#1 Ø4 16 s	#1 Ø8 51 s
#1 Ø5 14 s	#1 Ø6 66 s		

1 - 2026 Existing Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	13	358	13	492	669	52	432	30
v/c Ratio	0.08	0.49	0.08	0.71	0.50	0.21	0.68	0.05
Control Delay (s/veh)	60.2	29.1	60.3	36.0	1.6	34.0	39.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	60.2	29.1	60.3	36.0	1.6	34.0	39.4	0.1
Queue Length 50th (ft)	9	188	8	285	2	15	232	0
Queue Length 95th (ft)	37	354	34	472	10	51	521	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	194	1170	190	1119	1327	285	886	836
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.31	0.07	0.44	0.50	0.18	0.49	0.04





















Intersection Summary

Attachment "F"

1 - 2026 Existing Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	307	22	11	413	562	9	9	21	379	5	27
Future Volume (vph)	12	307	22	11	413	562	9	9	21	379	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1835		1727	1757	1494		1974			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1835		1727	1757	1494		1974			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Adj. Flow (vph)	13	334	24	13	492	669	12	12	28	426	6	30
RTOR Reduction (vph)	0	2	0	0	0	176	0	26	0	0	0	19
Lane Group Flow (vph)	13	356	0	13	492	493	0	26	0	0	432	11
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	2.8	39.2		2.8	39.2	78.0		6.6			38.8	38.8
Effective Green, g (s)	2.8	41.2		2.8	41.2	78.0		8.6			38.8	38.8
Actuated g/C Ratio	0.03	0.38		0.03	0.38	0.73		0.08			0.36	0.36
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	45	703		45	674	1085		158			617	550
v/s Ratio Prot	0.01	0.19		c0.01	c0.28	0.16		c0.01			c0.25	0.01
v/s Ratio Perm						0.17						
v/c Ratio	0.29	0.51		0.29	0.73	0.45		0.17			0.70	0.02
Uniform Delay, d1	51.3	25.3		51.3	28.3	6.0		46.1			29.3	22.1
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.3	1.2		7.3	4.9	0.6		1.0			4.5	0.0
Delay (s)	58.6	26.5		58.6	33.2	6.6		47.1			33.8	22.1
Level of Service	E	C		E	C	A		D			C	C
Approach Delay (s/veh)		27.7			18.3			47.1			33.0	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			107.4				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			56.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Attachment "F"

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	43	18	466	167	77	607	19	212	72	3	1	52
Future Volume (vph)	43	18	466	167	77	607	19	212	72	3	1	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850			0.850		0.994			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1798	0	0	0
Fl _t Permitted		0.950			0.950			0.290				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	525	1798	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				103								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	51	21	548	196	81	639	20	228	77	3	1	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	548	196	81	639	20	228	80	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	142	102	36	119	8
Future Volume (vph)	142	102	36	119	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.954		0.895		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1748	0	1665	0	0
Flt Permitted	0.925		0.989		
Satd. Flow (perm)	1631	0	1665	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.82	0.82	0.66	0.66	0.66
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	173	124	55	180	12
Shared Lane Traffic (%)					
Lane Group Flow (vph)	361	0	247	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 177.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

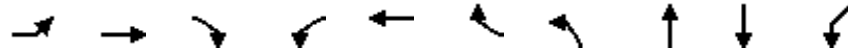


Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	72	548	196	81	639	20	228	80	361	247
v/c Ratio	0.56	0.79	0.28	0.61	0.90	0.03	0.79	0.13	0.89	1.74
Control Delay (s/veh)	99.3	56.9	18.0	102.3	68.1	34.0	66.1	41.3	89.8	403.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	99.3	56.9	18.0	102.3	68.1	34.0	66.1	41.3	89.8	403.6
Queue Length 50th (ft)	91	605	76	103	757	16	220	70	459	~472
Queue Length 95th (ft)	147	707	130	172	#956	37	#345	117	#543	#449
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	145	783	768	146	791	695	289	674	435	142
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.70	0.26	0.55	0.81	0.03	0.79	0.12	0.83	1.74

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.

Attachment "F"

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	43	18	466	167	77	607	19	212	72	3	1	52
Future Volume (vph)	43	18	466	167	77	607	19	212	72	3	1	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1798			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	525	1798			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Adj. Flow (vph)	51	21	548	196	81	639	20	228	77	3	1	63
RTOR Reduction (vph)	0	0	0	63	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	72	548	133	81	639	20	228	80	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		13.5	67.4	67.4	13.7	67.6	67.6	61.3	61.3			
Effective Green, g (s)		13.5	69.4	69.4	13.7	69.6	69.6	61.3	63.3			
Actuated g/C Ratio		0.08	0.39	0.39	0.08	0.39	0.39	0.35	0.36			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		129	700	634	132	709	623	282	641			
v/s Ratio Prot		0.04	0.31		c0.05	c0.35		c0.07	0.04			
v/s Ratio Perm				0.08			0.01	0.21				
v/c Ratio		0.56	0.78	0.21	0.61	0.90	0.03	0.81	0.12			
Uniform Delay, d1		79.1	47.4	35.9	79.3	50.7	33.2	51.0	38.4			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		8.6	6.6	0.3	11.6	15.5	0.0	17.5	0.2			
Delay (s)		87.7	54.0	36.2	90.9	66.2	33.3	68.5	38.6			
Level of Service		F	D	D	F	E	C	E	D			
Approach Delay (s/veh)			52.7			68.0			60.7			
Approach LOS			D			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			102.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			177.5			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			90.9%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

1 - 2026 Existing Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	142	102	36	119	8
Future Volume (vph)	142	102	36	119	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frbp, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.90		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1747		1665		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1630		1665		
Peak-hour factor, PHF	0.82	0.82	0.66	0.66	0.66
Adj. Flow (vph)	173	124	55	180	12
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	361	0	247	0	0
Confl. Bikes (#/hr)		1			
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	42.2		15.1		
Effective Green, g (s)	44.2		15.1		
Actuated g/C Ratio	0.25		0.09		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	405		141		
v/s Ratio Prot			c0.15		
v/s Ratio Perm	c0.22				
v/c Ratio	0.89		1.75		
Uniform Delay, d1	64.3		81.2		
Progression Factor	1.00		1.00		
Incremental Delay, d2	22.3		365.8		
Delay (s)	86.6		447.0		
Level of Service	F		F		
Approach Delay (s/veh)	86.6		447.0		
Approach LOS	F		F		
Intersection Summary					





















2026 Existing Weekday Evening Peak Hour

Attachment "F"

2 - 2026 Existing Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	532	20	17	340	589	10	11	29	473	21	38
Future Volume (vph)	30	532	20	17	340	589	10	11	29	473	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				614		35				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	33	591	22	18	354	614	12	13	35	509	23	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	613	0	18	354	614	0	60	0	0	532	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

2 - 2026 Existing Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 117.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

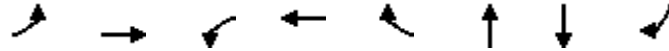
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		

2 - 2026 Existing Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	33	613	18	354	614	60	532	41
v/c Ratio	0.22	0.79	0.13	0.52	0.45	0.28	0.79	0.06
Control Delay (s/veh)	64.1	41.2	63.2	33.2	1.3	34.2	46.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.1	41.2	63.2	33.2	1.3	34.2	46.0	0.2
Queue Length 50th (ft)	24	409	13	240	0	18	346	0
Queue Length 95th (ft)	70	667	45	337	13	63	#751	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	166	1083	161	1021	1353	241	739	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.11	0.35	0.45	0.25	0.72	0.06

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

2 - 2026 Existing Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	532	20	17	340	589	10	11	29	473	21	38
Future Volume (vph)	30	532	20	17	340	589	10	11	29	473	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1915		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1915		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	33	591	22	18	354	614	12	13	35	509	23	41
RTOR Reduction (vph)	0	1	0	0	0	162	0	32	0	0	0	25
Lane Group Flow (vph)	33	612	0	18	354	452	0	28	0	0	532	16
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	5.2	45.3		3.2	43.3	89.3		6.7			46.0	46.0
Effective Green, g (s)	5.2	47.3		3.2	45.3	89.3		8.7			46.0	46.0
Actuated g/C Ratio	0.04	0.39		0.03	0.37	0.74		0.07			0.38	0.38
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	78	747		46	676	1133		138			655	583
v/s Ratio Prot	c0.02	c0.32		0.01	0.20	0.15		c0.01			c0.31	0.01
v/s Ratio Perm						0.14						
v/c Ratio	0.42	0.82		0.39	0.52	0.40		0.20			0.81	0.03
Uniform Delay, d1	56.5	33.1		58.0	29.5	5.9		53.0			33.7	23.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.6	7.9		11.1	1.4	0.5		1.5			8.5	0.0
Delay (s)	64.1	41.0		69.2	30.9	6.4		54.5			42.3	23.6
Level of Service	E	D		E	C	A		D			D	C
Approach Delay (s/veh)		42.2			16.4			54.5			40.9	
Approach LOS		D			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			31.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			121.2				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			69.9%				ICU Level of Service		C			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

2 - 2026 Existing Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	88	61	695	199	77	606	41	192	159	23	3	1
Future Volume (vph)	88	61	695	199	77	606	41	192	159	23	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.979			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1823	0	0	0
Flt Permitted		0.950			0.950			0.314				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	585	1823	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	93	64	732	209	82	645	44	213	177	26	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	157	732	209	82	645	44	213	206	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations							
Traffic Volume (vph)	28	103	53	2	8	33	7
Future Volume (vph)	28	103	53	2	8	33	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.893		
Flt Protected		0.992			0.990		
Satd. Flow (prot)	0	1844	0	0	1680	0	0
Flt Permitted		0.918			0.990		
Satd. Flow (perm)	0	1707	0	0	1680	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	30	111	57	3	10	41	9
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	199	0	0	63	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		CI+Ex			CI+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

2 - 2026 Existing Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 164.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 Ø1	#2 Ø2	#2 Ø7	#2 Ø4	#2 Ø3			
19 s	81 s	19 s	51 s	19 s			
#2 Ø5	#2 Ø6	#2 Ø8					
19 s	81 s	70 s					

2 - 2026 Existing Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

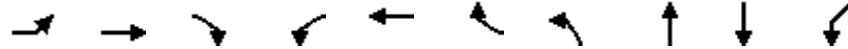


Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					
Intersection Summary							

2 - 2026 Existing Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	157	732	209	82	645	44	213	206	199	63
v/c Ratio	0.98	0.88	0.26	0.56	0.79	0.06	0.76	0.39	0.67	0.48
Control Delay (s/veh)	137.0	55.4	17.8	90.9	48.3	28.4	67.8	50.1	76.4	88.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	137.0	55.4	17.8	90.9	48.3	28.4	67.8	50.1	76.4	88.3
Queue Length 50th (ft)	~183	740	81	90	602	28	196	188	214	69
Queue Length 95th (ft)	#375	#1101	158	163	856	61	#288	272	312	115
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	161	873	838	163	882	775	279	740	493	155
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.84	0.25	0.50	0.73	0.06	0.76	0.28	0.40	0.41

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.

2 - 2026 Existing Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	88	61	695	199	77	606	41	192	159	23	3	1
Future Volume (vph)	88	61	695	199	77	606	41	192	159	23	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1823			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.31	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	585	1823			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	93	64	732	209	82	645	44	213	177	26	3	1
RTOR Reduction (vph)	0	0	0	48	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	157	732	161	82	645	44	213	206	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.2	71.9	71.9	13.6	70.3	70.3	45.6	45.6			
Effective Green, g (s)		15.2	73.9	73.9	13.6	72.3	72.3	45.6	47.6			
Actuated g/C Ratio		0.09	0.45	0.45	0.08	0.44	0.44	0.28	0.29			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		162	831	753	146	821	721	272	529			
v/s Ratio Prot		c0.09	c0.40		0.05	0.35		c0.07	0.11			
v/s Ratio Perm				0.10			0.03	c0.14				
v/c Ratio		0.97	0.88	0.21	0.56	0.79	0.06	0.78	0.39			
Uniform Delay, d1		74.1	41.0	27.4	72.3	39.2	26.3	51.2	46.5			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		61.6	11.5	0.3	7.9	5.8	0.1	15.6	1.0			
Delay (s)		135.7	52.5	27.6	80.2	44.9	26.4	66.8	47.5			
Level of Service		F	D	C	F	D	C	E	D			
Approach Delay (s/veh)			59.7			47.6			57.3			
Approach LOS			E			D			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			57.0									E
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			163.9						20.0			
Intersection Capacity Utilization			83.6%									E
Analysis Period (min)			15									
c Critical Lane Group												



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations							
Traffic Volume (vph)	28	103	53	2	8	33	7
Future Volume (vph)	28	103	53	2	8	33	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1845			1679		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1708			1679		
Peak-hour factor, PHF	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Adj. Flow (vph)	30	111	57	2	10	41	9
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	199	0	0	63	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		26.4			12.8		
Effective Green, g (s)		28.4			12.8		
Actuated g/C Ratio		0.17			0.08		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		295			131		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.12					
v/c Ratio		0.67			0.48		
Uniform Delay, d1		63.4			72.4		
Progression Factor		1.00			1.00		
Incremental Delay, d2		7.7			5.7		
Delay (s)		71.2			78.1		
Level of Service		E			E		
Approach Delay (s/veh)		71.2			78.1		
Approach LOS		E			E		
Intersection Summary							

2026 Existing Saturday Midday Peak Hour

Attachment "F"

3 - 2026 Existing Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

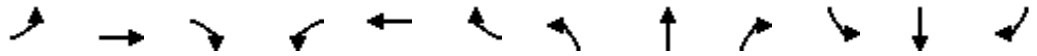
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	351	27	15	436	415	12	7	31	306	13	24
Future Volume (vph)	22	351	27	15	436	415	12	7	31	306	13	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.989				0.850		0.916				0.850
Flt Protected	0.950			0.950				0.989			0.954	
Satd. Flow (prot)	1865	1942	0	1778	1809	1538	0	1951	0	0	1726	1538
Flt Permitted	0.950			0.950				0.989			0.954	
Satd. Flow (perm)	1865	1942	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				441		35				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	25	399	31	16	464	441	13	8	35	352	15	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	430	0	16	464	441	0	56	0	0	367	28
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

3 - 2026 Existing Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	97.8
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated

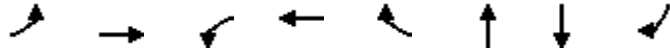
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		

3 - 2026 Existing Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	25	430	16	464	441	56	367	28
v/c Ratio	0.13	0.54	0.09	0.67	0.36	0.20	0.63	0.05
Control Delay (s/veh)	56.4	28.2	57.4	34.4	1.1	29.3	37.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.4	28.2	57.4	34.4	1.1	29.3	37.9	0.2
Queue Length 50th (ft)	16	192	11	276	0	13	224	0
Queue Length 95th (ft)	53	401	40	471	12	62	388	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	230	1308	219	1217	1316	319	964	901
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.07	0.38	0.34	0.18	0.38	0.03

Intersection Summary

3 - 2026 Existing Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	351	27	15	436	415	12	7	31	306	13	24
Future Volume (vph)	22	351	27	15	436	415	12	7	31	306	13	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1942		1778	1809	1522		1949			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1942		1778	1809	1522		1949			1727	1538
Peak-hour factor, PHF	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Adj. Flow (vph)	25	399	31	16	464	441	13	8	35	352	15	28
RTOR Reduction (vph)	0	2	0	0	0	138	0	32	0	0	0	19
Lane Group Flow (vph)	25	428	0	16	464	303	0	24	0	0	367	9
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.6	37.7		2.8	35.9	68.8		6.6			32.9	32.9
Effective Green, g (s)	4.6	39.7		2.8	37.9	68.8		8.6			32.9	32.9
Actuated g/C Ratio	0.05	0.40		0.03	0.38	0.69		0.09			0.33	0.33
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	85	770		49	685	1047		167			568	506
v/s Ratio Prot	c0.01	0.22		0.01	c0.26	0.10		c0.01			c0.21	0.01
v/s Ratio Perm						0.10						
v/c Ratio	0.29	0.56		0.33	0.68	0.29		0.14			0.65	0.02
Uniform Delay, d1	46.1	23.3		47.7	25.9	6.1		42.3			28.6	22.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.0	1.5		8.0	3.5	0.3		0.8			3.4	0.0
Delay (s)	50.1	24.8		55.7	29.4	6.4		43.1			32.0	22.7
Level of Service	D	C		E	C	A		D			C	C
Approach Delay (s/veh)		26.2			18.8			43.1			31.4	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			53.9%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	75	56	444	157	79	504	20	162	95	12	2	4
Future Volume (vph)	75	56	444	157	79	504	20	162	95	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Fr _t				0.850			0.850		0.980			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Fl _t Permitted		0.950			0.950			0.342				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	637	1825	0	0	0
Right Turn on Red				Yes								No
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	86	64	510	180	84	536	21	169	99	13	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	510	180	84	536	21	169	114	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	88	77	11	44	4
Future Volume (vph)	29	88	77	11	44	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.947		0.891		
Flt Protected		0.992		0.991		
Satd. Flow (prot)	0	1817	0	1678	0	0
Flt Permitted		0.932		0.991		
Satd. Flow (perm)	0	1707	0	1678	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	31	95	83	15	59	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	213	0	79	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 142.6
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

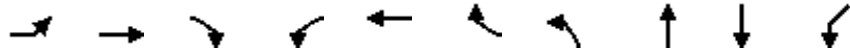


Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	150	510	180	84	536	21	169	114	213	79
v/c Ratio	0.79	0.74	0.26	0.51	0.80	0.04	0.52	0.19	0.64	0.51
Control Delay (s/veh)	91.5	47.1	15.2	78.3	51.6	31.1	44.4	37.9	64.3	79.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.5	47.1	15.2	78.3	51.6	31.1	44.4	37.9	64.3	79.3
Queue Length 50th (ft)	140	421	49	75	452	13	118	77	187	71
Queue Length 95th (ft)	#329	597	109	163	666	36	218	152	323	128
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	191	1035	984	193	1046	914	330	869	579	181
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.49	0.18	0.44	0.51	0.02	0.51	0.13	0.37	0.44

Intersection Summary

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

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	75	56	444	157	79	504	20	162	95	12	2	4
Future Volume (vph)	75	56	444	157	79	504	20	162	95	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1647	1769	1826			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.34	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1647	636	1826			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	86	64	510	180	84	536	21	169	99	12	2	4
RTOR Reduction (vph)	0	0	0	64	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	150	510	116	84	536	21	169	114	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.4	50.8	50.8	13.3	48.7	48.7	44.5	44.5			
Effective Green, g (s)		15.4	52.8	52.8	13.3	50.7	50.7	44.5	46.5			
Actuated g/C Ratio		0.11	0.37	0.37	0.09	0.36	0.36	0.31	0.33			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		191	692	628	167	672	588	316	598			
v/s Ratio Prot		c0.08	0.27		0.05	c0.28		c0.06	0.06			
v/s Ratio Perm				0.07			0.01	0.11				
v/c Ratio		0.79	0.74	0.18	0.50	0.80	0.04	0.53	0.19			
Uniform Delay, d1		61.6	38.5	30.0	61.2	41.0	29.7	38.5	34.2			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		21.4	5.0	0.3	4.9	7.5	0.1	3.2	0.3			
Delay (s)		83.1	43.5	30.3	66.1	48.5	29.7	41.6	34.5			
Level of Service		F	D	C	E	D	C	D	C			
Approach Delay (s/veh)			47.8			50.2			38.8			
Approach LOS			D			D			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			49.0									D
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			141.9						20.0			
Intersection Capacity Utilization			77.7%									D
Analysis Period (min)			15									

c Critical Lane Group

3 - 2026 Existing Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	88	77	11	44	4
Future Volume (vph)	29	88	77	11	44	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.95		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1818		1676		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1708		1676		
Peak-hour factor, PHF	0.93	0.93	0.93	0.75	0.75	0.75
Adj. Flow (vph)	31	95	83	15	59	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	213	0	79	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		25.9		13.3		
Effective Green, g (s)		27.9		13.3		
Actuated g/C Ratio		0.20		0.09		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		335		157		
v/s Ratio Prot				c0.05		
v/s Ratio Perm		c0.12				
v/c Ratio		0.64		0.50		
Uniform Delay, d1		52.3		61.2		
Progression Factor		1.00		1.00		
Incremental Delay, d2		5.4		5.2		
Delay (s)		57.7		66.4		
Level of Service		E		E		
Approach Delay (s/veh)		57.7		66.4		
Approach LOS		E		E		
Intersection Summary						

2027 Opening Year No-Build Weekday Morning Peak Hour

Attachment "F"

4 - 2027 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	322	22	11	430	583	9	9	21	394	5	27
Future Volume (vph)	12	322	22	11	430	583	9	9	21	394	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990				0.850		0.927				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1835	0	1727	1757	1494	0	1974	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1835	0	1727	1757	1494	0	1974	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				642		28				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	13	350	24	13	512	694	12	12	28	443	6	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	374	0	13	512	694	0	52	0	0	449	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

4 - 2027 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	107.8
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated

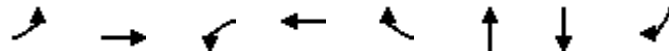
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1 14 s	#1 Ø2 66 s	#1 Ø4 16 s	#1 Ø8 51 s
#1 Ø5 14 s	#1 Ø6 66 s		

4 - 2027 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	13	374	13	512	694	52	449	30
v/c Ratio	0.08	0.51	0.09	0.73	0.52	0.21	0.70	0.05
Control Delay (s/veh)	61.3	29.7	61.3	37.2	1.8	34.5	40.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.3	29.7	61.3	37.2	1.8	34.5	40.8	0.1
Queue Length 50th (ft)	9	207	9	314	5	15	252	0
Queue Length 95th (ft)	37	372	34	497	13	51	#557	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	186	1142	183	1093	1340	275	851	807
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.07	0.47	0.52	0.19	0.53	0.04

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

4 - 2027 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	322	22	11	430	583	9	9	21	394	5	27
Future Volume (vph)	12	322	22	11	430	583	9	9	21	394	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1835		1727	1757	1494		1974			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1835		1727	1757	1494		1974			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Adj. Flow (vph)	13	350	24	13	512	694	12	12	28	443	6	30
RTOR Reduction (vph)	0	2	0	0	0	171	0	26	0	0	0	19
Lane Group Flow (vph)	13	372	0	13	512	523	0	26	0	0	449	11
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	2.9	40.9		2.9	40.9	81.2		6.6			40.3	40.3
Effective Green, g (s)	2.9	42.9		2.9	42.9	81.2		8.6			40.3	40.3
Actuated g/C Ratio	0.03	0.39		0.03	0.39	0.73		0.08			0.36	0.36
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	46	711		45	680	1095		153			621	554
v/s Ratio Prot	0.01	0.20		c0.01	c0.29	0.17		c0.01			c0.26	0.01
v/s Ratio Perm						0.18						
v/c Ratio	0.28	0.52		0.29	0.75	0.48		0.17			0.72	0.02
Uniform Delay, d1	52.9	26.0		52.9	29.3	6.0		47.7			30.4	22.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.9	1.3		7.3	5.6	0.7		1.1			5.1	0.0
Delay (s)	59.8	27.4		60.2	34.9	6.7		48.8			35.5	22.6
Level of Service	E	C		E	C	A		D			D	C
Approach Delay (s/veh)		28.5			19.1			48.8			34.7	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			110.7				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			58.1%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	48	19	499	174	77	631	19	216	73	3	1	53
Future Volume (vph)	48	19	499	174	77	631	19	216	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850			0.850		0.994			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1798	0	0	0
Fl _t Permitted		0.950			0.950			0.286				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	517	1798	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				101								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	56	22	587	205	81	664	20	232	78	3	1	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	587	205	81	664	20	232	81	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



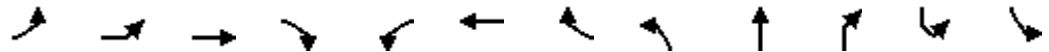
Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	144	104	36	120	8
Future Volume (vph)	144	104	36	120	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.954		0.895		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1748	0	1665	0	0
Flt Permitted	0.923		0.989		
Satd. Flow (perm)	1628	0	1665	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.82	0.82	0.66	0.66	0.66
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	176	127	55	182	12
Shared Lane Traffic (%)					
Lane Group Flow (vph)	369	0	249	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 180.8

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 Ø1	#2 Ø2	#2 Ø7	#2 Ø4	#2 Ø3
19 s	81 s	19 s	51 s	19 s
#2 Ø5	#2 Ø6	#2 Ø8		
19 s	81 s	70 s		

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

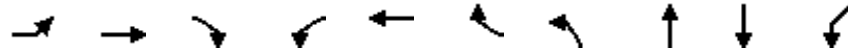


Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	78	587	205	81	664	20	232	81	369	249
v/c Ratio	0.60	0.83	0.29	0.62	0.92	0.03	0.82	0.13	0.91	1.79
Control Delay (s/veh)	103.1	60.6	19.4	103.8	71.7	34.0	70.1	41.7	93.3	424.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.1	60.6	19.4	103.8	71.7	34.0	70.1	41.7	93.3	424.8
Queue Length 50th (ft)	99	669	86	103	803	16	225	71	472	~478
Queue Length 95th (ft)	157	776	142	172	#1057	37	#362	118	#575	#452
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	142	767	753	143	776	681	283	660	425	139
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.77	0.27	0.57	0.86	0.03	0.82	0.12	0.87	1.79

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.

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	48	19	499	174	77	631	19	216	73	3	1	53
Future Volume (vph)	48	19	499	174	77	631	19	216	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1799			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	518	1799			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Adj. Flow (vph)	56	22	587	205	81	664	20	232	78	3	1	65
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	78	587	144	81	664	20	232	81	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		13.7	69.6	69.6	13.8	69.7	69.7	62.1	62.1			
Effective Green, g (s)		13.7	71.6	71.6	13.8	71.7	71.7	62.1	64.1			
Actuated g/C Ratio		0.08	0.40	0.40	0.08	0.40	0.40	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		129	710	643	131	718	630	278	638			
v/s Ratio Prot		0.05	0.33		c0.05	c0.37		c0.07	0.05			
v/s Ratio Perm				0.09			0.01	0.22				
v/c Ratio		0.60	0.83	0.22	0.62	0.92	0.03	0.83	0.13			
Uniform Delay, d1		80.8	48.9	36.1	80.8	51.9	33.3	53.2	39.3			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		11.2	8.7	0.4	11.9	18.4	0.0	20.8	0.2			
Delay (s)		92.1	57.7	36.5	92.8	70.3	33.3	74.0	39.5			
Level of Service		F	E	D	F	E	C	E	D			
Approach Delay (s/veh)			55.8			71.7			65.1			
Approach LOS			E			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			106.6						F			
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			180.6						20.0			
Intersection Capacity Utilization			92.9%						F			
Analysis Period (min)			15									

c Critical Lane Group

4 - 2027 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations	↕		↕		
Traffic Volume (vph)	144	104	36	120	8
Future Volume (vph)	144	104	36	120	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frpb, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1747		1665		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1628		1665		
Peak-hour factor, PHF	0.82	0.82	0.66	0.66	0.66
Adj. Flow (vph)	176	127	55	182	12
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	369	0	249	0	0
Confl. Bikes (#/hr)		1			
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	43.0		15.1		
Effective Green, g (s)	45.0		15.1		
Actuated g/C Ratio	0.25		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	405		139		
v/s Ratio Prot			c0.15		
v/s Ratio Perm	c0.23				
v/c Ratio	0.91		1.79		
Uniform Delay, d1	65.9		82.8		
Progression Factor	1.00		1.00		
Incremental Delay, d2	25.4		383.3		
Delay (s)	91.2		466.1		
Level of Service	F		F		
Approach Delay (s/veh)	91.2		466.1		
Approach LOS	F		F		

Intersection Summary





















2027 Opening Year No-Build Weekday Evening Peak Hour

Attachment "F"

5 - 2027 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	554	20	17	356	610	10	11	29	496	21	38
Future Volume (vph)	30	554	20	17	356	610	10	11	29	496	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				635		35				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	33	616	22	18	371	635	12	13	35	533	23	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	638	0	18	371	635	0	60	0	0	556	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

5 - 2027 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 121.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

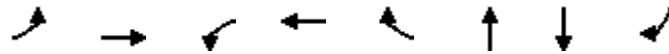
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1 14 s	#1 Ø2 66 s	#1 Ø4 16 s	#1 Ø8 51 s
#1 Ø5 14 s	#1 Ø6 66 s		

5 - 2027 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	33	638	18	371	635	60	556	41
v/c Ratio	0.24	0.84	0.14	0.55	0.47	0.29	0.80	0.06
Control Delay (s/veh)	65.2	44.6	64.0	34.2	1.4	34.8	47.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.2	44.6	64.0	34.2	1.4	34.8	47.2	0.2
Queue Length 50th (ft)	25	436	13	255	0	18	382	0
Queue Length 95th (ft)	70	706	45	356	13	63	#802	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	156	1015	151	958	1359	228	693	675
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.63	0.12	0.39	0.47	0.26	0.80	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Attachment "F"

5 - 2027 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	554	20	17	356	610	10	11	29	496	21	38
Future Volume (vph)	30	554	20	17	356	610	10	11	29	496	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1915		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1915		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	33	616	22	18	371	635	12	13	35	533	23	41
RTOR Reduction (vph)	0	1	0	0	0	163	0	33	0	0	0	25
Lane Group Flow (vph)	33	637	0	18	371	472	0	27	0	0	556	16
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	5.3	46.5		3.3	44.5	93.5		6.9			49.0	49.0
Effective Green, g (s)	5.3	48.5		3.3	46.5	93.5		8.9			49.0	49.0
Actuated g/C Ratio	0.04	0.39		0.03	0.37	0.74		0.07			0.39	0.39
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	77	738		46	669	1144		136			673	599
v/s Ratio Prot	c0.02	c0.33		0.01	0.21	0.16		c0.01			c0.32	0.01
v/s Ratio Perm						0.15						
v/c Ratio	0.43	0.86		0.39	0.55	0.41		0.20			0.83	0.03
Uniform Delay, d1	58.7	35.5		60.2	31.4	6.0		55.1			34.5	23.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.8	11.1		11.1	1.7	0.5		1.5			9.1	0.0
Delay (s)	66.5	46.6		71.3	33.1	6.5		56.6			43.7	23.7
Level of Service	E	D		E	C	A		E			D	C
Approach Delay (s/veh)		47.6			17.2			56.6			42.3	
Approach LOS		D			B			E			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			33.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			125.7				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			72.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Attachment "F"

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	91	62	728	205	77	641	41	200	160	24	3	1
Future Volume (vph)	91	62	728	205	77	641	41	200	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t				0.850			0.850		0.978			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Fl _t Permitted		0.950			0.950			0.304				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	566	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	96	65	766	216	82	682	44	222	178	27	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	766	216	82	682	44	222	208	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	58	2	8	35	7
Future Volume (vph)	28	104	58	2	8	35	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.892		
Flt Protected		0.992			0.990		
Satd. Flow (prot)	0	1840	0	0	1678	0	0
Flt Permitted		0.920			0.990		
Satd. Flow (perm)	0	1707	0	0	1678	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	30	112	62	3	10	44	9
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	205	0	0	66	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 168.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2	#2		#2	#2	#2
Ø1	Ø2		Ø7	Ø4	Ø3
19 s	81 s		19 s	51 s	19 s
#2	#2		#2		
Ø5	Ø6		Ø8		
19 s	81 s		70 s		

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

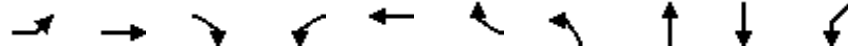


Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					
Intersection Summary							

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	161	766	216	82	682	44	222	208	205	66
v/c Ratio	1.03	0.90	0.27	0.58	0.81	0.06	0.82	0.40	0.69	0.51
Control Delay (s/veh)	151.3	58.2	18.4	92.9	50.3	28.6	74.9	50.9	78.3	90.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	151.3	58.2	18.4	92.9	50.3	28.6	74.9	50.9	78.3	90.6
Queue Length 50th (ft)	~198	810	87	91	665	28	207	191	222	72
Queue Length 95th (ft)	#390	#1196	167	162	941	61	#319	274	320	120
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	157	847	815	158	856	751	270	717	478	150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.90	0.27	0.52	0.80	0.06	0.82	0.29	0.43	0.44

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.

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	91	62	728	205	77	641	41	200	160	24	3	1
Future Volume (vph)	91	62	728	205	77	641	41	200	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	565	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	96	65	766	216	82	682	44	222	178	27	3	1
RTOR Reduction (vph)	0	0	0	47	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	161	766	169	82	682	44	222	208	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.1	75.3	75.3	13.6	73.8	73.8	46.3	46.3			
Effective Green, g (s)		15.1	77.3	77.3	13.6	75.8	75.8	46.3	48.3			
Actuated g/C Ratio		0.09	0.46	0.46	0.08	0.45	0.45	0.28	0.29			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		157	847	768	143	839	737	263	523			
v/s Ratio Prot		c0.09	c0.42		0.05	0.37		c0.08	0.11			
v/s Ratio Perm				0.10			0.03	c0.16				
v/c Ratio		1.03	0.90	0.22	0.57	0.81	0.06	0.84	0.40			
Uniform Delay, d1		76.6	42.0	27.3	74.5	40.1	26.1	54.7	48.2			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		78.7	13.7	0.3	8.6	6.8	0.1	23.1	1.0			
Delay (s)		155.2	55.7	27.6	83.1	46.9	26.2	77.8	49.3			
Level of Service		F	E	C	F	D	C	E	D			
Approach Delay (s/veh)			64.4			49.4			64.0			
Approach LOS			E			D			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			60.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			168.2			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			85.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

5 - 2027 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	58	2	8	35	7
Future Volume (vph)	28	104	58	2	8	35	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1842			1678		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1707			1678		
Peak-hour factor, PHF	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Adj. Flow (vph)	30	112	62	2	10	44	9
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	205	0	0	66	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		27.2			13.0		
Effective Green, g (s)		29.2			13.0		
Actuated g/C Ratio		0.17			0.08		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		296			129		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.12					
v/c Ratio		0.69			0.51		
Uniform Delay, d1		65.3			74.6		
Progression Factor		1.00			1.00		
Incremental Delay, d2		8.6			6.7		
Delay (s)		73.9			81.2		
Level of Service		E			F		
Approach Delay (s/veh)		73.9			81.2		
Approach LOS		E			F		
Intersection Summary							





















2027 Opening Year No-Build Saturday Midday Peak Hour

Attachment "F"

6 - 2027 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	367	27	15	456	437	12	7	31	324	13	25
Future Volume (vph)	22	367	27	15	456	437	12	7	31	324	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Fr _t		0.990				0.850		0.916				0.850
Fl _t Protected	0.950			0.950				0.989			0.954	
Satd. Flow (prot)	1865	1944	0	1778	1809	1538	0	1951	0	0	1726	1538
Fl _t Permitted	0.950			0.950				0.989			0.954	
Satd. Flow (perm)	1865	1944	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				454		35				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	25	417	31	16	485	465	13	8	35	372	15	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	448	0	16	485	465	0	56	0	0	387	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

6 - 2027 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	101.7
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated

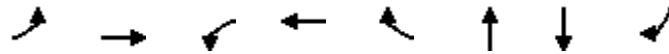
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		

6 - 2027 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	25	448	16	485	465	56	387	29
v/c Ratio	0.13	0.55	0.09	0.68	0.38	0.21	0.66	0.05
Control Delay (s/veh)	58.5	28.8	59.2	35.3	1.2	30.4	39.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.5	28.8	59.2	35.3	1.2	30.4	39.8	0.2
Queue Length 50th (ft)	17	215	11	307	1	14	250	0
Queue Length 95th (ft)	54	418	40	495	13	63	423	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	220	1268	210	1179	1316	306	936	878
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.35	0.08	0.41	0.35	0.18	0.41	0.03

Intersection Summary

Attachment "F"

6 - 2027 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	367	27	15	456	437	12	7	31	324	13	25
Future Volume (vph)	22	367	27	15	456	437	12	7	31	324	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1943		1778	1809	1522		1949			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1943		1778	1809	1522		1949			1727	1538
Peak-hour factor, PHF	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Adj. Flow (vph)	25	417	31	16	485	465	13	8	35	372	15	29
RTOR Reduction (vph)	0	2	0	0	0	136	0	32	0	0	0	19
Lane Group Flow (vph)	25	446	0	16	485	329	0	24	0	0	387	10
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.6	40.0		2.9	38.3	72.9		6.6			34.6	34.6
Effective Green, g (s)	4.6	42.0		2.9	40.3	72.9		8.6			34.6	34.6
Actuated g/C Ratio	0.04	0.40		0.03	0.39	0.70		0.08			0.33	0.33
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	82	783		49	700	1065		161			574	511
v/s Ratio Prot	c0.01	0.23		0.01	c0.27	0.10		c0.01			c0.22	0.01
v/s Ratio Perm						0.11						
v/c Ratio	0.30	0.57		0.33	0.69	0.31		0.15			0.67	0.02
Uniform Delay, d1	48.2	24.1		49.6	26.7	6.0		44.3			29.9	23.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.4	1.6		8.0	3.8	0.3		0.9			4.1	0.0
Delay (s)	52.6	25.6		57.6	30.5	6.3		45.2			34.0	23.4
Level of Service	D	C		E	C	A		D			C	C
Approach Delay (s/veh)		27.0			19.3			45.2			33.2	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			104.1				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			56.0%				ICU Level of Service			B		
Analysis Period (min)			15									
























c Critical Lane Group

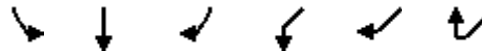
Attachment "F"

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	80	57	476	164	80	533	20	168	96	12	2	4
Future Volume (vph)	80	57	476	164	80	533	20	168	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Fr _t				0.850			0.850		0.980			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Fl _t Permitted		0.950			0.950			0.335				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	624	1825	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				100								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	92	66	547	189	85	567	21	175	100	13	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	547	189	85	567	21	175	115	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	89	79	11	45	4
Future Volume (vph)	29	89	79	11	45	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.947		0.890		
Flt Protected		0.992		0.991		
Satd. Flow (prot)	0	1817	0	1676	0	0
Flt Permitted		0.932		0.991		
Satd. Flow (perm)	0	1707	0	1676	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	31	96	85	15	60	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	216	0	80	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 147.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

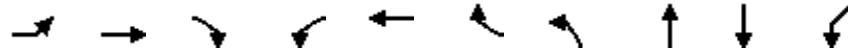


Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	158	547	189	85	567	21	175	115	216	80
v/c Ratio	0.85	0.77	0.27	0.52	0.81	0.03	0.56	0.20	0.65	0.53
Control Delay (s/veh)	103.3	48.5	16.0	81.7	52.4	30.7	47.5	39.7	67.0	82.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.3	48.5	16.0	81.7	52.4	30.7	47.5	39.7	67.0	82.8
Queue Length 50th (ft)	154	472	57	80	496	13	129	81	198	75
Queue Length 95th (ft)	#363	656	119	168	720	35	233	158	337	132
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	185	1000	953	186	1010	883	320	840	559	175
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.55	0.20	0.46	0.56	0.02	0.55	0.14	0.39	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	80	57	476	164	80	533	20	168	96	12	2	4
Future Volume (vph)	80	57	476	164	80	533	20	168	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1647	1769	1826			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.33	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1647	623	1826			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	92	66	547	189	85	567	21	175	100	12	2	4
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	158	547	128	85	567	21	175	115	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.4	54.6	54.6	13.5	52.7	52.7	45.4	45.4			
Effective Green, g (s)		15.4	56.6	56.6	13.5	54.7	54.7	45.4	47.4			
Actuated g/C Ratio		0.10	0.39	0.39	0.09	0.37	0.37	0.31	0.32			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		185	717	650	164	700	613	307	589			
v/s Ratio Prot		c0.09	0.29		0.05	c0.30		c0.06	0.06			
v/s Ratio Perm				0.08			0.01	0.12				
v/c Ratio		0.85	0.76	0.20	0.52	0.81	0.03	0.57	0.20			
Uniform Delay, d1		64.6	39.3	30.0	63.6	41.4	29.3	40.5	36.0			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		32.1	5.7	0.3	5.4	7.9	0.0	4.0	0.3			
Delay (s)		96.8	45.0	30.3	69.0	49.4	29.4	44.5	36.3			
Level of Service		F	D	C	E	D	C	D	D			
Approach Delay (s/veh)			51.0			51.2			41.3			
Approach LOS			D			D			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			51.4									D
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			146.9						20.0			
Intersection Capacity Utilization			79.8%									D
Analysis Period (min)			15									

c Critical Lane Group

6 - 2027 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↙	↘	↘
Traffic Volume (vph)	29	89	79	11	45	4
Future Volume (vph)	29	89	79	11	45	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.95		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1817		1676		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1708		1676		
Peak-hour factor, PHF	0.93	0.93	0.93	0.75	0.75	0.75
Adj. Flow (vph)	31	96	85	15	60	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	216	0	80	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		26.7		13.4		
Effective Green, g (s)		28.7		13.4		
Actuated g/C Ratio		0.20		0.09		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		333		152		
v/s Ratio Prot				c0.05		
v/s Ratio Perm		c0.13				
v/c Ratio		0.65		0.53		
Uniform Delay, d1		54.5		63.7		
Progression Factor		1.00		1.00		
Incremental Delay, d2		5.9		6.1		
Delay (s)		60.3		69.9		
Level of Service		E		E		
Approach Delay (s/veh)		60.3		69.9		
Approach LOS		E		E		
Intersection Summary						

2027 Opening Year No-Build with Burger King Weekday Morning Peak Hour

Attachment "F"

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	331	22	11	438	592	9	9	21	403	5	27
Future Volume (vph)	12	331	22	11	438	592	9	9	21	403	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.927				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1837	0	1727	1757	1494	0	1974	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1837	0	1727	1757	1494	0	1974	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				641		28				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1311			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	13	360	24	13	521	705	12	12	28	453	6	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	384	0	13	521	705	0	52	0	0	459	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 147

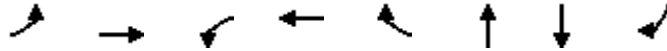
Actuated Cycle Length: 109.6

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	13	384	13	521	705	52	459	30
v/c Ratio	0.09	0.52	0.09	0.74	0.52	0.22	0.71	0.05
Control Delay (s/veh)	61.8	30.3	61.8	38.2	1.8	34.9	41.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.8	30.3	61.8	38.2	1.8	34.9	41.2	0.1
Queue Length 50th (ft)	9	223	9	335	6	16	263	0
Queue Length 95th (ft)	37	385	34	509	15	51	#590	0
Internal Link Dist (ft)		845		1231		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	181	1131	177	1080	1338	268	827	787
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.34	0.07	0.48	0.53	0.19	0.56	0.04

Intersection Summary

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

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	331	22	11	438	592	9	9	21	403	5	27
Future Volume (vph)	12	331	22	11	438	592	9	9	21	403	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1836		1727	1757	1494		1974			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1836		1727	1757	1494		1974			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.89	0.89	0.89
Adj. Flow (vph)	13	360	24	13	521	705	12	12	28	453	6	30
RTOR Reduction (vph)	0	2	0	0	0	168	0	26	0	0	0	19
Lane Group Flow (vph)	13	382	0	13	521	537	0	26	0	0	459	11
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	2.9	41.6		3.0	41.7	83.2		6.6			41.5	41.5
Effective Green, g (s)	2.9	43.6		3.0	43.7	83.2		8.6			41.5	41.5
Actuated g/C Ratio	0.03	0.39		0.03	0.39	0.74		0.08			0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	45	710		45	681	1102		150			628	560
v/s Ratio Prot	0.01	0.21		c0.01	c0.30	0.18		c0.01			c0.27	0.01
v/s Ratio Perm						0.18						
v/c Ratio	0.29	0.54		0.29	0.77	0.49		0.17			0.73	0.02
Uniform Delay, d1	53.9	26.8		53.8	30.0	6.0		48.7			30.8	22.7
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.3	1.4		7.3	6.0	0.7		1.2			5.3	0.0
Delay (s)	61.2	28.2		61.1	36.1	6.7		49.9			36.1	22.7
Level of Service	E	C		E	D	A		D			D	C
Approach Delay (s/veh)		29.3			19.6			49.9			35.2	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			112.7				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			59.0%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	52	20	511	180	77	644	19	223	73	3	1	53
Future Volume (vph)	52	20	511	180	77	644	19	223	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%				0%			2%		
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850			0.850		0.994			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1798	0	0	0
Fl _t Permitted		0.950			0.950			0.280				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	506	1798	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			481			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	61	24	601	212	81	678	20	240	78	3	1	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	601	212	81	678	20	240	81	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4



Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	144	108	36	121	8
Future Volume (vph)	144	108	36	121	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.952		0.895		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1744	0	1665	0	0
Flt Permitted	0.924		0.989		
Satd. Flow (perm)	1626	0	1665	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.82	0.82	0.66	0.66	0.66
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	176	132	55	183	12
Shared Lane Traffic (%)					
Lane Group Flow (vph)	374	0	250	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 182.9
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

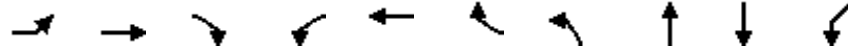
#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	85	601	212	81	678	20	240	81	374	250
v/c Ratio	0.65	0.84	0.30	0.62	0.94	0.03	0.87	0.13	0.93	1.82
Control Delay (s/veh)	107.0	61.3	19.8	104.8	73.5	33.9	76.9	42.1	96.8	439.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	107.0	61.3	19.8	104.8	73.5	33.9	76.9	42.1	96.8	439.4
Queue Length 50th (ft)	109	693	92	103	830	16	234	71	481	~480
Queue Length 95th (ft)	168	800	148	172	#1097	37	#393	118	#589	#454
Internal Link Dist (ft)		401			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	140	757	745	141	765	672	277	651	419	137
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.79	0.28	0.57	0.89	0.03	0.87	0.12	0.89	1.82

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.

7 - 2027 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

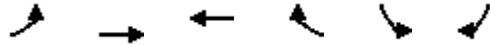
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	52	20	511	180	77	644	19	223	73	3	1	53
Future Volume (vph)	52	20	511	180	77	644	19	223	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1799			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.28	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	507	1799			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.95	0.95	0.95	0.93	0.93	0.93	0.82	0.82
Adj. Flow (vph)	61	24	601	212	81	678	20	240	78	3	1	65
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	85	601	151	81	678	20	240	81	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		14.0	71.5	71.5	13.8	71.3	71.3	62.5	62.5			
Effective Green, g (s)		14.0	73.5	73.5	13.8	73.3	73.3	62.5	64.5			
Actuated g/C Ratio		0.08	0.40	0.40	0.08	0.40	0.40	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		130	719	652	129	725	636	273	634			
v/s Ratio Prot		c0.05	0.34		0.05	c0.37		c0.07	0.05			
v/s Ratio Perm				0.09			0.01	0.23				
v/c Ratio		0.65	0.84	0.23	0.63	0.94	0.03	0.88	0.13			
Uniform Delay, d1		82.1	49.3	36.1	82.1	52.5	33.3	55.7	40.1			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		14.8	9.2	0.4	12.8	19.8	0.0	27.5	0.2			
Delay (s)		96.9	58.5	36.5	94.8	72.4	33.3	83.2	40.3			
Level of Service		F	E	D	F	E	C	F	D			
Approach Delay (s/veh)			56.9			73.7			72.4			
Approach LOS			E			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			109.8									F
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			182.9						20.0			
Intersection Capacity Utilization			94.2%									F
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	144	108	36	121	8
Future Volume (vph)	144	108	36	121	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frpb, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1745		1665		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1627		1665		
Peak-hour factor, PHF	0.82	0.82	0.66	0.66	0.66
Adj. Flow (vph)	176	132	55	183	12
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	374	0	250	0	0
Confl. Bikes (#/hr)		1			
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	43.4		15.1		
Effective Green, g (s)	45.4		15.1		
Actuated g/C Ratio	0.25		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	403		137		
v/s Ratio Prot			c0.15		
v/s Ratio Perm	c0.23				
v/c Ratio	0.93		1.82		
Uniform Delay, d1	67.2		83.9		
Progression Factor	1.00		1.00		
Incremental Delay, d2	28.3		398.3		
Delay (s)	95.4		482.2		
Level of Service	F		F		
Approach Delay (s/veh)	95.4		482.2		
Approach LOS	F		F		

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	723	1047	49	40	41
Future Volume (vph)	35	723	1047	49	40	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt			0.994		0.931	
Flt Protected		0.998			0.976	
Satd. Flow (prot)	0	1967	2028	0	1693	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1967	2028	0	1693	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1311	481		354	
Travel Time (s)		25.5	9.4		8.0	
Peak Hour Factor	0.85	0.85	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	41	851	1163	54	44	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	892	1217	0	90	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	9.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	35	723	1047	49	40	41
Future Vol, veh/h	35	723	1047	49	40	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	85	85	90	90	90	90
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	41	851	1163	54	44	46

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1218	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.15	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.245	-	-
Pot Cap-1 Maneuver	562	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	562	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.55	0	236.98
HCM LOS			F





















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	83	-	-	-	79
HCM Lane V/C Ratio	0.073	-	-	-	1.137
HCM Ctrl Dly (s/v)	11.9	0	-	-	237
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.5

2027 Opening Year No-Build with Burger King Weekday Evening Peak Hour

Attachment "F"

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	562	20	17	363	617	10	11	29	505	21	38
Future Volume (vph)	30	562	20	17	363	617	10	11	29	505	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				643		35				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1320			547				544
Travel Time (s)		17.0			23.7			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	33	624	22	18	378	643	12	13	35	543	23	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	646	0	18	378	643	0	60	0	0	566	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 147

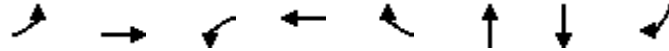
Actuated Cycle Length: 122.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	33	646	18	378	643	60	566	41
v/c Ratio	0.24	0.84	0.14	0.55	0.47	0.29	0.82	0.06
Control Delay (s/veh)	65.3	45.2	64.1	34.4	1.4	34.9	48.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.3	45.2	64.1	34.4	1.4	34.9	48.6	0.2
Queue Length 50th (ft)	25	444	13	261	0	18	397	0
Queue Length 95th (ft)	70	719	45	363	13	63	#824	0
Internal Link Dist (ft)		845		1240		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	155	1011	151	953	1361	227	690	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.64	0.12	0.40	0.47	0.26	0.82	0.06





















Intersection Summary

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

Attachment "F"

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111






















04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	562	20	17	363	617	10	11	29	505	21	38
Future Volume (vph)	30	562	20	17	363	617	10	11	29	505	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1915		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1915		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	33	624	22	18	378	643	12	13	35	543	23	41
RTOR Reduction (vph)	0	1	0	0	0	164	0	33	0	0	0	25
Lane Group Flow (vph)	33	645	0	18	378	479	0	27	0	0	566	16
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	5.3	46.9		3.3	44.9	93.8		6.9			48.9	48.9
Effective Green, g (s)	5.3	48.9		3.3	46.9	93.8		8.9			48.9	48.9
Actuated g/C Ratio	0.04	0.39		0.03	0.37	0.74		0.07			0.39	0.39
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	76	743		46	673	1144		136			670	596
v/s Ratio Prot	c0.02	c0.34		0.01	0.21	0.16		c0.01			c0.33	0.01
v/s Ratio Perm						0.15						
v/c Ratio	0.43	0.87		0.39	0.56	0.42		0.20			0.84	0.03
Uniform Delay, d1	58.9	35.6		60.4	31.4	6.0		55.2			35.1	23.8
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.1	11.4		11.1	1.8	0.5		1.5			10.5	0.0
Delay (s)	67.0	47.0		71.5	33.2	6.5		56.7			45.6	23.9
Level of Service	E	D		E	C	A		E			D	C
Approach Delay (s/veh)		48.0			17.3			56.7			44.1	
Approach LOS		D			B			E			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			33.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			126.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			73.2%				ICU Level of Service		D			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	63	737	210	77	652	41	206	160	24	3	1
Future Volume (vph)	94	63	737	210	77	652	41	206	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.978			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Flt Permitted		0.950			0.950			0.300				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	559	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			472			1077			555			
Travel Time (s)			8.7			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	99	66	776	221	82	694	44	229	178	27	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	776	221	82	694	44	229	208	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	62	2	8	36	7
Future Volume (vph)	28	104	62	2	8	36	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.957			0.891		
Flt Protected		0.993			0.990		
Satd. Flow (prot)	0	1838	0	0	1676	0	0
Flt Permitted		0.922			0.990		
Satd. Flow (perm)	0	1707	0	0	1676	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	30	112	67	3	10	45	9
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	210	0	0	67	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 168.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

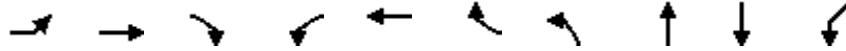
#2 Ø1	#2 Ø2	#2 Ø7	#2 Ø4	#2 Ø3
19 s	81 s	19 s	51 s	19 s
#2 Ø5	#2 Ø6	#2 Ø8		
19 s	81 s	70 s		

8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					
Intersection Summary							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	165	776	221	82	694	44	229	208	210	67
v/c Ratio	1.06	0.92	0.27	0.58	0.83	0.06	0.85	0.40	0.70	0.52
Control Delay (s/veh)	158.3	60.6	18.9	93.3	51.9	28.9	78.3	50.7	78.4	91.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	158.3	60.6	18.9	93.3	51.9	28.9	78.3	50.7	78.4	91.3
Queue Length 50th (ft)	~208	834	92	91	689	28	214	191	229	74
Queue Length 95th (ft)	#403	#1231	173	163	#989	62	#341	274	327	122
Internal Link Dist (ft)		392			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	156	844	812	158	852	748	269	714	477	149
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.92	0.27	0.52	0.81	0.06	0.85	0.29	0.44	0.45

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.

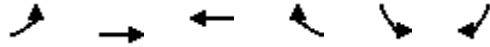
8 - 2027 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	63	737	210	77	652	41	206	160	24	3	1
Future Volume (vph)	94	63	737	210	77	652	41	206	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	560	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	99	66	776	221	82	694	44	229	178	27	3	1
RTOR Reduction (vph)	0	0	0	47	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	165	776	174	82	694	44	229	208	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.1	75.3	75.3	13.6	73.8	73.8	46.9	46.9			
Effective Green, g (s)		15.1	77.3	77.3	13.6	75.8	75.8	46.9	48.9			
Actuated g/C Ratio		0.09	0.46	0.46	0.08	0.45	0.45	0.28	0.29			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		156	843	765	142	836	734	263	527			
v/s Ratio Prot		c0.09	c0.42		0.05	0.37		c0.08	0.11			
v/s Ratio Perm				0.10			0.03	c0.16				
v/c Ratio		1.06	0.92	0.23	0.58	0.83	0.06	0.87	0.39			
Uniform Delay, d1		76.9	42.9	27.7	74.9	40.9	26.4	55.5	48.1			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		88.2	15.8	0.3	8.8	7.8	0.1	27.2	1.0			
Delay (s)		165.1	58.7	28.0	83.7	48.7	26.4	82.6	49.1			
Level of Service		F	E	C	F	D	C	F	D			
Approach Delay (s/veh)			68.0			51.0			66.7			
Approach LOS			E			D			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			63.4			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			168.9			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			86.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	62	2	8	36	7
Future Volume (vph)	28	104	62	2	8	36	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1838			1677		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1707			1677		
Peak-hour factor, PHF	0.93	0.93	0.93	0.80	0.80	0.80	0.80
Adj. Flow (vph)	30	112	67	2	10	45	9
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	210	0	0	67	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		27.8			13.1		
Effective Green, g (s)		29.8			13.1		
Actuated g/C Ratio		0.18			0.08		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		301			130		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.12					
v/c Ratio		0.70			0.52		
Uniform Delay, d1		65.3			74.9		
Progression Factor		1.00			1.00		
Incremental Delay, d2		8.7			6.7		
Delay (s)		74.0			81.6		
Level of Service		E			F		
Approach Delay (s/veh)		74.0			81.6		
Approach LOS		E			F		
Intersection Summary							



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	1068	909	47	36	39
Future Volume (vph)	35	1068	909	47	36	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.993		0.930	
Fl _t Protected		0.998			0.976	
Satd. Flow (prot)	0	2024	2086	0	1691	0
Fl _t Permitted		0.998			0.976	
Satd. Flow (perm)	0	2024	2086	0	1691	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1320	472		355	
Travel Time (s)		25.7	9.2		8.1	
Peak Hour Factor	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow (vph)	37	1124	977	51	40	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1161	1028	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 8.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	35	1068	909	47	36	39
Future Vol, veh/h	35	1068	909	47	36	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	95	95	93	93	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	1124	977	51	40	43

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1028	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	676	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	676	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.34	0	229.39
HCM LOS			F





















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	57	-	-	-	76
HCM Lane V/C Ratio	0.055	-	-	-	1.099
HCM Ctrl Dly (s/v)	10.6	0	-	-	229.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.1

2027 Opening Year No-Build with Burger King Saturday Midday Peak Hour

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	380	27	15	468	450	12	7	31	338	13	25
Future Volume (vph)	22	380	27	15	468	450	12	7	31	338	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Fr _t		0.990				0.850		0.916				0.850
Fl _t Protected	0.950			0.950				0.989			0.954	
Satd. Flow (prot)	1865	1944	0	1778	1809	1538	0	1951	0	0	1726	1538
Fl _t Permitted	0.950			0.950				0.989			0.954	
Satd. Flow (perm)	1865	1944	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				456		35				96
Link Speed (mph)		37			38			30			30	
Link Distance (ft)		925			1300			547			544	
Travel Time (s)		17.0			23.3			12.4			12.4	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	25	432	31	16	498	479	13	8	35	389	15	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	463	0	16	498	479	0	56	0	0	404	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

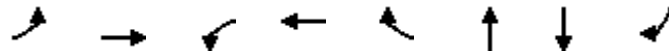
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 104.7
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

 #1 Ø1	 #1 Ø2	 #1 Ø4	 #1 Ø8
14 s	66 s	16 s	51 s
 #1 Ø5	 #1 Ø6		
14 s	66 s		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	25	463	16	498	479	56	404	29
v/c Ratio	0.14	0.57	0.09	0.70	0.38	0.21	0.68	0.05
Control Delay (s/veh)	60.2	29.6	60.8	36.3	1.2	31.0	41.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	60.2	29.6	60.8	36.3	1.2	31.0	41.0	0.2
Queue Length 50th (ft)	18	233	12	328	2	15	272	0
Queue Length 95th (ft)	54	435	41	513	15	63	452	0
Internal Link Dist (ft)		845		1220		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	213	1239	203	1152	1314	298	916	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.08	0.43	0.36	0.19	0.44	0.03

Intersection Summary

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	380	27	15	468	450	12	7	31	338	13	25
Future Volume (vph)	22	380	27	15	468	450	12	7	31	338	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1944		1778	1809	1522		1949			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1944		1778	1809	1522		1949			1727	1538
Peak-hour factor, PHF	0.88	0.88	0.88	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87
Adj. Flow (vph)	25	432	31	16	498	479	13	8	35	389	15	29
RTOR Reduction (vph)	0	2	0	0	0	133	0	32	0	0	0	19
Lane Group Flow (vph)	25	461	0	16	498	346	0	24	0	0	404	10
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.6	41.4		2.9	39.7	75.9		6.6			36.2	36.2
Effective Green, g (s)	4.6	43.4		2.9	41.7	75.9		8.6			36.2	36.2
Actuated g/C Ratio	0.04	0.41		0.03	0.39	0.71		0.08			0.34	0.34
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	80	787		48	704	1078		156			583	519
v/s Ratio Prot	c0.01	0.24		0.01	c0.28	0.11		c0.01			c0.23	0.01
v/s Ratio Perm						0.12						
v/c Ratio	0.31	0.59		0.33	0.71	0.32		0.15			0.69	0.02
Uniform Delay, d1	49.7	24.8		51.2	27.6	5.9		45.9			30.6	23.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.6	1.7		8.4	4.1	0.4		1.0			4.5	0.0
Delay (s)	54.4	26.6		59.5	31.6	6.2		46.8			35.2	23.6
Level of Service	D	C		E	C	A		D			D	C
Approach Delay (s/veh)		28.0			19.8			46.8			34.4	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			107.1				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			57.4%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations		↙	↘	↘	↙	↙	↘	↙	↘	↘	↘	↘
Traffic Volume (vph)	86	59	493	174	80	552	20	179	96	12	2	4
Future Volume (vph)	86	59	493	174	80	552	20	179	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Fr _t				0.850			0.850		0.980			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Fl _t Permitted		0.950			0.950			0.328				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	611	1825	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			492			1077			555			
Travel Time (s)			9.1			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	99	68	567	200	85	587	21	186	100	13	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	167	567	200	85	587	21	186	115	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	89	86	11	47	4
Future Volume (vph)	29	89	86	11	47	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.944		0.889		
Flt Protected		0.992		0.991		
Satd. Flow (prot)	0	1812	0	1674	0	0
Flt Permitted		0.934		0.991		
Satd. Flow (perm)	0	1706	0	1674	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	31	96	92	15	63	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	223	0	83	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 150.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

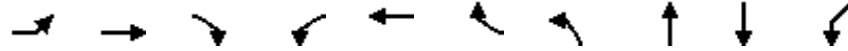
#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

9 - 2027 No-Build with Burger King Saturday Middy Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	167	567	200	85	587	21	186	115	223	83
v/c Ratio	0.93	0.78	0.28	0.53	0.83	0.03	0.60	0.20	0.67	0.55
Control Delay (s/veh)	117.3	50.2	16.6	83.8	54.2	30.9	49.9	40.3	68.2	85.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	117.3	50.2	16.6	83.8	54.2	30.9	49.9	40.3	68.2	85.6
Queue Length 50th (ft)	169	506	65	82	530	13	142	84	211	80
Queue Length 95th (ft)	#390	695	130	169	763	36	246	158	348	137
Internal Link Dist (ft)		412			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	180	976	934	182	986	862	315	820	546	171
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.58	0.21	0.47	0.60	0.02	0.59	0.14	0.41	0.49

Intersection Summary

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

Attachment "F"

9 - 2027 No-Build with Burger King Saturday Midday Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

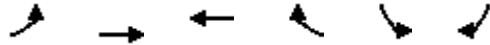
04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	86	59	493	174	80	552	20	179	96	12	2	4
Future Volume (vph)	86	59	493	174	80	552	20	179	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1647	1769	1826			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.33	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1647	610	1826			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	99	68	567	200	85	587	21	186	100	12	2	4
RTOR Reduction (vph)	0	0	0	62	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	167	567	138	85	587	21	186	115	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.4	56.5	56.5	13.5	54.6	54.6	46.5	46.5			
Effective Green, g (s)		15.4	58.5	58.5	13.5	56.6	56.6	46.5	48.5			
Actuated g/C Ratio		0.10	0.39	0.39	0.09	0.38	0.38	0.31	0.32			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		181	725	658	160	709	621	303	590			
v/s Ratio Prot		c0.09	0.30		0.05	c0.31		c0.06	0.06			
v/s Ratio Perm				0.08			0.01	0.13				
v/c Ratio		0.92	0.78	0.21	0.53	0.83	0.03	0.61	0.19			
Uniform Delay, d1		66.8	40.2	30.4	65.3	42.3	29.5	41.6	36.7			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		46.6	6.4	0.3	6.1	8.8	0.0	5.2	0.3			
Delay (s)		113.4	46.6	30.8	71.3	51.2	29.5	46.9	37.0			
Level of Service		F	D	C	E	D	C	D	D			
Approach Delay (s/veh)			55.1			53.0			43.1			
Approach LOS			E			D			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			54.2									D
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			150.1						20.0			
Intersection Capacity Utilization			81.8%									D
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	89	86	11	47	4
Future Volume (vph)	29	89	86	11	47	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.94		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1812		1675		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1707		1675		
Peak-hour factor, PHF	0.93	0.93	0.93	0.75	0.75	0.75
Adj. Flow (vph)	31	96	92	15	63	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	223	0	83	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		27.7		13.6		
Effective Green, g (s)		29.7		13.6		
Actuated g/C Ratio		0.20		0.09		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		337		151		
v/s Ratio Prot				c0.05		
v/s Ratio Perm		c0.13				
v/c Ratio		0.66		0.55		
Uniform Delay, d1		55.6		65.3		
Progression Factor		1.00		1.00		
Incremental Delay, d2		6.3		7.0		
Delay (s)		61.9		72.4		
Level of Service		E		E		
Approach Delay (s/veh)		61.9		72.4		
Approach LOS		E		E		
Intersection Summary						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	751	788	76	61	62
Future Volume (vph)	53	751	788	76	61	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988		0.932	
Flt Protected		0.997			0.976	
Satd. Flow (prot)	0	2042	2096	0	1694	0
Flt Permitted		0.997			0.976	
Satd. Flow (perm)	0	2042	2096	0	1694	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1300	492		353	
Travel Time (s)		25.3	9.6		8.0	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	61	863	847	82	68	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	924	929	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	16					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	53	751	788	76	61	62
Future Vol, veh/h	53	751	788	76	61	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	87	87	93	93	90	90
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	61	863	847	82	68	69

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	929	0	-	0	1873 888
Stage 1	-	-	-	-	888 -
Stage 2	-	-	-	-	985 -
Critical Hdwy	4.11	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.209	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	740	-	-	-	79 343
Stage 1	-	-	-	-	402 -
Stage 2	-	-	-	-	362 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	740	-	-	-	~ 67 343
Mov Cap-2 Maneuver	-	-	-	-	~ 67 -
Stage 1	-	-	-	-	338 -
Stage 2	-	-	-	-	362 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.68	0	228.43
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	119	-	-	-	112
HCM Lane V/C Ratio	0.082	-	-	-	1.22
HCM Ctrl Dly (s/v)	10.3	0	-	-	228.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	8.9

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon





















2027 Opening Year Build Weekday Morning Peak Hour

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	327	22	11	434	587	9	9	21	400	5	27
Future Volume (vph)	12	327	22	11	434	587	9	9	21	400	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.928				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				641		23				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1311			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	13	355	24	12	482	652	10	10	23	444	6	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	379	0	12	482	652	0	43	0	0	450	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 104.8
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated

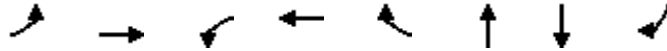
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		

910 - 2027 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	13	379	12	482	652	43	450	30
v/c Ratio	0.08	0.53	0.08	0.70	0.49	0.17	0.70	0.05
Control Delay (s/veh)	59.7	30.4	60.0	36.4	1.5	34.5	39.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.7	30.4	60.0	36.4	1.5	34.5	39.3	0.1
Queue Length 50th (ft)	9	206	8	283	1	12	241	0
Queue Length 95th (ft)	38	378	34	511	15	59	#576	0
Internal Link Dist (ft)		845		1231		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	192	1170	188	1118	1337	279	877	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.32	0.06	0.43	0.49	0.15	0.51	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	327	22	11	434	587	9	9	21	400	5	27
Future Volume (vph)	12	327	22	11	434	587	9	9	21	400	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1836		1727	1757	1494		1975			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1836		1727	1757	1494		1975			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	355	24	12	482	652	10	10	23	444	6	30
RTOR Reduction (vph)	0	2	0	0	0	176	0	21	0	0	0	19
Lane Group Flow (vph)	13	377	0	12	482	476	0	22	0	0	450	11
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	2.9	38.6		2.9	38.6	78.2		6.6			39.6	39.6
Effective Green, g (s)	2.9	40.6		2.9	40.6	78.2		8.6			39.6	39.6
Actuated g/C Ratio	0.03	0.38		0.03	0.38	0.73		0.08			0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	47	692		46	662	1084		157			628	559
v/s Ratio Prot	c0.01	0.21		0.01	c0.27	0.16		c0.01			c0.26	0.01
v/s Ratio Perm						0.16						
v/c Ratio	0.28	0.54		0.26	0.73	0.44		0.14			0.72	0.02
Uniform Delay, d1	51.4	26.3		51.3	28.8	5.9		46.1			29.2	21.7
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.6	1.5		6.2	4.9	0.6		0.9			4.8	0.0
Delay (s)	58.0	27.9		57.6	33.7	6.5		47.0			34.0	21.7
Level of Service	E	C		E	C	A		D			C	C
Approach Delay (s/veh)		28.9			18.5			47.0			33.3	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			107.7				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			58.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	50	20	504	177	77	638	19	220	73	3	1	53
Future Volume (vph)	50	20	504	177	77	638	19	220	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850			0.850		0.994			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1798	0	0	0
Fl _t Permitted		0.950			0.950			0.296				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	535	1798	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			481			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	56	22	560	197	81	672	20	237	78	3	1	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	560	197	81	672	20	237	81	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4

910 - 2027 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	144	106	36	121	8
Future Volume (vph)	144	106	36	121	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.953		0.895		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1746	0	1665	0	0
Flt Permitted	0.925		0.989		
Satd. Flow (perm)	1629	0	1665	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	160	118	40	134	9
Shared Lane Traffic (%)					
Lane Group Flow (vph)	338	0	183	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 178.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4
19 s	81 s	19 s	51 s
#2 	#2 	#2 	
Ø5	Ø6	Ø8	
19 s	81 s	70 s	

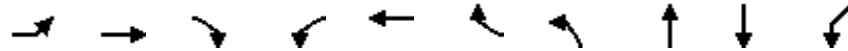
910 - 2027 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	78	560	197	81	672	20	237	81	338	183
v/c Ratio	0.60	0.78	0.28	0.61	0.93	0.03	0.83	0.13	0.86	1.30
Control Delay (s/veh)	102.0	56.1	18.1	102.9	71.1	33.8	71.6	41.9	87.4	235.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	102.0	56.1	18.1	102.9	71.1	33.8	71.6	41.9	87.4	235.9
Queue Length 50th (ft)	99	624	78	103	819	16	231	71	422	~305
Queue Length 95th (ft)	167	794	147	172	#1078	37	#372	118	#594	#486
Internal Link Dist (ft)		401			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	144	778	763	145	786	690	286	669	432	141
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.72	0.26	0.56	0.85	0.03	0.83	0.12	0.78	1.30

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.

Attachment "F"

910 - 2027 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	50	20	504	177	77	638	19	220	73	3	1	53
Future Volume (vph)	50	20	504	177	77	638	19	220	73	3	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1799			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	536	1799			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Adj. Flow (vph)	56	22	560	197	81	672	20	237	78	3	1	59
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	78	560	136	81	672	20	237	81	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		13.7	69.6	69.6	13.7	69.6	69.6	60.1	60.1			
Effective Green, g (s)		13.7	71.6	71.6	13.7	71.6	71.6	60.1	62.1			
Actuated g/C Ratio		0.08	0.40	0.40	0.08	0.40	0.40	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		130	718	651	131	726	637	280	625			
v/s Ratio Prot		0.05	0.31		c0.05	c0.37		c0.07	0.05			
v/s Ratio Perm				0.08			0.01	0.21				
v/c Ratio		0.60	0.78	0.21	0.62	0.93	0.03	0.85	0.13			
Uniform Delay, d1		79.7	46.6	34.9	79.9	50.9	32.4	53.7	39.7			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		11.0	6.3	0.3	11.9	18.3	0.0	22.2	0.2			
Delay (s)		90.7	52.9	35.3	91.8	69.3	32.5	75.9	39.9			
Level of Service		F	D	D	F	E	C	E	D			
Approach Delay (s/veh)			52.2			70.7			66.7			
Approach LOS			D			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			80.0									E
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			178.5						20.0			
Intersection Capacity Utilization			93.6%									F
Analysis Period (min)			15									

c Critical Lane Group

910 - 2027 Build Weekday Morning Peak Hour

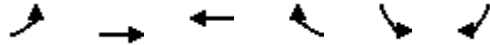
2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations	↕		↕		
Traffic Volume (vph)	144	106	36	121	8
Future Volume (vph)	144	106	36	121	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frpb, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1746		1665		
Flt Permitted	0.93		0.99		
Satd. Flow (perm)	1629		1665		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	160	118	40	134	9
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	338	0	183	0	0
Confl. Bikes (#/hr)	1				
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	41.0		15.1		
Effective Green, g (s)	43.0		15.1		
Actuated g/C Ratio	0.24		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	392		140		
v/s Ratio Prot			c0.11		
v/s Ratio Perm	c0.21				
v/c Ratio	0.86		1.31		
Uniform Delay, d1	64.9		81.7		
Progression Factor	1.00		1.00		
Incremental Delay, d2	18.8		180.2		
Delay (s)	83.7		261.9		
Level of Service	F		F		
Approach Delay (s/veh)	83.7		261.9		
Approach LOS	F		F		

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	737	1067	18	14	12
Future Volume (vph)	14	737	1067	18	14	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.939	
Flt Protected		0.999			0.973	
Satd. Flow (prot)	0	1969	2036	0	1702	0
Flt Permitted		0.999			0.973	
Satd. Flow (perm)	0	1969	2036	0	1702	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1311	481		354	
Travel Time (s)		24.2	8.6		8.0	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	16	819	1173	20	16	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	835	1193	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	737	1067	18	14	12
Future Vol, veh/h	14	737	1067	18	14	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	91	91	90	90
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	16	819	1173	20	16	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1192	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.15	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.245	-	-
Pot Cap-1 Maneuver	575	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	575	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.21	0	62.19
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	34	-	-	-	91
HCM Lane V/C Ratio	0.027	-	-	-	0.318
HCM Ctrl Dly (s/v)	11.4	0	-	-	62.2
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2





















2027 Opening Year Build Weekday Evening Peak Hour

Attachment "F"

911 - 2027 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	561	20	17	363	618	10	11	29	504	21	38
Future Volume (vph)	30	561	20	17	363	618	10	11	29	504	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				644		32				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1320			547				544
Travel Time (s)		17.0			23.7			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	33	623	22	18	378	644	11	12	32	542	23	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	645	0	18	378	644	0	55	0	0	565	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1				1
Detector Template	Left	Thru		Left	Thru	Right		Thru				Thru
Leading Detector (ft)	46	46		46	46	46		46				46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4				-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4				-4
Detector 1 Size(ft)	50	50		50	50	50		50				50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0				0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0				0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0				0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

911 - 2027 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 122.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

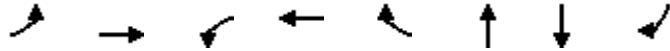
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		

911 - 2027 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	33	645	18	378	644	55	565	41
v/c Ratio	0.24	0.84	0.14	0.55	0.47	0.27	0.82	0.06
Control Delay (s/veh)	65.3	45.1	64.1	34.4	1.4	34.9	48.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.3	45.1	64.1	34.4	1.4	34.9	48.3	0.2
Queue Length 50th (ft)	25	442	13	260	0	17	394	0
Queue Length 95th (ft)	70	717	45	363	13	68	#822	0
Internal Link Dist (ft)		845		1240		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	155	1012	151	955	1362	225	690	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.64	0.12	0.40	0.47	0.24	0.82	0.06

Intersection Summary

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

Attachment "F"

911 - 2027 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	561	20	17	363	618	10	11	29	504	21	38
Future Volume (vph)	30	561	20	17	363	618	10	11	29	504	21	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1915		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1915		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	33	623	22	18	378	644	11	12	32	542	23	41
RTOR Reduction (vph)	0	1	0	0	0	165	0	30	0	0	0	25
Lane Group Flow (vph)	33	644	0	18	378	479	0	25	0	0	565	16
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	5.3	46.8		3.3	44.8	93.7		6.9			48.9	48.9
Effective Green, g (s)	5.3	48.8		3.3	46.8	93.7		8.9			48.9	48.9
Actuated g/C Ratio	0.04	0.39		0.03	0.37	0.74		0.07			0.39	0.39
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	76	742		46	672	1144		136			670	597
v/s Ratio Prot	c0.02	c0.34		0.01	0.21	0.16		c0.01			c0.33	0.01
v/s Ratio Perm						0.15						
v/c Ratio	0.43	0.87		0.39	0.56	0.42		0.19			0.84	0.03
Uniform Delay, d1	58.8	35.6		60.3	31.4	6.0		55.1			35.0	23.8
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.1	11.4		11.1	1.8	0.5		1.4			10.4	0.0
Delay (s)	66.9	47.0		71.4	33.2	6.5		56.5			45.4	23.8
Level of Service	E	D		E	C	A		E			D	C
Approach Delay (s/veh)		48.0			17.3			56.5			44.0	
Approach LOS		D			B			E			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			33.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			125.9				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			73.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Attachment "F"

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	63	738	211	77	651	41	206	160	24	3	1
Future Volume (vph)	94	63	738	211	77	651	41	206	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.978			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Flt Permitted		0.950			0.950			0.305				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	568	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			472			1077			555			
Travel Time (s)			8.7			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	99	66	777	222	82	693	44	229	178	27	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	777	222	82	693	44	229	208	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	61	2	8	36	7
Future Volume (vph)	28	104	61	2	8	36	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.957			0.890		
Flt Protected		0.993			0.991		
Satd. Flow (prot)	0	1838	0	0	1676	0	0
Flt Permitted		0.922			0.991		
Satd. Flow (perm)	0	1707	0	0	1676	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	30	112	66	2	9	40	8
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	209	0	0	59	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 165.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2	#2	#2	#2	#2	#2
Ø1	Ø2	Ø7	Ø4	Ø3	
19 s	81 s	19 s	51 s	19 s	
#2	#2	#2			
Ø5	Ø6	Ø8			
19 s	81 s	70 s			

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



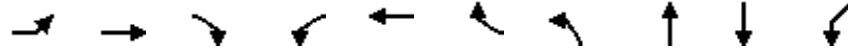
Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					

Intersection Summary

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	165	777	222	82	693	44	229	208	209	59
v/c Ratio	1.04	0.90	0.27	0.57	0.81	0.06	0.83	0.39	0.69	0.46
Control Delay (s/veh)	151.3	56.7	18.7	92.0	49.4	28.8	74.4	49.8	76.8	88.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	151.3	56.7	18.7	92.0	49.4	28.8	74.4	49.8	76.8	88.5
Queue Length 50th (ft)	~206	826	92	91	679	28	213	190	226	65
Queue Length 95th (ft)	#402	#1231	174	163	#981	62	#338	274	327	125
Internal Link Dist (ft)		392			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	159	864	830	161	873	767	276	732	488	153
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.90	0.27	0.51	0.79	0.06	0.83	0.28	0.43	0.39

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.

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	63	738	211	77	651	41	206	160	24	3	1
Future Volume (vph)	94	63	738	211	77	651	41	206	160	24	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	568	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	99	66	777	222	82	693	44	229	178	27	3	1
RTOR Reduction (vph)	0	0	0	46	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	165	777	176	82	693	44	229	208	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.1	75.7	75.7	13.6	74.2	74.2	46.7	46.7			
Effective Green, g (s)		15.1	77.7	77.7	13.6	76.2	76.2	46.7	48.7			
Actuated g/C Ratio		0.09	0.47	0.47	0.08	0.46	0.46	0.28	0.29			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		158	860	780	144	852	748	268	532			
v/s Ratio Prot		c0.09	c0.42		0.05	0.37		c0.08	0.11			
v/s Ratio Perm				0.11			0.03	c0.16				
v/c Ratio		1.04	0.90	0.23	0.57	0.81	0.06	0.85	0.39			
Uniform Delay, d1		75.7	40.9	26.5	73.6	39.0	25.2	54.0	47.1			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		83.8	13.5	0.3	8.2	6.8	0.1	24.2	1.0			
Delay (s)		159.5	54.4	26.8	81.9	45.8	25.2	78.2	48.0			
Level of Service		F	D	C	F	D	C	E	D			
Approach Delay (s/veh)			64.0			48.3			63.9			
Approach LOS			E			D			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			60.3			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			166.5			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			86.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

911 - 2027 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

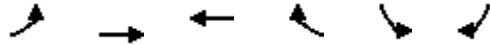
04/22/2026



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	28	104	61	2	8	36	7
Future Volume (vph)	28	104	61	2	8	36	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1838			1676		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1707			1676		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	112	66	2	9	40	8
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	209	0	0	59	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		27.6			10.5		
Effective Green, g (s)		29.6			10.5		
Actuated g/C Ratio		0.18			0.06		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		303			105		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.12					
v/c Ratio		0.69			0.56		
Uniform Delay, d1		64.1			75.8		
Progression Factor		1.00			1.00		
Incremental Delay, d2		8.2			10.8		
Delay (s)		72.3			86.6		
Level of Service		E			F		
Approach Delay (s/veh)		72.3			86.6		
Approach LOS		E			F		
Intersection Summary							

911 - 2027 Build Weekday Evening Peak Hour
 3: NH Route 111 & Site Driveway

04/22/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	1081	927	27	25	22
Future Volume (vph)	20	1081	927	27	25	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.996		0.938	
Fl _t Protected		0.999			0.974	
Satd. Flow (prot)	0	2027	2092	0	1702	0
Fl _t Permitted		0.999			0.974	
Satd. Flow (perm)	0	2027	2092	0	1702	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1320	472		355	
Travel Time (s)		24.3	8.5		8.1	
Peak Hour Factor	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow (vph)	21	1138	997	29	28	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1159	1026	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	20	1081	927	27	25	22
Future Vol, veh/h	20	1081	927	27	25	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	95	95	93	93	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	1138	997	29	28	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1026	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	677	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	677	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.19	0	123.79
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	33	-	-	-	75
HCM Lane V/C Ratio	0.031	-	-	-	0.693
HCM Ctrl Dly (s/v)	10.5	0	-	-	123.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	3.2





















2027 Opening Year Build Saturday Midday Peak Hour

Attachment "F"

912 - 2027 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	376	27	15	465	447	12	7	31	334	13	25
Future Volume (vph)	22	376	27	15	465	447	12	7	31	334	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.990				0.850		0.917				0.850
Flt Protected	0.950			0.950				0.988			0.954	
Satd. Flow (prot)	1865	1944	0	1778	1809	1538	0	1951	0	0	1726	1538
Flt Permitted	0.950			0.950				0.988			0.954	
Satd. Flow (perm)	1865	1944	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				456		34				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1300			547				544
Travel Time (s)		17.0			23.3			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	24	418	30	16	495	476	13	8	34	371	14	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	448	0	16	495	476	0	55	0	0	385	28
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

912 - 2027 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	102.8
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated

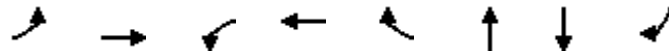
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		

912 - 2027 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	24	448	16	495	476	55	385	28
v/c Ratio	0.13	0.55	0.09	0.69	0.38	0.21	0.66	0.05
Control Delay (s/veh)	59.4	28.7	60.0	35.6	1.2	31.0	40.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.4	28.7	60.0	35.6	1.2	31.0	40.2	0.2
Queue Length 50th (ft)	17	216	11	317	2	14	251	0
Queue Length 95th (ft)	54	432	41	508	14	64	446	0
Internal Link Dist (ft)		845		1220		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	218	1259	208	1171	1316	303	930	873
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.08	0.42	0.36	0.18	0.41	0.03

Intersection Summary

912 - 2027 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	376	27	15	465	447	12	7	31	334	13	25
Future Volume (vph)	22	376	27	15	465	447	12	7	31	334	13	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1944		1778	1809	1522		1951			1726	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1944		1778	1809	1522		1951			1726	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	418	30	16	495	476	13	8	34	371	14	28
RTOR Reduction (vph)	0	2	0	0	0	135	0	31	0	0	0	19
Lane Group Flow (vph)	24	446	0	16	495	341	0	24	0	0	385	9
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.6	40.8		2.9	39.1	74.0		6.6			34.9	34.9
Effective Green, g (s)	4.6	42.8		2.9	41.1	74.0		8.6			34.9	34.9
Actuated g/C Ratio	0.04	0.41		0.03	0.39	0.70		0.08			0.33	0.33
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	81	790		49	706	1070		159			572	510
v/s Ratio Prot	c0.01	0.23		0.01	c0.27	0.11		c0.01			c0.22	0.01
v/s Ratio Perm						0.12						
v/c Ratio	0.30	0.56		0.33	0.70	0.32		0.15			0.67	0.02
Uniform Delay, d1	48.7	24.0		50.2	26.9	6.0		44.9			30.2	23.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.2	1.5		8.0	4.0	0.4		0.9			4.1	0.0
Delay (s)	53.0	25.6		58.2	30.8	6.3		45.8			34.3	23.7
Level of Service	D	C		E	C	A		D			C	C
Approach Delay (s/veh)		26.9			19.5			45.8			33.6	
Approach LOS		C			B			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			105.2				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			57.0%				ICU Level of Service		B			
Analysis Period (min)			15									
























c Critical Lane Group

Attachment "F"

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	85	58	490	172	80	546	20	175	96	12	2	4
Future Volume (vph)	85	58	490	172	80	546	20	175	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt				0.850			0.850		0.980			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Flt Permitted		0.950			0.950			0.330				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	615	1825	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			492			1077			555			
Travel Time (s)			9.1			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	94	64	544	191	85	581	21	182	100	13	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	544	191	85	581	21	182	115	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	89	84	11	47	4
Future Volume (vph)	29	89	84	11	47	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.945		0.889		
Flt Protected		0.992		0.991		
Satd. Flow (prot)	0	1813	0	1674	0	0
Flt Permitted		0.934		0.991		
Satd. Flow (perm)	0	1707	0	1674	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	31	96	90	12	52	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	221	0	68	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 148.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

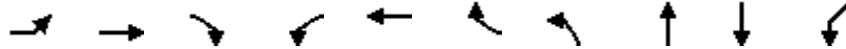


Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	158	544	191	85	581	21	182	115	221	68
v/c Ratio	0.86	0.75	0.27	0.52	0.82	0.03	0.58	0.19	0.66	0.47
Control Delay (s/veh)	105.5	47.8	15.8	82.6	53.2	30.7	48.7	39.9	67.3	82.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.5	47.8	15.8	82.6	53.2	30.7	48.7	39.9	67.3	82.0
Queue Length 50th (ft)	156	468	57	80	513	13	135	82	205	65
Queue Length 95th (ft)	#383	690	129	169	750	35	241	158	344	140
Internal Link Dist (ft)		412			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	183	990	946	185	1000	875	318	832	554	173
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.55	0.20	0.46	0.58	0.02	0.57	0.14	0.40	0.39

Intersection Summary

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

Attachment "F"

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	85	58	490	172	80	546	20	175	96	12	2	4
Future Volume (vph)	85	58	490	172	80	546	20	175	96	12	2	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1647	1769	1826			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.33	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1647	615	1826			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	94	64	544	191	85	581	21	182	100	12	2	4
RTOR Reduction (vph)	0	0	0	62	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	158	544	129	85	581	21	182	115	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.4	55.7	55.7	13.5	53.8	53.8	46.1	46.1			
Effective Green, g (s)		15.4	57.7	57.7	13.5	55.8	55.8	46.1	48.1			
Actuated g/C Ratio		0.10	0.39	0.39	0.09	0.38	0.38	0.31	0.32			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		183	724	657	162	708	620	306	592			
v/s Ratio Prot		c0.09	0.29		0.05	c0.31		c0.06	0.06			
v/s Ratio Perm				0.08			0.01	0.13				
v/c Ratio		0.86	0.75	0.20	0.52	0.82	0.03	0.59	0.19			
Uniform Delay, d1		65.4	39.1	29.9	64.3	41.7	29.2	40.9	36.1			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		34.1	5.2	0.3	5.7	8.5	0.0	4.6	0.3			
Delay (s)		99.4	44.3	30.2	70.0	50.1	29.2	45.5	36.4			
Level of Service		F	D	C	E	D	C	D	D			
Approach Delay (s/veh)			51.0			52.0			42.0			
Approach LOS			D			D			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			51.7									D
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			148.2						20.0			
Intersection Capacity Utilization			81.2%									D
Analysis Period (min)			15									

c Critical Lane Group

912 - 2027 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

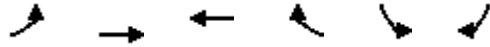
04/22/2026



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	29	89	84	11	47	4
Future Volume (vph)	29	89	84	11	47	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.95		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1814		1674		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1707		1674		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	31	96	90	12	52	4
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	221	0	68	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		27.3		12.9		
Effective Green, g (s)		29.3		12.9		
Actuated g/C Ratio		0.20		0.09		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		337		145		
v/s Ratio Prot				c0.04		
v/s Ratio Perm		c0.13				
v/c Ratio		0.66		0.47		
Uniform Delay, d1		54.8		64.4		
Progression Factor		1.00		1.00		
Incremental Delay, d2		6.1		4.9		
Delay (s)		60.9		69.3		
Level of Service		E		E		
Approach Delay (s/veh)		60.9		69.3		
Approach LOS		E		E		
Intersection Summary						

912 - 2027 Build Saturday Midday Peak Hour
 3: NH Route 111 & Site Driveway

04/22/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	770	816	36	35	28
Future Volume (vph)	26	770	816	36	35	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.940	
Flt Protected		0.998			0.973	
Satd. Flow (prot)	0	2045	2109	0	1704	0
Flt Permitted		0.998			0.973	
Satd. Flow (perm)	0	2045	2109	0	1704	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1300	492		353	
Travel Time (s)		24.0	8.8		8.0	
Peak Hour Factor	0.90	0.90	0.94	0.94	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	29	856	868	38	39	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	885	906	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	26	770	816	36	35	28
Future Vol, veh/h	26	770	816	36	35	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	94	94	90	90
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	29	856	868	38	39	31

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	906	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	-
Pot Cap-1 Maneuver	755	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	755	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.33	0	67.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	59	-	-	-	123
HCM Lane V/C Ratio	0.038	-	-	-	0.569
HCM Ctrl Dly (s/v)	10	0	-	-	67.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	2.8





















2037 Design-Year No-Build Weekday Morning Peak Hour

Attachment "F"

913 - 2037 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	354	22	11	474	643	9	9	21	434	5	30
Future Volume (vph)	14	354	22	11	474	643	9	9	21	434	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.928				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				642			23			96
Link Speed (mph)		37			38			30			30	
Link Distance (ft)		925			1792			547			544	
Travel Time (s)		17.0			32.2			12.4			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	15	385	24	12	527	714	10	10	23	482	6	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	409	0	12	527	714	0	43	0	0	488	33
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

913 - 2037 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 111.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

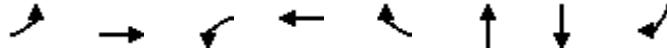
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		

913 - 2037 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	15	409	12	527	714	43	488	33
v/c Ratio	0.10	0.56	0.08	0.76	0.53	0.19	0.74	0.05
Control Delay (s/veh)	61.8	31.6	62.1	39.5	1.9	35.7	42.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.8	31.6	62.1	39.5	1.9	35.7	42.4	0.1
Queue Length 50th (ft)	11	244	8	344	7	13	288	0
Queue Length 95th (ft)	41	414	35	574	23	58	#667	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	174	1115	171	1066	1346	255	796	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.37	0.07	0.49	0.53	0.17	0.61	0.04

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

913 - 2037 No-Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	354	22	11	474	643	9	9	21	434	5	30
Future Volume (vph)	14	354	22	11	474	643	9	9	21	434	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1837		1727	1757	1494		1975			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1837		1727	1757	1494		1975			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	15	385	24	12	527	714	10	10	23	482	6	33
RTOR Reduction (vph)	0	2	0	0	0	165	0	21	0	0	0	21
Lane Group Flow (vph)	15	407	0	12	527	549	0	22	0	0	488	12
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	3.0	42.2		3.0	42.2	85.6		6.6			43.4	43.4
Effective Green, g (s)	3.0	44.2		3.0	44.2	85.6		8.6			43.4	43.4
Actuated g/C Ratio	0.03	0.38		0.03	0.38	0.74		0.07			0.38	0.38
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	45	704		44	674	1110		147			643	573
v/s Ratio Prot	c0.01	0.22		0.01	c0.30	0.19		c0.01			c0.29	0.01
v/s Ratio Perm						0.18						
v/c Ratio	0.33	0.58		0.27	0.78	0.49		0.15			0.76	0.02
Uniform Delay, d1	55.1	28.1		55.0	31.3	6.0		49.9			31.3	22.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.9	1.8		6.9	6.8	0.7		1.0			6.1	0.0
Delay (s)	64.1	30.0		61.9	38.1	6.7		50.8			37.4	22.6
Level of Service	E	C		E	D	A		D			D	C
Approach Delay (s/veh)		31.2			20.4			50.8			36.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			26.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			115.2				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			62.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	52	21	548	192	85	695	21	239	80	4	1	58
Future Volume (vph)	52	21	548	192	85	695	21	239	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850			0.850		0.993			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1796	0	0	0
Fl _t Permitted		0.950			0.950			0.279				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	505	1796	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				101								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	58	23	609	213	89	732	22	257	86	4	1	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	609	213	89	732	22	257	90	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



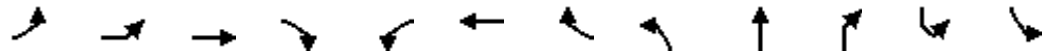
Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	159	115	40	133	9
Future Volume (vph)	159	115	40	133	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.953		0.894		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1746	0	1663	0	0
Flt Permitted	0.922		0.989		
Satd. Flow (perm)	1624	0	1663	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	177	128	44	148	10
Shared Lane Traffic (%)					
Lane Group Flow (vph)	370	0	202	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 186.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

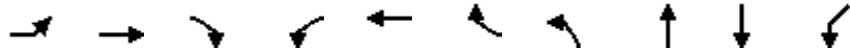


Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	81	609	213	89	732	22	257	90	370	202
v/c Ratio	0.64	0.83	0.29	0.68	0.98	0.03	0.94	0.14	0.93	1.52
Control Delay (s/veh)	107.2	60.6	20.1	109.8	81.8	34.0	92.2	42.9	98.9	319.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	107.2	60.6	20.1	109.8	81.8	34.0	92.2	42.9	98.9	319.2
Queue Length 50th (ft)	103	707	94	114	941	17	254	79	474	~355
Queue Length 95th (ft)	172	894	167	#195	#1241	40	#449	129	#687	#543
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	136	738	729	138	746	655	272	635	408	133
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.83	0.29	0.64	0.98	0.03	0.94	0.14	0.91	1.52

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.

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	52	21	548	192	85	695	21	239	80	4	1	58
Future Volume (vph)	52	21	548	192	85	695	21	239	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1797			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.28	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	505	1797			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Adj. Flow (vph)	58	23	609	213	89	732	22	257	86	4	1	64
RTOR Reduction (vph)	0	0	0	60	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	81	609	153	89	732	22	257	90	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		13.9	74.7	74.7	14.2	75.0	75.0	62.8	62.8			
Effective Green, g (s)		13.9	76.7	76.7	14.2	77.0	77.0	62.8	64.8			
Actuated g/C Ratio		0.07	0.41	0.41	0.08	0.41	0.41	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		126	735	667	130	746	655	267	623			
v/s Ratio Prot		0.05	0.34		c0.05	c0.40		c0.08	0.05			
v/s Ratio Perm				0.09			0.01	c0.25				
v/c Ratio		0.64	0.83	0.23	0.68	0.98	0.03	0.96	0.14			
Uniform Delay, d1		84.0	49.1	35.8	84.1	54.1	32.7	60.4	41.9			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		14.4	8.6	0.4	17.5	28.4	0.0	45.2	0.2			
Delay (s)		98.3	57.7	36.2	101.6	82.5	32.7	105.6	42.1			
Level of Service		F	E	D	F	F	C	F	D			
Approach Delay (s/veh)			56.3			83.2			89.1			
Approach LOS			E			F			F			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			97.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			186.7			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			100.1%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group

913 - 2037 No-Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations	↕		↕		
Traffic Volume (vph)	159	115	40	133	9
Future Volume (vph)	159	115	40	133	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frbp, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1747		1665		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1626		1665		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	128	44	148	10
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	370	0	202	0	0
Confl. Bikes (#/hr)		1			
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	43.8		15.0		
Effective Green, g (s)	45.8		15.0		
Actuated g/C Ratio	0.25		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	398		133		
v/s Ratio Prot			c0.12		
v/s Ratio Perm	0.23				
v/c Ratio	0.93		1.52		
Uniform Delay, d1	68.9		85.9		
Progression Factor	1.00		1.00		
Incremental Delay, d2	28.8		268.0		
Delay (s)	97.7		353.8		
Level of Service	F		F		
Approach Delay (s/veh)	97.7		353.8		
Approach LOS	F		F		
Intersection Summary					





















2037 Design-Year No-Build Weekday Evening Peak Hour

Attachment "F"

914 - 2037 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	610	20	17	392	673	10	11	29	546	21	42
Future Volume (vph)	33	610	20	17	392	673	10	11	29	546	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				701		32				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	37	678	22	18	408	701	11	12	32	587	23	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	700	0	18	408	701	0	55	0	0	610	45
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

914 - 2037 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 125.9
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated

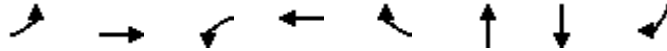
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↗ Ø8 51 s
#1 ↖ Ø5 14 s	#1 ← Ø6 66 s		

914 - 2037 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	37	700	18	408	701	55	610	45
v/c Ratio	0.27	0.87	0.14	0.57	0.51	0.28	0.92	0.07
Control Delay (s/veh)	67.3	47.1	65.0	34.2	1.6	35.5	60.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.3	47.1	65.0	34.2	1.6	35.5	60.1	0.2
Queue Length 50th (ft)	30	502	14	288	0	18	496	0
Queue Length 95th (ft)	76	#854	45	399	13	68	#917	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	150	975	145	920	1377	218	665	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.72	0.12	0.44	0.51	0.25	0.92	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Attachment "F"

914 - 2037 No-Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	610	20	17	392	673	10	11	29	546	21	42
Future Volume (vph)	33	610	20	17	392	673	10	11	29	546	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1916		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1916		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	37	678	22	18	408	701	11	12	32	587	23	45
RTOR Reduction (vph)	0	1	0	0	0	175	0	30	0	0	0	28
Lane Group Flow (vph)	37	699	0	18	408	526	0	25	0	0	610	17
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	5.4	50.8		3.4	48.8	97.4		6.9			48.6	48.6
Effective Green, g (s)	5.4	52.8		3.4	50.8	97.4		8.9			48.6	48.6
Actuated g/C Ratio	0.04	0.41		0.03	0.39	0.75		0.07			0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	76	779		46	708	1154		132			647	576
v/s Ratio Prot	c0.02	c0.37		0.01	0.23	0.17		c0.01			c0.35	0.01
v/s Ratio Perm						0.17						
v/c Ratio	0.49	0.90		0.39	0.58	0.46		0.19			0.94	0.03
Uniform Delay, d1	60.8	35.9		62.1	31.0	6.1		57.0			39.2	25.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	9.9	13.9		11.1	1.8	0.6		1.5			22.8	0.0
Delay (s)	70.7	49.8		73.3	32.8	6.7		58.5			62.0	25.7
Level of Service	E	D		E	C	A		E			E	C
Approach Delay (s/veh)		50.8			17.2			58.5			59.5	
Approach LOS		D			B			E			E	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			38.5				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			129.7				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			78.0%				ICU Level of Service				D	
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	100	68	801	226	85	705	46	220	177	26	4	1
Future Volume (vph)	100	68	801	226	85	705	46	220	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.978			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Flt Permitted		0.950			0.950			0.298				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	555	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	105	72	843	238	90	750	49	244	197	29	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	177	843	238	90	750	49	244	230	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	31	115	63	2	9	38	7
Future Volume (vph)	31	115	63	2	9	38	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.891		
Flt Protected		0.993			0.990		
Satd. Flow (prot)	0	1842	0	0	1676	0	0
Flt Permitted		0.915			0.990		
Satd. Flow (perm)	0	1697	0	0	1676	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	33	124	68	2	10	42	8
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	226	0	0	62	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 171.2
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2	#2		#2	#2	#2
Ø1	Ø2		Ø7	Ø4	Ø3
19 s	81 s		19 s	51 s	19 s
#2	#2		#2		
Ø5	Ø6		Ø8		
19 s	81 s		70 s		

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



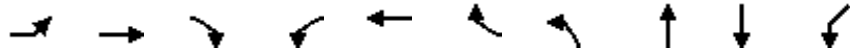
Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					

Intersection Summary

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	177	843	238	90	750	49	244	230	226	62
v/c Ratio	1.15	1.01	0.30	0.63	0.90	0.07	0.90	0.43	0.72	0.50
Control Delay (s/veh)	183.7	79.4	20.6	97.8	60.0	29.7	85.6	51.2	79.1	91.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	183.7	79.4	20.6	97.8	60.0	29.7	85.6	51.2	79.1	91.7
Queue Length 50th (ft)	~240	~1029	107	102	795	32	229	213	248	69
Queue Length 95th (ft)	#447	#1433	196	179	#1182	68	#381	301	353	131
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	154	835	804	155	841	738	271	704	467	147
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	1.01	0.30	0.58	0.89	0.07	0.90	0.33	0.48	0.42

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.

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	100	68	801	226	85	705	46	220	177	26	4	1
Future Volume (vph)	100	68	801	226	85	705	46	220	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	556	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	105	72	843	238	90	750	49	244	197	29	4	1
RTOR Reduction (vph)	0	0	0	48	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	177	843	190	90	750	49	244	230	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.1	75.5	75.5	13.9	74.3	74.3	48.8	48.8			
Effective Green, g (s)		15.1	77.5	77.5	13.9	76.3	76.3	48.8	50.8			
Actuated g/C Ratio		0.09	0.45	0.45	0.08	0.45	0.45	0.29	0.30			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		154	835	757	143	830	729	265	540			
v/s Ratio Prot		c0.10	c0.46		0.05	0.40		c0.08	0.13			
v/s Ratio Perm				0.11			0.03	c0.18				
v/c Ratio		1.15	1.01	0.25	0.63	0.90	0.07	0.92	0.43			
Uniform Delay, d1		78.0	46.8	28.9	76.1	44.0	27.1	57.1	48.4			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		118.3	33.5	0.4	11.7	13.9	0.1	36.1	1.1			
Delay (s)		196.3	80.3	29.3	87.8	57.9	27.2	93.2	49.5			
Level of Service		F	F	C	F	E	C	F	D			
Approach Delay (s/veh)			87.0			59.2			72.0			
Approach LOS			F			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			75.0			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			171.1			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

914 - 2037 No-Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	31	115	63	2	9	38	7
Future Volume (vph)	31	115	63	2	9	38	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1842			1677		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1699			1677		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	124	68	2	10	42	8
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	226	0	0	62	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		29.7			12.9		
Effective Green, g (s)		31.7			12.9		
Actuated g/C Ratio		0.19			0.08		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		314			126		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.13					
v/c Ratio		0.72			0.49		
Uniform Delay, d1		65.5			76.0		
Progression Factor		1.00			1.00		
Incremental Delay, d2		9.5			6.2		
Delay (s)		75.0			82.2		
Level of Service		E			F		
Approach Delay (s/veh)		75.0			82.2		
Approach LOS		E			F		

Intersection Summary





















2037 Design-Year No-Build Saturday Midday Peak Hour

Attachment "F"

915 - 2037 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	404	27	15	502	481	12	7	31	357	13	27
Future Volume (vph)	25	404	27	15	502	481	12	7	31	357	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.991				0.850		0.917				0.850
Flt Protected	0.950			0.950				0.988			0.954	
Satd. Flow (prot)	1865	1946	0	1778	1809	1538	0	1951	0	0	1726	1538
Flt Permitted	0.950			0.950				0.988			0.954	
Satd. Flow (perm)	1865	1946	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				454		34				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1792			547				544
Travel Time (s)		17.0			32.2			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	28	449	30	16	534	512	13	8	34	397	14	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	479	0	16	534	512	0	55	0	0	411	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

915 - 2037 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	108.5
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated

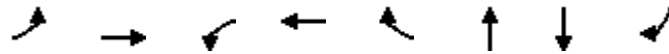
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1	#1	#1	#1
Ø1	Ø2	Ø4	Ø8
14 s	66 s	16 s	51 s
#1	#1		
Ø5	Ø6		
14 s	66 s		

915 - 2037 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	28	479	16	534	512	55	411	30
v/c Ratio	0.16	0.57	0.10	0.73	0.41	0.22	0.70	0.05
Control Delay (s/veh)	62.1	29.6	62.7	37.4	1.4	32.2	43.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.1	29.6	62.7	37.4	1.4	32.2	43.2	0.1
Queue Length 50th (ft)	22	255	12	377	6	16	294	0
Queue Length 95th (ft)	61	467	41	561	19	65	491	0
Internal Link Dist (ft)		845		1712		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	205	1207	195	1121	1315	287	893	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.40	0.08	0.48	0.39	0.19	0.46	0.04

Intersection Summary

915 - 2037 No-Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	404	27	15	502	481	12	7	31	357	13	27
Future Volume (vph)	25	404	27	15	502	481	12	7	31	357	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1945		1778	1809	1522		1951			1726	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1945		1778	1809	1522		1951			1726	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	449	30	16	534	512	13	8	34	397	14	30
RTOR Reduction (vph)	0	2	0	0	0	128	0	31	0	0	0	20
Lane Group Flow (vph)	28	477	0	16	534	384	0	24	0	0	411	10
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.7	44.3		2.9	42.5	79.7		6.6			37.2	37.2
Effective Green, g (s)	4.7	46.3		2.9	44.5	79.7		8.6			37.2	37.2
Actuated g/C Ratio	0.04	0.42		0.03	0.40	0.72		0.08			0.34	0.34
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	78	811		46	725	1092		151			578	515
v/s Ratio Prot	c0.02	0.25		0.01	c0.30	0.12		c0.01			c0.24	0.01
v/s Ratio Perm						0.13						
v/c Ratio	0.36	0.59		0.35	0.74	0.35		0.16			0.71	0.02
Uniform Delay, d1	51.7	25.0		53.1	28.3	5.9		47.8			32.2	24.7
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	5.8	1.7		9.3	4.7	0.4		1.0			5.1	0.0
Delay (s)	57.5	26.7		62.4	33.0	6.3		48.8			37.3	24.7
Level of Service	E	C		E	C	A		D			D	C
Approach Delay (s/veh)		28.4			20.6			48.8			36.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			26.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			111.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			60.2%				ICU Level of Service			B		
Analysis Period (min)			15									





















c Critical Lane Group

Attachment "F"

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	88	63	523	181	88	586	22	185	107	14	2	5
Future Volume (vph)	88	63	523	181	88	586	22	185	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Fr _t				0.850			0.850		0.980			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Fl _t Permitted		0.950			0.950			0.324				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	603	1825	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				100								
Link Speed (mph)			37			38			30			
Link Distance (ft)			1792			1077			555			
Travel Time (s)			33.0			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	98	70	581	201	94	623	23	193	111	15	2	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	168	581	201	94	623	23	193	128	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	32	98	87	12	50	5
Future Volume (vph)	32	98	87	12	50	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.947		0.888		
Flt Protected		0.992		0.991		
Satd. Flow (prot)	0	1817	0	1672	0	0
Flt Permitted		0.927		0.991		
Satd. Flow (perm)	0	1698	0	1672	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	34	105	94	13	56	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	238	0	75	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 156.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

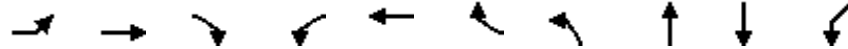


Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	168	581	201	94	623	23	193	128	238	75
v/c Ratio	0.97	0.79	0.28	0.59	0.85	0.04	0.63	0.22	0.69	0.53
Control Delay (s/veh)	131.3	51.1	17.2	89.6	57.1	31.4	52.7	41.7	70.8	88.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	131.3	51.1	17.2	89.6	57.1	31.4	52.7	41.7	70.8	88.4
Queue Length 50th (ft)	~182	537	68	96	593	15	155	99	237	76
Queue Length 95th (ft)	#420	773	145	#194	849	39	255	173	371	155
Internal Link Dist (ft)		1712			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	173	936	899	175	946	827	310	787	521	163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.62	0.22	0.54	0.66	0.03	0.62	0.16	0.46	0.46

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.

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	88	63	523	181	88	586	22	185	107	14	2	5
Future Volume (vph)	88	63	523	181	88	586	22	185	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1646	1769	1825			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.32	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1646	603	1825			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	98	70	581	201	94	623	23	193	111	15	2	5
RTOR Reduction (vph)	0	0	0	60	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	168	581	141	94	623	23	193	128	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.4	60.3	60.3	13.9	58.8	58.8	48.8	48.8			
Effective Green, g (s)		15.4	62.3	62.3	13.9	60.8	60.8	48.8	50.8			
Actuated g/C Ratio		0.10	0.40	0.40	0.09	0.39	0.39	0.31	0.33			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		174	742	673	158	731	640	299	593			
v/s Ratio Prot		c0.09	0.31		0.05	c0.33		c0.06	0.07			
v/s Ratio Perm				0.08			0.01	0.14				
v/c Ratio		0.97	0.78	0.21	0.59	0.85	0.04	0.65	0.22			
Uniform Delay, d1		70.2	41.1	30.8	68.5	43.6	29.6	43.4	38.3			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		58.4	6.3	0.3	8.8	10.3	0.0	6.4	0.4			
Delay (s)		128.6	47.3	31.2	77.3	54.0	29.6	49.8	38.7			
Level of Service		F	D	C	E	D	C	D	D			
Approach Delay (s/veh)			58.3			56.2			45.4			
Approach LOS			E			E			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			57.0									E
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			156.3						20.0			
Intersection Capacity Utilization			85.0%									E
Analysis Period (min)			15									

c Critical Lane Group

915 - 2037 No-Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	32	98	87	12	50	5
Future Volume (vph)	32	98	87	12	50	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.95		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1816		1673		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1698		1673		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	34	105	94	13	56	6
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	238	0	75	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		29.9		13.3		
Effective Green, g (s)		31.9		13.3		
Actuated g/C Ratio		0.20		0.09		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		346		142		
v/s Ratio Prot				c0.04		
v/s Ratio Perm		c0.14				
v/c Ratio		0.69		0.53		
Uniform Delay, d1		57.6		68.5		
Progression Factor		1.00		1.00		
Incremental Delay, d2		7.2		6.6		
Delay (s)		64.7		75.1		
Level of Service		E		E		
Approach Delay (s/veh)		64.7		75.1		
Approach LOS		E		E		





















Intersection Summary

2037 Design-Year No-Build with Burger King Weekday Morning Peak Hour

Attachment "F"

916 - 2037 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	363	22	11	482	652	9	9	21	443	5	30
Future Volume (vph)	14	363	22	11	482	652	9	9	21	443	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.928				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		3				640		23				96
Link Speed (mph)		37			38			30			30	
Link Distance (ft)		925			1320			547			544	
Travel Time (s)		17.0			23.7			12.4			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	15	395	24	12	536	724	10	10	23	492	6	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	419	0	12	536	724	0	43	0	0	498	33
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

916 - 2037 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 147

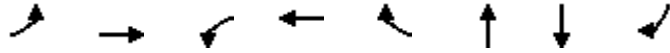
Actuated Cycle Length: 113.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1	#1 Ø2	#1 Ø4	#1 Ø8
14 s	66 s	16 s	51 s
#1 Ø5	#1 Ø6		
14 s	66 s		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	15	419	12	536	724	43	498	33
v/c Ratio	0.10	0.57	0.09	0.77	0.54	0.19	0.75	0.05
Control Delay (s/veh)	62.1	32.0	62.4	40.2	2.0	35.8	43.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.1	32.0	62.4	40.2	2.0	35.8	43.2	0.1
Queue Length 50th (ft)	11	252	9	352	8	14	300	0
Queue Length 95th (ft)	41	426	35	587	25	58	#690	0
Internal Link Dist (ft)		845		1240		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	171	1107	167	1058	1346	251	781	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.38	0.07	0.51	0.54	0.17	0.64	0.04





















Intersection Summary

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

Attachment "F"

916 - 2037 No-Build with Burger King Weekday Morning Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111
























04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	363	22	11	482	652	9	9	21	443	5	30
Future Volume (vph)	14	363	22	11	482	652	9	9	21	443	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1837		1727	1757	1494		1975			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1837		1727	1757	1494		1975			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	15	395	24	12	536	724	10	10	23	492	6	33
RTOR Reduction (vph)	0	2	0	0	0	163	0	21	0	0	0	21
Lane Group Flow (vph)	15	417	0	12	536	561	0	22	0	0	498	12
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	3.1	42.9		3.0	42.8	86.9		6.6			44.1	44.1
Effective Green, g (s)	3.1	44.9		3.0	44.8	86.9		8.6			44.1	44.1
Actuated g/C Ratio	0.03	0.39		0.03	0.38	0.75		0.07			0.38	0.38
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	46	707		44	675	1113		145			645	576
v/s Ratio Prot	c0.01	0.23		0.01	c0.31	0.19		c0.01			c0.29	0.01
v/s Ratio Perm						0.18						
v/c Ratio	0.33	0.59		0.27	0.79	0.50		0.15			0.77	0.02
Uniform Delay, d1	55.7	28.5		55.7	31.8	6.1		50.6			31.8	22.7
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.5	2.0		6.9	7.3	0.8		1.0			6.7	0.0
Delay (s)	64.2	30.5		62.6	39.1	6.8		51.6			38.5	22.8
Level of Service	E	C		E	D	A		D			D	C
Approach Delay (s/veh)		31.7			21.0			51.6			37.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			27.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			116.6				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			63.5%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

916 - 2037 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	56	22	560	198	85	708	21	246	80	4	1	58
Future Volume (vph)	56	22	560	198	85	708	21	246	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t			0.850				0.850		0.993			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1796	0	0	0
Fl _t Permitted		0.950			0.950			0.276				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	499	1796	0	0	0
Right Turn on Red			Yes									
Satd. Flow (RTOR)			102									
Link Speed (mph)			37			38			30			
Link Distance (ft)			472			1077			555			
Travel Time (s)			8.7			19.3			12.6			
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	62	24	622	220	89	745	22	265	86	4	1	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	622	220	89	745	22	265	90	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4



Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	159	119	40	134	9
Future Volume (vph)	159	119	40	134	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				
Frt	0.952		0.894		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1744	0	1663	0	0
Flt Permitted	0.923		0.989		
Satd. Flow (perm)	1624	0	1663	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	177	132	44	149	10
Shared Lane Traffic (%)					
Lane Group Flow (vph)	374	0	203	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					

Attachment "F"

916 - 2037 No-Build with Burger King Weekday Morning Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

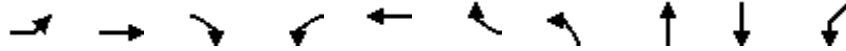
Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 187.1
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 Ø1	#2 Ø2	#2 Ø7	#2 Ø4	#2 Ø3
19 s	81 s	19 s	51 s	19 s
#2 Ø5	#2 Ø6	#2 Ø8		
19 s	81 s	70 s		



Lane Group	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4		3		
Switch Phase					
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	86	622	220	89	745	22	265	90	374	203
v/c Ratio	0.67	0.85	0.30	0.68	1.00	0.03	0.98	0.14	0.94	1.53
Control Delay (s/veh)	109.5	62.2	20.6	110.0	86.9	34.0	100.3	42.9	100.3	323.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	109.5	62.2	20.6	110.0	86.9	34.0	100.3	42.9	100.3	323.1
Queue Length 50th (ft)	110	729	100	114	~987	17	263	79	481	~358
Queue Length 95th (ft)	#188	924	173	#195	#1279	40	#478	129	#701	#546
Internal Link Dist (ft)		392			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	136	737	728	137	744	654	271	633	407	133
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.84	0.30	0.65	1.00	0.03	0.98	0.14	0.92	1.53

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.

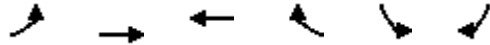
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	56	22	560	198	85	708	21	246	80	4	1	58
Future Volume (vph)	56	22	560	198	85	708	21	246	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1797			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.28	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	500	1797			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Adj. Flow (vph)	62	24	622	220	89	745	22	265	86	4	1	64
RTOR Reduction (vph)	0	0	0	60	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	86	622	160	89	745	22	265	90	0	0	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		14.1	74.9	74.9	14.2	75.0	75.0	63.0	63.0			
Effective Green, g (s)		14.1	76.9	76.9	14.2	77.0	77.0	63.0	65.0			
Actuated g/C Ratio		0.08	0.41	0.41	0.08	0.41	0.41	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		128	736	667	130	744	653	266	624			
v/s Ratio Prot		0.05	0.35		c0.05	c0.41		c0.08	0.05			
v/s Ratio Perm				0.10			0.01	c0.26				
v/c Ratio		0.67	0.85	0.24	0.68	1.00	0.03	1.00	0.14			
Uniform Delay, d1		84.2	49.7	36.0	84.3	55.1	32.8	61.6	41.9			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		16.7	9.7	0.4	17.5	33.3	0.0	54.0	0.2			
Delay (s)		100.9	59.4	36.4	101.8	88.4	32.9	115.6	42.2			
Level of Service		F	E	D	F	F	C	F	D			
Approach Delay (s/veh)			57.8			88.3			96.9			
Approach LOS			E			F			F			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			100.7									F
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			187.1						20.0			
Intersection Capacity Utilization			101.8%									G
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations	↕		↕		
Traffic Volume (vph)	159	119	40	134	9
Future Volume (vph)	159	119	40	134	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frpb, ped/bikes	0.99		1.00		
Flpb, ped/bikes	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1745		1664		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1625		1664		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	132	44	149	10
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	374	0	203	0	0
Confl. Bikes (#/hr)		1			
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	44.0		15.0		
Effective Green, g (s)	46.0		15.0		
Actuated g/C Ratio	0.25		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	399		133		
v/s Ratio Prot			c0.12		
v/s Ratio Perm	0.23				
v/c Ratio	0.94		1.53		
Uniform Delay, d1	69.1		86.1		
Progression Factor	1.00		1.00		
Incremental Delay, d2	30.3		271.1		
Delay (s)	99.4		357.2		
Level of Service	F		F		
Approach Delay (s/veh)	99.4		357.2		
Approach LOS	F		F		

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	796	1158	49	40	41
Future Volume (vph)	35	796	1158	49	40	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt			0.995		0.931	
Flt Protected		0.998			0.976	
Satd. Flow (prot)	0	1967	2030	0	1693	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1967	2030	0	1693	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1320	472		353	
Travel Time (s)		25.7	9.2		8.0	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	39	884	1273	54	44	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	923	1327	0	90	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection

Int Delay, s/veh 13.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	796	1158	49	40	41
Future Vol, veh/h	35	796	1158	49	40	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	91	91	90	90
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	39	884	1273	54	44	46

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1326	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.15	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.245	-	-
Pot Cap-1 Maneuver	511	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	511	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.53	0	\$ 355.65
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	76	-	-	-	65
HCM Lane V/C Ratio	0.076	-	-	-	1.392
HCM Ctrl Dly (s/v)	12.6	0	-	-	-\$ 355.6
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	7.6

Notes





















~: Volume exceeds capacity \$: Delay exceeds 300s
+: Computation Not Defined *: All major volume in platoon

2037 Design-Year No-Build with Burger King Weekday Evening Peak Hour

Attachment "F"

917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	618	20	17	399	680	10	11	29	555	21	42
Future Volume (vph)	33	618	20	17	399	680	10	11	29	555	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				708		32				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1310			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	37	687	22	18	416	708	11	12	32	597	23	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	709	0	18	416	708	0	55	0	0	620	45
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 147

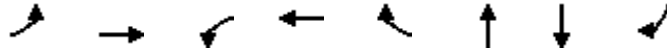
Actuated Cycle Length: 126.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

 Ø1 14 s	 Ø2 66 s	 Ø4 16 s	 Ø8 51 s
 Ø5 14 s	 Ø6 66 s		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	37	709	18	416	708	55	620	45
v/c Ratio	0.27	0.88	0.14	0.61	0.52	0.28	0.94	0.07
Control Delay (s/veh)	67.5	47.5	65.2	36.8	1.6	35.6	63.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.5	47.5	65.2	36.8	1.6	35.6	63.6	0.2
Queue Length 50th (ft)	30	513	15	295	0	18	517	0
Queue Length 95th (ft)	76	#872	45	408	13	68	#939	0
Internal Link Dist (ft)		845		1230		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	149	969	145	915	1356	217	662	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.73	0.12	0.45	0.52	0.25	0.94	0.07

Intersection Summary

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

Attachment "F"

917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	618	20	17	399	680	10	11	29	555	21	42
Future Volume (vph)	33	618	20	17	399	680	10	11	29	555	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1916		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1916		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	37	687	22	18	416	708	11	12	32	597	23	45
RTOR Reduction (vph)	0	1	0	0	0	186	0	30	0	0	0	28
Lane Group Flow (vph)	37	708	0	18	416	522	0	25	0	0	620	17
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	7.3	51.4		3.4	47.5	96.0		6.9			48.5	48.5
Effective Green, g (s)	7.3	53.4		3.4	49.5	96.0		8.9			48.5	48.5
Actuated g/C Ratio	0.06	0.41		0.03	0.38	0.74		0.07			0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	102	785		46	687	1134		131			643	572
v/s Ratio Prot	c0.02	c0.37		0.01	0.23	0.17		c0.01			c0.36	0.01
v/s Ratio Perm						0.17						
v/c Ratio	0.36	0.90		0.39	0.61	0.46		0.19			0.96	0.03
Uniform Delay, d1	59.2	36.0		62.4	32.5	6.8		57.3			40.0	25.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.5	14.4		11.1	2.2	0.6		1.5			27.0	0.0
Delay (s)	63.8	50.3		73.5	34.7	7.4		58.8			67.0	26.0
Level of Service	E	D		E	C	A		E			E	C
Approach Delay (s/veh)		51.0			18.4			58.8			64.3	
Approach LOS		D			B			E			E	

Intersection Summary		
HCM 2000 Control Delay (s/veh)	40.3	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	130.2	Sum of lost time (s) 18.0
Intersection Capacity Utilization	78.9%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Attachment "F"

917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	103	69	810	231	85	716	46	226	177	26	4	1
Future Volume (vph)	103	69	810	231	85	716	46	226	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.978			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Flt Permitted		0.950			0.950			0.296				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	551	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			482			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	108	73	853	243	90	762	49	251	197	29	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	853	243	90	762	49	251	230	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations							
Traffic Volume (vph)	31	115	67	2	9	39	7
Future Volume (vph)	31	115	67	2	9	39	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.891		
Flt Protected		0.993			0.991		
Satd. Flow (prot)	0	1840	0	0	1678	0	0
Flt Permitted		0.917			0.991		
Satd. Flow (perm)	0	1699	0	0	1678	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	33	124	72	2	10	43	8
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	230	0	0	63	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

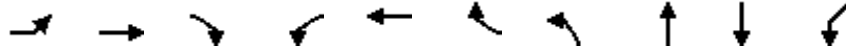
Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 172.5
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2	#2		#2	#2	#2
Ø1	Ø2		Ø7	Ø4	Ø3
19 s	81 s		19 s	51 s	19 s
#2	#2		#2		
Ø5	Ø6		Ø8		
19 s	81 s		70 s		



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					
Intersection Summary							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	181	853	243	90	762	49	251	230	230	63
v/c Ratio	1.19	1.02	0.30	0.63	0.91	0.07	0.93	0.43	0.73	0.50
Control Delay (s/veh)	194.7	81.9	21.1	98.4	61.6	30.0	91.8	51.3	79.7	92.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	194.7	81.9	21.1	98.4	61.6	30.0	91.8	51.3	79.7	92.4
Queue Length 50th (ft)	~251	~1058	112	102	821	32	237	214	253	70
Queue Length 95th (ft)	#459	#1467	202	180	#1220	68	#400	301	358	134
Internal Link Dist (ft)		402			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	152	837	806	154	833	732	269	698	464	146
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.02	0.30	0.58	0.91	0.07	0.93	0.33	0.50	0.43

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.

Attachment "F"

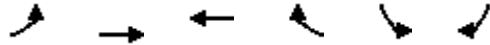
917 - 2037 No-Build with Burger King Weekday Evening Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	103	69	810	231	85	716	46	226	177	26	4	1
Future Volume (vph)	103	69	810	231	85	716	46	226	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	551	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	108	73	853	243	90	762	49	251	197	29	4	1
RTOR Reduction (vph)	0	0	0	47	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	181	853	196	90	762	49	251	230	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.0	76.3	76.3	13.9	75.2	75.2	49.3	49.3			
Effective Green, g (s)		15.0	78.3	78.3	13.9	77.2	77.2	49.3	51.3			
Actuated g/C Ratio		0.09	0.45	0.45	0.08	0.45	0.45	0.29	0.30			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		152	837	759	142	834	732	263	542			
v/s Ratio Prot		c0.10	c0.46		0.05	0.41		c0.08	0.13			
v/s Ratio Perm				0.12			0.03	c0.19				
v/c Ratio		1.19	1.02	0.26	0.63	0.91	0.07	0.95	0.42			
Uniform Delay, d1		78.7	47.1	29.1	76.8	44.5	27.1	58.5	48.7			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		133.4	36.0	0.4	12.2	15.0	0.1	43.6	1.1			
Delay (s)		212.1	83.0	29.5	89.0	59.5	27.2	102.1	49.8			
Level of Service		F	F	C	F	E	C	F	D			
Approach Delay (s/veh)			91.1			60.7			77.1			
Approach LOS			F			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			78.2			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			172.4			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	31	115	67	2	9	39	7
Future Volume (vph)	31	115	67	2	9	39	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1839			1676		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1699			1676		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	124	72	2	10	43	8
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	230	0	0	63	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		30.3			12.9		
Effective Green, g (s)		32.3			12.9		
Actuated g/C Ratio		0.19			0.07		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		318			125		
v/s Ratio Prot					0.04		
v/s Ratio Perm		0.14					
v/c Ratio		0.72			0.50		
Uniform Delay, d1		65.8			76.7		
Progression Factor		1.00			1.00		
Incremental Delay, d2		9.6			6.5		
Delay (s)		75.5			83.2		
Level of Service		E			F		
Approach Delay (s/veh)		75.5			83.2		
Approach LOS		E			F		
Intersection Summary							



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	1177	1001	47	36	39
Future Volume (vph)	35	1177	1001	47	36	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt			0.994		0.930	
Flt Protected		0.999			0.976	
Satd. Flow (prot)	0	2027	2088	0	1691	0
Flt Permitted		0.999			0.976	
Satd. Flow (perm)	0	2027	2088	0	1691	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1310	482		352	
Travel Time (s)		25.5	9.4		8.0	
Peak Hour Factor	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow (vph)	37	1239	1076	51	40	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1276	1127	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 14.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	1177	1001	47	36	39
Future Vol, veh/h	35	1177	1001	47	36	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	95	95	93	93	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	1239	1076	51	40	43

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1127	0	0 2414 1102
Stage 1	-	-	- 1102 -
Stage 2	-	-	- 1313 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	620	-	- ~ 36 258
Stage 1	-	-	- 318 -
Stage 2	-	-	- 252 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	620	-	- ~ 29 258
Mov Cap-2 Maneuver	-	-	- ~ 29 -
Stage 1	-	-	- 258 -
Stage 2	-	-	- 252 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.32	0	\$ 440.68
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	52	-	-	-	54
HCM Lane V/C Ratio	0.059	-	-	-	1.542
HCM Ctrl Dly (s/v)	11.2	0	-	-	\$ 440.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	7.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

2037 Design-Year No-Build with Burger King Saturday Midday Peak Hour

Attachment "F"

918 - 2037 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	417	27	15	514	494	12	7	31	371	13	27
Future Volume (vph)	25	417	27	15	514	494	12	7	31	371	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Fr _t		0.991				0.850		0.917				0.850
Fl _t Protected	0.950			0.950				0.988			0.954	
Satd. Flow (prot)	1865	1946	0	1778	1809	1538	0	1951	0	0	1726	1538
Fl _t Permitted	0.950			0.950				0.988			0.954	
Satd. Flow (perm)	1865	1946	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				455		34				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1310			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	28	463	30	16	547	526	13	8	34	412	14	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	493	0	16	547	526	0	55	0	0	426	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

918 - 2037 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



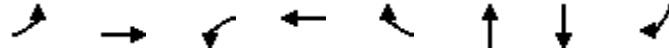
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 110.8
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	28	493	16	547	526	55	426	30
v/c Ratio	0.16	0.59	0.10	0.74	0.42	0.22	0.71	0.05
Control Delay (s/veh)	62.9	30.2	63.3	38.3	1.5	32.6	44.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.9	30.2	63.3	38.3	1.5	32.6	44.3	0.1
Queue Length 50th (ft)	22	275	13	402	7	16	317	0
Queue Length 95th (ft)	61	485	41	579	21	65	514	0
Internal Link Dist (ft)		845		1230		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	197	1191	188	1106	1302	278	861	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.41	0.09	0.49	0.40	0.20	0.49	0.04

Intersection Summary

Attachment "F"

918 - 2037 No-Build with Burger King Saturday Midday Peak Hour
 1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	417	27	15	514	494	12	7	31	371	13	27
Future Volume (vph)	25	417	27	15	514	494	12	7	31	371	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1945		1778	1809	1522		1951			1726	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1945		1778	1809	1522		1951			1726	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	463	30	16	547	526	13	8	34	412	14	30
RTOR Reduction (vph)	0	2	0	0	0	126	0	31	0	0	0	20
Lane Group Flow (vph)	28	491	0	16	547	400	0	24	0	0	426	10
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.7	45.4		3.0	43.7	82.1		6.6			38.4	38.4
Effective Green, g (s)	4.7	47.4		3.0	45.7	82.1		8.6			38.4	38.4
Actuated g/C Ratio	0.04	0.42		0.03	0.40	0.72		0.08			0.34	0.34
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	77	812		47	729	1101		147			584	520
v/s Ratio Prot	c0.02	0.25		0.01	c0.30	0.12		c0.01			c0.25	0.01
v/s Ratio Perm						0.14						
v/c Ratio	0.36	0.60		0.34	0.75	0.36		0.16			0.73	0.02
Uniform Delay, d1	52.9	25.7		54.2	29.0	5.9		49.0			32.9	25.0
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.0	1.9		8.8	5.2	0.4		1.1			5.6	0.0
Delay (s)	58.9	27.6		63.1	34.1	6.3		50.1			38.5	25.0
Level of Service	E	C		E	C	A		D			D	C
Approach Delay (s/veh)		29.3			21.1			50.1			37.6	
Approach LOS		C			C			D			D	

Intersection Summary





















HCM 2000 Control Delay (s/veh)	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Attachment "F"

918 - 2037 No-Build with Burger King Saturday Midday Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	65	540	191	88	605	22	196	107	14	2	5
Future Volume (vph)	94	65	540	191	88	605	22	196	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Fr _t				0.850			0.850		0.980			
Fl _t Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Fl _t Permitted		0.950			0.950			0.316				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	589	1825	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			482			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	104	72	600	212	94	644	23	204	111	15	2	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	600	212	94	644	23	204	128	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	32	98	94	12	52	5
Future Volume (vph)	32	98	94	12	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.944		0.888		
Flt Protected		0.992		0.992		
Satd. Flow (prot)	0	1812	0	1674	0	0
Flt Permitted		0.929		0.992		
Satd. Flow (perm)	0	1696	0	1674	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	34	105	101	13	58	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	245	0	77	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

918 - 2037 No-Build with Burger King Saturday Middy Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

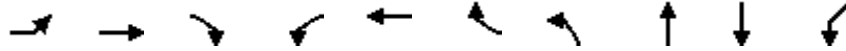
Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 161
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	176	600	212	94	644	23	204	128	245	77
v/c Ratio	1.05	0.80	0.29	0.61	0.87	0.04	0.68	0.22	0.71	0.55
Control Delay (s/veh)	150.5	52.4	17.9	92.7	58.6	31.5	56.6	42.6	72.8	91.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	150.5	52.4	17.9	92.7	58.6	31.5	56.6	42.6	72.8	91.4
Queue Length 50th (ft)	~216	574	77	100	635	15	172	103	253	81
Queue Length 95th (ft)	#447	817	156	#196	899	39	268	173	381	159
Internal Link Dist (ft)		402			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	168	910	877	170	919	804	303	764	506	159
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.66	0.24	0.55	0.70	0.03	0.67	0.17	0.48	0.48

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.

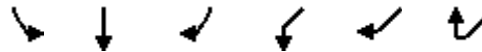
Queue shown is maximum after two cycles.

918 - 2037 No-Build with Burger King Saturday Midday Peak Hour
 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

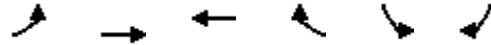
04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	94	65	540	191	88	605	22	196	107	14	2	5
Future Volume (vph)	94	65	540	191	88	605	22	196	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1646	1769	1825			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.32	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1646	589	1825			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	104	72	600	212	94	644	23	204	111	15	2	5
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	176	600	151	94	644	23	204	128	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.3	63.0	63.0	14.0	61.7	61.7	50.1	50.1			
Effective Green, g (s)		15.3	65.0	65.0	14.0	63.7	63.7	50.1	52.1			
Actuated g/C Ratio		0.10	0.40	0.40	0.09	0.40	0.40	0.31	0.32			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		168	753	683	155	746	652	294	592			
v/s Ratio Prot		c0.10	0.32		0.05	c0.34		c0.07	0.07			
v/s Ratio Perm				0.09			0.01	c0.15				
v/c Ratio		1.05	0.80	0.22	0.61	0.86	0.04	0.69	0.22			
Uniform Delay, d1		72.6	42.0	31.3	70.6	44.5	29.6	45.0	39.4			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		82.6	6.7	0.3	9.5	11.0	0.0	8.7	0.4			
Delay (s)		155.2	48.7	31.6	80.2	55.5	29.7	53.7	39.8			
Level of Service		F	D	C	F	E	C	D	D			
Approach Delay (s/veh)			64.0			57.7			48.3			
Approach LOS			E			E			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			60.6									E
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			160.6						20.0			
Intersection Capacity Utilization			86.9%									E
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	32	98	94	12	52	5
Future Volume (vph)	32	98	94	12	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.94		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1812		1673		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1697		1673		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	34	105	101	13	58	6
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	245	0	77	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		31.0		13.5		
Effective Green, g (s)		33.0		13.5		
Actuated g/C Ratio		0.21		0.08		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		348		140		
v/s Ratio Prot				c0.05		
v/s Ratio Perm		0.14				
v/c Ratio		0.70		0.55		
Uniform Delay, d1		59.3		70.6		
Progression Factor		1.00		1.00		
Incremental Delay, d2		7.9		7.7		
Delay (s)		67.2		78.4		
Level of Service		E		E		
Approach Delay (s/veh)		67.2		78.4		
Approach LOS		E		E		
Intersection Summary						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	829	871	76	61	62
Future Volume (vph)	53	829	871	76	61	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.989		0.932	
Fl _t Protected		0.997			0.976	
Satd. Flow (prot)	0	2042	2098	0	1694	0
Fl _t Permitted		0.997			0.976	
Satd. Flow (perm)	0	2042	2098	0	1694	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		1310	482		356	
Travel Time (s)		25.5	9.4		8.1	
Peak Hour Factor	0.90	0.90	0.94	0.94	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	59	921	927	81	68	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	980	1008	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection

Int Delay, s/veh 22.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	53	829	871	76	61	62
Future Vol, veh/h	53	829	871	76	61	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	94	94	90	90
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	59	921	927	81	68	69

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1007	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	-
Pot Cap-1 Maneuver	692	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	692	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.64	0	\$ 346.54
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	108	-	-	-	92
HCM Lane V/C Ratio	0.085	-	-	-	1.481
HCM Ctrl Dly (s/v)	10.7	0	-	-	\$ 346.5
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	10.5

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
+: Computation Not Defined *: All major volume in platoon





















2037 Design-Year Build Weekday Morning Peak Hour

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	359	22	11	478	647	9	9	21	440	5	30
Future Volume (vph)	14	359	22	11	478	647	9	9	21	440	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.928				0.850
Flt Protected	0.950			0.950				0.989				0.953
Satd. Flow (prot)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Flt Permitted	0.950			0.950				0.989				0.953
Satd. Flow (perm)	1761	1837	0	1727	1757	1494	0	1976	0	0	1708	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				641			23			96
Link Speed (mph)		37			38			30			30	
Link Distance (ft)		925			1320			547			544	
Travel Time (s)		17.0			23.7			12.4			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	15	390	24	12	531	719	10	10	23	489	6	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	414	0	12	531	719	0	43	0	0	495	33
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 112.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

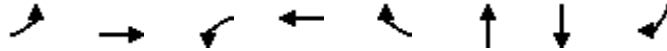
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↗ Ø8 51 s
#1 ↖ Ø5 14 s	#1 ← Ø6 66 s		

919 - 2037 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	15	414	12	531	719	43	495	33
v/c Ratio	0.10	0.57	0.09	0.76	0.53	0.19	0.75	0.05
Control Delay (s/veh)	61.9	31.8	62.3	39.9	1.9	35.7	42.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.9	31.8	62.3	39.9	1.9	35.7	42.8	0.1
Queue Length 50th (ft)	11	248	9	347	8	13	295	0
Queue Length 95th (ft)	41	420	35	580	24	58	#682	0
Internal Link Dist (ft)		845		1240		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	172	1111	169	1062	1346	252	787	753
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.37	0.07	0.50	0.53	0.17	0.63	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	359	22	11	478	647	9	9	21	440	5	30
Future Volume (vph)	14	359	22	11	478	647	9	9	21	440	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1761	1837		1727	1757	1494		1975			1708	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1761	1837		1727	1757	1494		1975			1708	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	15	390	24	12	531	719	10	10	23	489	6	33
RTOR Reduction (vph)	0	2	0	0	0	164	0	21	0	0	0	21
Lane Group Flow (vph)	15	412	0	12	531	555	0	22	0	0	495	12
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	3.0	42.5		3.0	42.5	86.3		6.6			43.8	43.8
Effective Green, g (s)	3.0	44.5		3.0	44.5	86.3		8.6			43.8	43.8
Actuated g/C Ratio	0.03	0.38		0.03	0.38	0.74		0.07			0.38	0.38
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	45	705		44	674	1112		146			645	575
v/s Ratio Prot	c0.01	0.22		0.01	c0.30	0.19		c0.01			c0.29	0.01
v/s Ratio Perm						0.18						
v/c Ratio	0.33	0.58		0.27	0.79	0.50		0.15			0.77	0.02
Uniform Delay, d1	55.5	28.4		55.4	31.5	6.0		50.2			31.6	22.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.9	1.9		6.9	7.0	0.7		1.0			6.4	0.0
Delay (s)	64.4	30.3		62.3	38.6	6.8		51.2			38.0	22.6
Level of Service	E	C		E	D	A		D			D	C
Approach Delay (s/veh)		31.5			20.7			51.2			37.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			27.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			115.9				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			63.1%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	54	22	553	195	85	702	21	243	80	4	1	58
Future Volume (vph)	54	22	553	195	85	702	21	243	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		0
Storage Lanes		1		1	1		1	1		0		0
Taper Length (ft)		25		25	25		25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.993			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1702	1791	1624	1719	1810	1589	1718	1796	0	0	0
Flt Permitted		0.950			0.950			0.277				
Satd. Flow (perm)	0	1702	1791	1624	1719	1810	1589	501	1796	0	0	0
Right Turn on Red				Yes								
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			472			1077			555			
Travel Time (s)			8.7			19.3			12.6			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Adj. Flow (vph)	60	24	614	217	89	739	22	261	86	4	1	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	614	217	89	739	22	261	90	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	0.95	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	15	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Detector Phase	1	1	6	6	5	2	2	7	8		4	4
Switch Phase												



Lane Group	SBT	SBR	SWL	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	159	117	40	134	9
Future Volume (vph)	159	117	40	134	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12
Grade (%)	-1%		-2%		
Storage Length (ft)		0	0	0	
Storage Lanes		0	1	0	
Taper Length (ft)		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Frt	0.953		0.894		
Flt Protected	0.991		0.989		
Satd. Flow (prot)	1758	0	1663	0	0
Flt Permitted	0.923		0.989		
Satd. Flow (perm)	1637	0	1663	0	0
Right Turn on Red		No			No
Satd. Flow (RTOR)					
Link Speed (mph)	30		30		
Link Distance (ft)	514		793		
Travel Time (s)	11.7		18.0		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Adj. Flow (vph)	177	130	44	149	10
Shared Lane Traffic (%)					
Lane Group Flow (vph)	372	0	203	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)		9	15	9	9
Number of Detectors	1		1		
Detector Template	Thru		Left		
Leading Detector (ft)	46		46		
Trailing Detector (ft)	-4		-4		
Detector 1 Position(ft)	-4		-4		
Detector 1 Size(ft)	50		50		
Detector 1 Type	Cl+Ex		Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0		0.0		
Detector 1 Queue (s)	0.0		0.0		
Detector 1 Delay (s)	0.0		0.0		
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Detector Phase	4		3		
Switch Phase					

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0		10.0	10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0		28.0	28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0		51.0	51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%		27.0%	27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0		45.0	45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None		None	None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0		15.0	15.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0

Intersection Summary

Area Type: Other

Cycle Length: 189

Actuated Cycle Length: 186.8

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4
19 s	81 s	19 s	51 s
#2 	#2 	#2 	#2
Ø5	Ø6	Ø8	
19 s	81 s	70 s	

919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

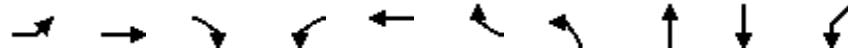


Lane Group	SBT	SBR	SWL	SWR	SWR2
Minimum Initial (s)	10.0		4.0		
Minimum Split (s)	28.0		8.0		
Total Split (s)	51.0		19.0		
Total Split (%)	27.0%		10.1%		
Maximum Green (s)	45.0		15.0		
Yellow Time (s)	4.0		3.0		
All-Red Time (s)	2.0		1.0		
Lost Time Adjust (s)	-2.0		0.0		
Total Lost Time (s)	4.0		4.0		
Lead/Lag	Lag				
Lead-Lag Optimize?	Yes				
Vehicle Extension (s)	5.0		5.0		
Recall Mode	None		None		
Walk Time (s)	7.0				
Flash Don't Walk (s)	15.0				
Pedestrian Calls (#/hr)	0				
Intersection Summary					

919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	84	614	217	89	739	22	261	90	372	203
v/c Ratio	0.66	0.83	0.30	0.68	0.99	0.03	0.96	0.14	0.93	1.53
Control Delay (s/veh)	108.7	61.1	20.3	109.7	84.2	34.0	96.7	42.9	98.4	322.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	108.7	61.1	20.3	109.7	84.2	34.0	96.7	42.9	98.4	322.1
Queue Length 50th (ft)	107	716	97	114	~960	17	258	79	477	~358
Queue Length 95th (ft)	178	907	171	#195	#1262	40	#462	129	#688	#546
Internal Link Dist (ft)		392			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	136	738	730	138	746	655	271	635	412	133
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.83	0.30	0.64	0.99	0.03	0.96	0.14	0.90	1.53

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.

Attachment "F"

919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL2	SBL
Lane Configurations												
Traffic Volume (vph)	54	22	553	195	85	702	21	243	80	4	1	58
Future Volume (vph)	54	22	553	195	85	702	21	243	80	4	1	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	13	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1702	1791	1624	1719	1810	1589	1718	1797			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.28	1.00			
Satd. Flow (perm)		1702	1791	1624	1719	1810	1589	500	1797			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.93	0.93	0.93	0.90	0.90
Adj. Flow (vph)	60	24	614	217	89	739	22	261	86	4	1	64
RTOR Reduction (vph)	0	0	0	60	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	84	614	157	89	739	22	261	90	0	0	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	6%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8			4	4
Actuated Green, G (s)		14.0	74.8	74.8	14.2	75.0	75.0	62.7	62.7			
Effective Green, g (s)		14.0	76.8	76.8	14.2	77.0	77.0	62.7	64.7			
Actuated g/C Ratio		0.07	0.41	0.41	0.08	0.41	0.41	0.34	0.35			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		127	736	668	130	746	655	265	622			
v/s Ratio Prot		0.05	0.34		c0.05	c0.41		c0.08	0.05			
v/s Ratio Perm				0.10			0.01	c0.25				
v/c Ratio		0.66	0.83	0.23	0.68	0.99	0.03	0.98	0.14			
Uniform Delay, d1		84.0	49.2	35.8	84.1	54.5	32.7	61.0	42.0			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		15.8	9.0	0.4	17.5	30.6	0.0	51.0	0.2			
Delay (s)		99.9	58.2	36.2	101.6	85.1	32.7	112.1	42.2			
Level of Service		F	E	D	F	F	C	F	D			
Approach Delay (s/veh)			56.8			85.5			94.2			
Approach LOS			E			F			F			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			99.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			186.7			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			101.1%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

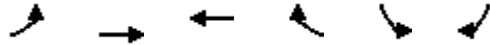
919 - 2037 Build Weekday Morning Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBT	SBR	SWL	SWR	SWR2
Lane Configurations	↕		↔		
Traffic Volume (vph)	159	117	40	134	9
Future Volume (vph)	159	117	40	134	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	12
Grade (%)	-1%		-2%		
Total Lost time (s)	4.0		4.0		
Lane Util. Factor	1.00		1.00		
Frt	0.95		0.89		
Flt Protected	0.99		0.99		
Satd. Flow (prot)	1758		1664		
Flt Permitted	0.92		0.99		
Satd. Flow (perm)	1637		1664		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	130	44	149	10
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	372	0	203	0	0
Heavy Vehicles (%)	6%	6%	2%	2%	2%
Turn Type	NA		Prot		
Protected Phases	4		3		
Permitted Phases					
Actuated Green, G (s)	43.7		15.0		
Effective Green, g (s)	45.7		15.0		
Actuated g/C Ratio	0.24		0.08		
Clearance Time (s)	6.0		4.0		
Vehicle Extension (s)	5.0		5.0		
Lane Grp Cap (vph)	400		133		
v/s Ratio Prot			c0.12		
v/s Ratio Perm	0.23				
v/c Ratio	0.93		1.53		
Uniform Delay, d1	68.9		85.9		
Progression Factor	1.00		1.00		
Incremental Delay, d2	29.0		271.1		
Delay (s)	97.9		357.0		
Level of Service	F		F		
Approach Delay (s/veh)	97.9		357.0		
Approach LOS	F		F		
Intersection Summary					



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	810	1178	18	14	12
Future Volume (vph)	14	810	1178	18	14	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt			0.998		0.939	
Flt Protected		0.999			0.973	
Satd. Flow (prot)	0	1969	2036	0	1702	0
Flt Permitted		0.999			0.973	
Satd. Flow (perm)	0	1969	2036	0	1702	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1320	472		353	
Travel Time (s)		24.3	8.5		8.0	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	16	900	1295	20	16	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	916	1315	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	14	810	1178	18	14	12
Future Vol, veh/h	14	810	1178	18	14	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	91	91	90	90
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	16	900	1295	20	16	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1314	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.15	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.245	-	-
Pot Cap-1 Maneuver	516	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	516	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.21	0	91.58
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	31	-	-	-	68
HCM Lane V/C Ratio	0.03	-	-	-	0.422
HCM Ctrl Dly (s/v)	12.2	0	-	-	91.6
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6





















2037 Design-Year Build Weekday Evening Peak Hour

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	617	20	17	399	681	10	11	29	554	21	42
Future Volume (vph)	33	617	20	17	399	681	10	11	29	554	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.921				0.850
Flt Protected	0.950			0.950				0.990				0.954
Satd. Flow (prot)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Flt Permitted	0.950			0.950				0.990				0.954
Satd. Flow (perm)	1829	1916	0	1778	1809	1538	0	1925	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				709		32				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1310			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	37	686	22	18	416	709	11	12	32	596	23	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	708	0	18	416	709	0	55	0	0	619	45
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type: Other
 Cycle Length: 147
 Actuated Cycle Length: 126.4
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated

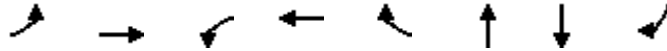
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 Ø1 14 s	#1 Ø2 66 s	#1 Ø4 16 s	#1 Ø8 51 s
#1 Ø5 14 s	#1 Ø6 66 s		

920 - 2037 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	37	708	18	416	709	55	619	45
v/c Ratio	0.27	0.87	0.14	0.61	0.52	0.28	0.94	0.07
Control Delay (s/veh)	67.5	47.5	65.2	36.8	1.6	35.6	63.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.5	47.5	65.2	36.8	1.6	35.6	63.2	0.2
Queue Length 50th (ft)	30	511	15	295	0	18	514	0
Queue Length 95th (ft)	76	#872	45	408	13	68	#937	0
Internal Link Dist (ft)		845		1230		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	149	970	145	915	1356	217	662	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.73	0.12	0.45	0.52	0.25	0.94	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	617	20	17	399	681	10	11	29	554	21	42
Future Volume (vph)	33	617	20	17	399	681	10	11	29	554	21	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1829	1916		1778	1809	1538		1926			1727	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1829	1916		1778	1809	1538		1926			1727	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	37	686	22	18	416	709	11	12	32	596	23	45
RTOR Reduction (vph)	0	1	0	0	0	186	0	30	0	0	0	28
Lane Group Flow (vph)	37	707	0	18	416	523	0	25	0	0	619	17
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	7.3	51.4		3.4	47.5	96.0		6.9			48.5	48.5
Effective Green, g (s)	7.3	53.4		3.4	49.5	96.0		8.9			48.5	48.5
Actuated g/C Ratio	0.06	0.41		0.03	0.38	0.74		0.07			0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	102	785		46	687	1134		131			643	572
v/s Ratio Prot	c0.02	c0.37		0.01	0.23	0.17		c0.01			c0.36	0.01
v/s Ratio Perm						0.17						
v/c Ratio	0.36	0.90		0.39	0.61	0.46		0.19			0.96	0.03
Uniform Delay, d1	59.2	35.9		62.4	32.5	6.8		57.3			40.0	25.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.5	14.2		11.1	2.2	0.6		1.5			26.7	0.0
Delay (s)	63.8	50.2		73.5	34.7	7.4		58.8			66.7	26.0
Level of Service	E	D		E	C	A		E			E	C
Approach Delay (s/veh)		50.9			18.4			58.8			63.9	
Approach LOS		D			B			E			E	

Intersection Summary





















HCM 2000 Control Delay (s/veh)	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	103	69	811	232	85	715	46	226	177	26	4	1
Future Volume (vph)	103	69	811	232	85	715	46	226	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.978			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1752	1844	1672	1770	1863	1636	1769	1821	0	0	0
Flt Permitted		0.950			0.950			0.297				
Satd. Flow (perm)	0	1752	1844	1672	1770	1863	1636	553	1821	0	0	0
Right Turn on Red				Yes							No	
Satd. Flow (RTOR)				87								
Link Speed (mph)			37			38			30			
Link Distance (ft)			482			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Adj. Flow (vph)	108	73	854	244	90	761	49	251	197	29	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	854	244	90	761	49	251	230	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations							
Traffic Volume (vph)	31	115	66	2	9	39	7
Future Volume (vph)	31	115	66	2	9	39	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Storage Length (ft)	0		0		0	0	
Storage Lanes	0		0		1	0	
Taper Length (ft)	25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.891		
Flt Protected		0.993			0.991		
Satd. Flow (prot)	0	1840	0	0	1678	0	0
Flt Permitted		0.916			0.991		
Satd. Flow (perm)	0	1698	0	0	1678	0	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		30			30		
Link Distance (ft)		514			793		
Travel Time (s)		11.7			18.0		
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	33	124	71	2	10	43	8
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	229	0	0	63	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)		12			12		
Link Offset(ft)		0			0		
Crosswalk Width(ft)		16			16		
Two way Left Turn Lane							
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	15	9	9
Number of Detectors		1			1		
Detector Template		Thru			Left		
Leading Detector (ft)		46			46		
Trailing Detector (ft)		-4			-4		
Detector 1 Position(ft)		-4			-4		
Detector 1 Size(ft)		50			50		
Detector 1 Type		Cl+Ex			Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)		0.0			0.0		
Detector 1 Queue (s)		0.0			0.0		
Detector 1 Delay (s)		0.0			0.0		
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Detector Phase	4	4		3	3		
Switch Phase							

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		0	0		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 172.4
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2	#2		#2	#2	#2
Ø1	Ø2		Ø7	Ø4	Ø3
19 s	81 s		19 s	51 s	19 s
#2	#2		#2		
Ø5	Ø6		Ø8		
19 s	81 s		70 s		

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



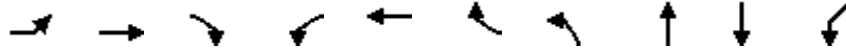
Lane Group	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Minimum Initial (s)	10.0	10.0		4.0	4.0		
Minimum Split (s)	28.0	28.0		8.0	8.0		
Total Split (s)	51.0	51.0		19.0	19.0		
Total Split (%)	27.0%	27.0%		10.1%	10.1%		
Maximum Green (s)	45.0	45.0		15.0	15.0		
Yellow Time (s)	4.0	4.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		1.0	1.0		
Lost Time Adjust (s)		-2.0			0.0		
Total Lost Time (s)		4.0			4.0		
Lead/Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes					
Vehicle Extension (s)	5.0	5.0		5.0	5.0		
Recall Mode	None	None		None	None		
Walk Time (s)	7.0	7.0					
Flash Don't Walk (s)	15.0	15.0					
Pedestrian Calls (#/hr)	0	0					

Intersection Summary

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	181	854	244	90	761	49	251	230	229	63
v/c Ratio	1.19	1.02	0.30	0.63	0.91	0.07	0.93	0.43	0.72	0.50
Control Delay (s/veh)	194.7	81.9	21.1	98.3	61.4	29.9	91.7	51.4	79.7	92.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	194.7	81.9	21.1	98.3	61.4	29.9	91.7	51.4	79.7	92.3
Queue Length 50th (ft)	~251	~1060	113	102	818	32	237	214	252	70
Queue Length 95th (ft)	#459	#1466	203	180	#1216	68	#400	301	357	134
Internal Link Dist (ft)		402			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	152	837	807	154	834	732	270	698	464	146
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.02	0.30	0.58	0.91	0.07	0.93	0.33	0.49	0.43

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.

Attachment "F"

920 - 2037 Build Weekday Evening Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	103	69	811	232	85	715	46	226	177	26	4	1
Future Volume (vph)	103	69	811	232	85	715	46	226	177	26	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1752	1844	1672	1770	1863	1636	1769	1822			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.30	1.00			
Satd. Flow (perm)		1752	1844	1672	1770	1863	1636	553	1822			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.93
Adj. Flow (vph)	108	73	854	244	90	761	49	251	197	29	4	1
RTOR Reduction (vph)	0	0	0	47	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	181	854	197	90	761	49	251	230	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.0	76.3	76.3	13.9	75.2	75.2	49.2	49.2			
Effective Green, g (s)		15.0	78.3	78.3	13.9	77.2	77.2	49.2	51.2			
Actuated g/C Ratio		0.09	0.45	0.45	0.08	0.45	0.45	0.29	0.30			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		152	837	759	142	834	733	263	541			
v/s Ratio Prot		c0.10	c0.46		0.05	0.41		c0.08	0.13			
v/s Ratio Perm				0.12			0.03	c0.19				
v/c Ratio		1.19	1.02	0.26	0.63	0.91	0.07	0.95	0.43			
Uniform Delay, d1		78.7	47.0	29.1	76.7	44.4	27.1	58.5	48.7			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		133.4	36.3	0.4	12.2	14.9	0.1	43.6	1.1			
Delay (s)		212.1	83.3	29.4	88.9	59.3	27.1	102.1	49.8			
Level of Service		F	F	C	F	E	C	F	D			
Approach Delay (s/veh)			91.3			60.5			77.1			
Approach LOS			F			E			E			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			78.2			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			172.3			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

920 - 2037 Build Weekday Evening Peak Hour

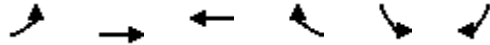
2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Movement	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations		↕			↕		
Traffic Volume (vph)	31	115	66	2	9	39	7
Future Volume (vph)	31	115	66	2	9	39	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12	12
Grade (%)		-1%			-2%		
Total Lost time (s)		4.0			4.0		
Lane Util. Factor		1.00			1.00		
Frt		0.96			0.89		
Flt Protected		0.99			0.99		
Satd. Flow (prot)		1840			1676		
Flt Permitted		0.92			0.99		
Satd. Flow (perm)		1699			1676		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	124	71	2	10	43	8
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	229	0	0	63	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%
Turn Type	Perm	NA		Prot	Prot		
Protected Phases		4		3	3		
Permitted Phases	4						
Actuated Green, G (s)		30.2			12.9		
Effective Green, g (s)		32.2			12.9		
Actuated g/C Ratio		0.19			0.07		
Clearance Time (s)		6.0			4.0		
Vehicle Extension (s)		5.0			5.0		
Lane Grp Cap (vph)		317			125		
v/s Ratio Prot					c0.04		
v/s Ratio Perm		0.13					
v/c Ratio		0.72			0.50		
Uniform Delay, d1		65.8			76.6		
Progression Factor		1.00			1.00		
Incremental Delay, d2		9.6			6.5		
Delay (s)		75.5			83.2		
Level of Service		E			F		
Approach Delay (s/veh)		75.5			83.2		
Approach LOS		E			F		

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	1190	1019	27	25	22
Future Volume (vph)	20	1190	1019	27	25	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.938	
Flt Protected		0.999			0.974	
Satd. Flow (prot)	0	2027	2094	0	1702	0
Flt Permitted		0.999			0.974	
Satd. Flow (perm)	0	2027	2094	0	1702	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1310	482		352	
Travel Time (s)		24.1	8.6		8.0	
Peak Hour Factor	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow (vph)	21	1253	1096	29	28	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1274	1125	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	20	1190	1019	27	25	22
Future Vol, veh/h	20	1190	1019	27	25	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	95	95	93	93	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	1253	1096	29	28	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1125	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	621	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	621	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.18	0	228.35
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	30	-	-	-	55
HCM Lane V/C Ratio	0.034	-	-	-	0.953
HCM Ctrl Dly (s/v)	11	0	-	-	228.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	4.3





















2037 Design-Year Build Saturday Midday Peak Hour

Attachment "F"

921 - 2037 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	413	27	15	511	491	12	7	31	367	13	27
Future Volume (vph)	25	413	27	15	511	491	12	7	31	367	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Storage Length (ft)	100		0	90		100	0		0	0		120
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.991				0.850		0.917				0.850
Flt Protected	0.950			0.950				0.988			0.954	
Satd. Flow (prot)	1865	1946	0	1778	1809	1538	0	1951	0	0	1726	1538
Flt Permitted	0.950			0.950				0.988			0.954	
Satd. Flow (perm)	1865	1946	0	1778	1809	1507	0	1951	0	0	1726	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				455		34				96
Link Speed (mph)		37			38			30				30
Link Distance (ft)		925			1310			547				544
Travel Time (s)		17.0			23.5			12.4				12.4
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	28	459	30	16	544	522	13	8	34	408	14	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	489	0	16	544	522	0	55	0	0	422	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.95	0.95	0.95	1.01	1.05	1.05	0.85	0.85	0.85	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1		1			1	1
Detector Template	Left	Thru		Left	Thru	Right		Thru			Thru	Right
Leading Detector (ft)	46	46		46	46	46		46			46	46
Trailing Detector (ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Position(ft)	-4	-4		-4	-4	-4		-4			-4	-4
Detector 1 Size(ft)	50	50		50	50	50		50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						

Attachment "F"

921 - 2037 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	8	4	4		8	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0	10.0	4.0	4.0		10.0	10.0	10.0
Minimum Split (s)	8.0	16.0		8.0	16.0	16.0	14.0	14.0		16.0	16.0	16.0
Total Split (s)	14.0	66.0		14.0	66.0	51.0	16.0	16.0		51.0	51.0	51.0
Total Split (%)	9.5%	44.9%		9.5%	44.9%	34.7%	10.9%	10.9%		34.7%	34.7%	34.7%
Maximum Green (s)	10.0	60.0		10.0	60.0	47.0	10.0	10.0		47.0	47.0	47.0
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	4.0	4.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0	0.0		-2.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Min		None	Min	None	None	None		None	None	None

Intersection Summary

Area Type:	Other
Cycle Length:	147
Actuated Cycle Length:	110.2
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated

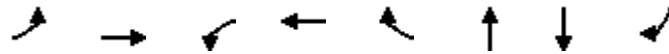
Splits and Phases: 1: Cumberland Farms Driveway & Central Street & NH Route 111

#1 ↙ Ø1 14 s	#1 → Ø2 66 s	#1 ↘ Ø4 16 s	#1 ↖ Ø8 51 s
#1 ↗ Ø5 14 s	#1 ← Ø6 66 s		

921 - 2037 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	28	489	16	544	522	55	422	30
v/c Ratio	0.16	0.58	0.10	0.74	0.41	0.22	0.71	0.05
Control Delay (s/veh)	62.7	29.9	63.2	38.1	1.5	32.5	44.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.7	29.9	63.2	38.1	1.5	32.5	44.0	0.1
Queue Length 50th (ft)	22	269	13	396	6	16	311	0
Queue Length 95th (ft)	61	479	41	576	20	65	508	0
Internal Link Dist (ft)		845		1230		467	464	
Turn Bay Length (ft)	100		90		100			120
Base Capacity (vph)	199	1195	190	1110	1304	280	867	821
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.41	0.08	0.49	0.40	0.20	0.49	0.04

Intersection Summary

Attachment "F"

921 - 2037 Build Saturday Midday Peak Hour

1: Cumberland Farms Driveway & Central Street & NH Route 111

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	413	27	15	511	491	12	7	31	367	13	27
Future Volume (vph)	25	413	27	15	511	491	12	7	31	367	13	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	11	11	16	16	16	11	11	11
Grade (%)		-2%			1%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1865	1945		1778	1809	1522		1951			1726	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (perm)	1865	1945		1778	1809	1522		1951			1726	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	459	30	16	544	522	13	8	34	408	14	30
RTOR Reduction (vph)	0	2	0	0	0	126	0	31	0	0	0	20
Lane Group Flow (vph)	28	487	0	16	544	396	0	24	0	0	422	10
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6	8	4	4		8	8	8
Permitted Phases						6						
Actuated Green, G (s)	4.7	45.1		3.0	43.4	81.5		6.6			38.1	38.1
Effective Green, g (s)	4.7	47.1		3.0	45.4	81.5		8.6			38.1	38.1
Actuated g/C Ratio	0.04	0.42		0.03	0.40	0.72		0.08			0.34	0.34
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0		6.0			4.0	4.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	5.0
Lane Grp Cap (vph)	77	812		47	728	1099		148			582	519
v/s Ratio Prot	c0.02	0.25		0.01	c0.30	0.12		c0.01			c0.24	0.01
v/s Ratio Perm						0.14						
v/c Ratio	0.36	0.60		0.34	0.75	0.36		0.16			0.73	0.02
Uniform Delay, d1	52.6	25.5		53.9	28.8	5.9		48.7			32.8	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.0	1.8		8.8	5.0	0.4		1.1			5.5	0.0
Delay (s)	58.6	27.4		62.8	33.8	6.3		49.8			38.2	24.9
Level of Service	E	C		E	C	A		D			D	C
Approach Delay (s/veh)		29.1			21.0			49.8			37.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			27.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			112.8				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			61.2%				ICU Level of Service			B		
Analysis Period (min)			15									
























c Critical Lane Group

Attachment "F"

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	93	64	537	189	88	599	22	192	107	14	2	5
Future Volume (vph)	93	64	537	189	88	599	22	192	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Storage Length (ft)		200		200	195		195	80		0		
Storage Lanes		1		1	1		1	1		0		
Taper Length (ft)		25		25	25		25	25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt				0.850			0.850		0.980			
Flt Protected		0.950			0.950			0.950				
Satd. Flow (prot)	0	1769	1862	1689	1787	1881	1652	1769	1825	0	0	0
Flt Permitted		0.950			0.950			0.319				
Satd. Flow (perm)	0	1769	1862	1689	1787	1881	1645	594	1825	0	0	0
Right Turn on Red				Yes								No
Satd. Flow (RTOR)				102								
Link Speed (mph)			37			38			30			
Link Distance (ft)			482			1077			555			
Travel Time (s)			8.9			19.3			12.6			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Adj. Flow (vph)	103	71	597	210	94	637	23	200	111	15	2	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	597	210	94	637	23	200	128	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)			12			12			12			
Link Offset(ft)			0			0			0			
Crosswalk Width(ft)			16			16			16			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.93	1.00	1.00	0.96	1.01	1.01	1.01	1.01	0.95
Turning Speed (mph)	15	15		9	15		9	15		9	9	15
Number of Detectors		1	1	1	1	1	1	1	1			
Detector Template		Left	Thru	Right	Left	Thru	Right	Left	Thru			
Leading Detector (ft)		46	46	46	46	46	46	46	46			
Trailing Detector (ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Position(ft)		-4	-4	-4	-4	-4	-4	-4	-4			
Detector 1 Size(ft)		50	50	50	50	50	50	50	50			
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↔		↔		
Traffic Volume (vph)	32	98	92	12	52	5
Future Volume (vph)	32	98	92	12	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Storage Length (ft)	0		0	0	0	
Storage Lanes	0		0	1	0	
Taper Length (ft)	25		25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.945		0.888		
Flt Protected		0.992		0.992		
Satd. Flow (prot)	0	1813	0	1674	0	0
Flt Permitted		0.929		0.992		
Satd. Flow (perm)	0	1698	0	1674	0	0
Right Turn on Red			No			No
Satd. Flow (RTOR)						
Link Speed (mph)		30		30		
Link Distance (ft)		514		793		
Travel Time (s)		11.7		18.0		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	34	105	99	13	58	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	243	0	77	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right
Median Width(ft)		12		12		
Link Offset(ft)		0		0		
Crosswalk Width(ft)		16		16		
Two way Left Turn Lane						
Headway Factor	0.95	0.95	0.95	0.99	0.99	0.99
Turning Speed (mph)	15		9	15	9	9
Number of Detectors		1		1		
Detector Template		Thru		Left		
Leading Detector (ft)		46		46		
Trailing Detector (ft)		-4		-4		
Detector 1 Position(ft)		-4		-4		
Detector 1 Size(ft)		50		50		
Detector 1 Type		Cl+Ex		Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)		0.0		0.0		
Detector 1 Queue (s)		0.0		0.0		
Detector 1 Delay (s)		0.0		0.0		
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					

Attachment "F"

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Detector Phase	1	1	6	6	5	2	2	7	8			4
Switch Phase												
Minimum Initial (s)	4.0	4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0			10.0
Minimum Split (s)	8.0	8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0			28.0
Total Split (s)	19.0	19.0	81.0	81.0	19.0	81.0	81.0	19.0	70.0			51.0
Total Split (%)	10.1%	10.1%	42.9%	42.9%	10.1%	42.9%	42.9%	10.1%	37.0%			27.0%
Maximum Green (s)	15.0	15.0	75.0	75.0	15.0	75.0	75.0	15.0	64.0			45.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0			4.0
All-Red Time (s)	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0			2.0
Lost Time Adjust (s)		0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead				Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0
Recall Mode	None	None	Min	Min	None	Min	Min	None	None			None
Walk Time (s)			7.0	7.0		7.0	7.0		7.0			7.0
Flash Don't Walk (s)			15.0	15.0		15.0	15.0		15.0			15.0
Pedestrian Calls (#/hr)			0	0		1	1		0			0

Intersection Summary

Area Type: Other
 Cycle Length: 189
 Actuated Cycle Length: 159.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

#2 	#2 	#2 	#2 	#2
Ø1	Ø2	Ø7	Ø4	Ø3
19 s	81 s	19 s	51 s	19 s
#2 	#2 	#2 		
Ø5	Ø6	Ø8		
19 s	81 s	70 s		

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

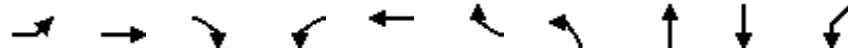


Lane Group	SBL	SBT	SBR	SWL	SWR	SWR2
Detector Phase	4	4		3		
Switch Phase						
Minimum Initial (s)	10.0	10.0		4.0		
Minimum Split (s)	28.0	28.0		8.0		
Total Split (s)	51.0	51.0		19.0		
Total Split (%)	27.0%	27.0%		10.1%		
Maximum Green (s)	45.0	45.0		15.0		
Yellow Time (s)	4.0	4.0		3.0		
All-Red Time (s)	2.0	2.0		1.0		
Lost Time Adjust (s)		-2.0		0.0		
Total Lost Time (s)		4.0		4.0		
Lead/Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes				
Vehicle Extension (s)	5.0	5.0		5.0		
Recall Mode	None	None		None		
Walk Time (s)	7.0	7.0				
Flash Don't Walk (s)	15.0	15.0				
Pedestrian Calls (#/hr)	0	0				
Intersection Summary						

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SWL
Lane Group Flow (vph)	174	597	210	94	637	23	200	128	243	77
v/c Ratio	1.03	0.80	0.28	0.60	0.86	0.04	0.66	0.22	0.70	0.55
Control Delay (s/veh)	145.4	52.3	17.7	91.7	58.1	31.5	55.3	42.4	72.3	90.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	145.4	52.3	17.7	91.7	58.1	31.5	55.3	42.4	72.3	90.7
Queue Length 50th (ft)	~206	566	75	99	621	15	166	101	248	80
Queue Length 95th (ft)	#438	809	154	#195	882	39	263	173	378	158
Internal Link Dist (ft)		402			997			475	434	713
Turn Bay Length (ft)	200		200	195		195	80			
Base Capacity (vph)	169	918	884	171	927	810	305	771	511	160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.65	0.24	0.55	0.69	0.03	0.66	0.17	0.48	0.48

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.

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

04/22/2026

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	93	64	537	189	88	599	22	192	107	14	2	5
Future Volume (vph)	93	64	537	189	88	599	22	192	107	14	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	14	12	12	13	12	12	12	12	13
Grade (%)			2%			0%			2%			
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98			
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1769	1862	1689	1787	1881	1646	1769	1825			
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.32	1.00			
Satd. Flow (perm)		1769	1862	1689	1787	1881	1646	593	1825			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.93
Adj. Flow (vph)	103	71	597	210	94	637	23	200	111	15	2	5
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	174	597	149	94	637	23	200	128	0	0	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA			Perm
Protected Phases	1	1	6		5	2		7	8			
Permitted Phases				6			2	8				4
Actuated Green, G (s)		15.3	62.1	62.1	14.0	60.8	60.8	49.7	49.7			
Effective Green, g (s)		15.3	64.1	64.1	14.0	62.8	62.8	49.7	51.7			
Actuated g/C Ratio		0.10	0.40	0.40	0.09	0.39	0.39	0.31	0.32			
Clearance Time (s)		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0			
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Grp Cap (vph)		169	749	679	157	741	648	295	592			
v/s Ratio Prot		c0.10	0.32		0.05	c0.34		c0.06	0.07			
v/s Ratio Perm				0.09			0.01	0.15				
v/c Ratio		1.03	0.80	0.22	0.60	0.86	0.04	0.68	0.22			
Uniform Delay, d1		72.0	41.9	31.2	69.9	44.2	29.6	44.5	39.1			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		77.2	6.8	0.3	9.0	10.7	0.0	7.8	0.4			
Delay (s)		149.2	48.6	31.5	78.9	54.9	29.7	52.3	39.5			
Level of Service		F	D	C	E	D	C	D	D			
Approach Delay (s/veh)			62.8			57.1			47.3			
Approach LOS			E			E			D			
Intersection Summary												
HCM 2000 Control Delay (s/veh)			59.7									E
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			159.3						20.0			
Intersection Capacity Utilization			86.4%									E
Analysis Period (min)			15									

c Critical Lane Group

921 - 2037 Build Saturday Midday Peak Hour

2: Kimball Hill Road/Greeley Street & NH Route 111 & Windham Road

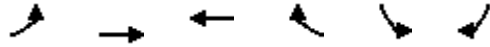
04/22/2026



Movement	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations		↕		↕		
Traffic Volume (vph)	32	98	92	12	52	5
Future Volume (vph)	32	98	92	12	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	12	12	12
Grade (%)		-1%		-2%		
Total Lost time (s)		4.0		4.0		
Lane Util. Factor		1.00		1.00		
Frbp, ped/bikes		1.00		1.00		
Flpb, ped/bikes		1.00		1.00		
Frt		0.95		0.89		
Flt Protected		0.99		0.99		
Satd. Flow (prot)		1814		1673		
Flt Permitted		0.93		0.99		
Satd. Flow (perm)		1698		1673		
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	34	105	99	13	58	6
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	243	0	77	0	0
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Prot		
Protected Phases		4		3		
Permitted Phases	4					
Actuated Green, G (s)		30.7		13.5		
Effective Green, g (s)		32.7		13.5		
Actuated g/C Ratio		0.21		0.08		
Clearance Time (s)		6.0		4.0		
Vehicle Extension (s)		5.0		5.0		
Lane Grp Cap (vph)		348		141		
v/s Ratio Prot				c0.05		
v/s Ratio Perm		c0.14				
v/c Ratio		0.70		0.55		
Uniform Delay, d1		58.7		70.0		
Progression Factor		1.00		1.00		
Incremental Delay, d2		7.6		7.4		
Delay (s)		66.3		77.4		
Level of Service		E		E		
Approach Delay (s/veh)		66.3		77.4		
Approach LOS		E		E		
Intersection Summary						

921 - 2037 Build Saturday Midday Peak Hour
 3: NH Route 111 & Site Driveway

04/22/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	848	899	36	35	28
Future Volume (vph)	26	848	899	36	35	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	12	12
Grade (%)		2%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.995		0.940	
Fl _t Protected		0.999			0.973	
Satd. Flow (prot)	0	2047	2111	0	1704	0
Fl _t Permitted		0.999			0.973	
Satd. Flow (perm)	0	2047	2111	0	1704	0
Link Speed (mph)		37	38		30	
Link Distance (ft)		1310	482		356	
Travel Time (s)		24.1	8.6		8.1	
Peak Hour Factor	0.90	0.90	0.94	0.94	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	29	942	956	38	39	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	971	994	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.89	0.89	0.85	0.85	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	26	848	899	36	35	28
Future Vol, veh/h	26	848	899	36	35	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	1	-	0	-
Peak Hour Factor	90	90	94	94	90	90
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	29	942	956	38	39	31

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	995	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	-
Pot Cap-1 Maneuver	699	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	699	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.31	0	107.31
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	54	-	-	-	96
HCM Lane V/C Ratio	0.041	-	-	-	0.726
HCM Ctrl Dly (s/v)	10.4	0	-	-	107.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	3.7



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June 12, 2026

Ms. Brooke Dubowik
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
224 Central St Car Wash Site Plan
Tax Map 176 Lot 29; Acct. #1350-730
Reference No. 20030249.264

Dear Ms. Dubowik:

Fuss & O'Neill (F&O) has reviewed the first submission of materials received on May 6, 2026, related to the above-referenced project. Authorization to proceed was received on June 1, 2026. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015.

We have included a copy of Fuss & O'Neill's evaluation of the checklist for your reference. We note that several items could not be verified by Fuss & O'Neill and require action by the Town.

The project appears to consist of constructing a commercial car wash building with two touch free car wash bays and an automated car wash tunnel on a previously developed lot. Proposed improvements to the site include the construction of parking areas, drainage, utilities, landscaping and lighting. The site is to be serviced by public water and sewer.

The following items are noted:

1. Site Plan Review Codes (HR 275)

- a. Hudson Regulation (HR) 275-6.C & T.(1)(b) The applicant has not proposed adding any sidewalks to the site. We note that there are no existing sidewalks in this area of Central Street.
- b. HR 275-6.I. The scope of this review does not include the adequacy of any fire protection provisions for the site. We note that no existing or proposed hydrants or a proposed fire service for the building are shown on the plan set. We also note the area along the southwest side of the site (the area with the drive aisles towards the car wash tunnel building) will be difficult for emergency vehicles to access and should be reviewed with the Fire Department for any emergency access requirements.
- c. HR 275-6.T. The applicant is proposing limited off-site improvements that include utility connections. We note that since this section of Derry Road is controlled by NHDOT the applicant will need a Right of Way Activities Permit for this utility installation from the NHDOT.
- d. HR 275-8.C.(2)(g) and Zoning Ordinance (ZO) 334-15.A. The applicant has provided parking calculations showing that 17 parking spaces are required and 21 spaces are proposed.
- d. HR 275-8.C.(4) The applicant has shown some parking spaces that are 12 feet wide instead of 10 feet to accommodate vacuum usage.
- e. HR 275-8.C.(6)(b). The applicant has noted that one loading space is required and one is provided. We note that no loading space is shown on the plan. The applicant should clarify the location of the loading space on the plan set.

- f. HR 275-9.C.(11). The applicant has provided one handicapped accessible parking space for the site which meets the minimum requirement.
- g. HR 275-9.F. The applicant has not provided any easements or deeds for the site, nor has shown any existing or proposed easements on the plans.

2. Administrative Review Codes (HR 276)

- a. HR 276-7. The applicant has not noted any requested waivers on the plan set.
- b. HR 276-11.B.(4). & 289-27.A. The applicant should add the required approval block on each sheet of the plan set as required. We note that the approval block is not provided on the Existing Conditions Plan.
- c. HR 276-11.B.(9). The applicant has not provided an error of closure on the Existing Conditions Plan.
- d. HR 276-11.1.B.(13). The applicant has provided a monument sign location on the plan. The applicant has not included a detail for the monument sign in the plans.
- e. HR 276-11.1.B.(16). The applicant should show the location of driveways and travel ways within 200 feet of the site. We note that the area to the northeast of the site is not shown on the plan.
- f. HR 276-11.1.B.(17). The applicant should show benchmark locations on the plan.
- g. HR 276-11.1.B.(25). The applicant has proposed a travel way within the side setback of the site of approximately 1,000 square feet. The applicant has increased the front green space by 3,000 square feet to offset this request. This will require approval from the Planning Board.

3. Driveway Review Codes (HR 275-6.B/Chapter 193)

- a. HR 193-8. The applicant has proposed that the site driveway remain in the existing location and has provided adequate sight distance information on the plan.

4. Traffic (HR 275-9.B)

Fuss & O'Neill, Inc. has reviewed the Traffic Impact and Access Study (TIAS) prepared by Vanasse & Associates, Inc. (VAI) dated April 24, 2026, for the proposed Car Wash development at 224 Central Street (NH Route 111) in Hudson, New Hampshire (Tax Map 176, Lots 29). The project proposes the development of a two stall self-service car wash and a 3,593 square foot (sf) automated car wash tunnel. Access and egress to the site will be provided via an existing driveway on the southeast side of the project site (Central Street).

- a. The background development trip generation for 207 Central Street may be understated. Our understanding is that the project includes approximately 7,000 square feet of retail space, designated food-truck areas, and roughly 116 residential units. The study should confirm the land use program used for trip generation and ensure that the background trips accurately reflect the full scale and mix of uses proposed for this development.
- b. The use of a 25% pass by rate for the car wash is not supported by ITE's Trip Generation Manual. ITE only provides pass by percentages for selected land uses with documented empirical data, and car washes (LUC 947 & 948) are not among them. The applied 25% pass-by rate is likely reasonable, but the applicant should provide empirical data or more appropriate information to justify its usage.
- c. The study includes two No Build scenarios: one reflecting current conditions with the former Burger King site vacant, and another assuming the Burger King is fully operational. For impact evaluation, the No Build condition that reflects existing operations with the vacant site should be used as the primary baseline. The Burger King scenario represents a hypothetical condition and functions as a change of use analysis rather than a true No Build. While it is reasonable to include this scenario for comparison, the study should identify the vacant No Build as the basis

for determining project impacts, since the site has been closed for an extended period and does not currently generate traffic.

- d. Per the NHDOT Synchro Inputs Checklist, PHF values below 0.90 must be increased to 0.90 for future year conditions. However, for the 2027 Opening Year, traffic patterns are not expected to change materially from existing conditions. Therefore, PHF treatment should be applied uniformly to the 2027 No Build and 2027 Build scenarios to maintain methodological consistency in the comparison. Either both scenarios should use existing PHFs or both should be normalized to 0.90. Applying PHF = 0.90 only to the Build scenario is not consistent with NHDOT methodology and biases the comparison.
- e. For the Build condition, the site driveway operates at LOS F on the minor approach, with demands ranging from 26 to 63 vehicles per hour, average delays between approximately 90 and 230 seconds per vehicle, and 95th percentile queues of 2 to 5 vehicles. These results indicate that drivers will routinely experience multi minute delays and short but noticeable queues at the driveway. While the driveway operates slightly better than under the hypothetical scenario in which the former Burger King is fully operational, it represents a degradation relative to the actual No Build condition, where the site is vacant and does not generate traffic. The study should explicitly acknowledge that the project introduces a new LOS F condition at the driveway and discuss whether this level of delay and queuing is acceptable to the Town, or whether mitigation (e.g., access management, turn restrictions, or alternative access) should be considered.
- f. The signal timing parameters used in the analysis appear to match the Max 2 free times provided in the backup timing sheets. However, the applicant should confirm whether the Max 2 setting is appropriate for each peak hour evaluated, as time of day plans may use different free times or coordination parameters. The study should verify that the Max 2 values applied in the analysis correspond to the correct timing plan for each peak period.
- g. The study indicates that the Route 111 at Greeley Street and Kimball Hill Road intersection currently operates at LOS F under existing conditions, and the project adds less than 20 seconds of delay to individual movements, with minimal change to overall intersection delay. Given that the intersection has existing operational deficiencies, the project is not the primary driver of poor performance. However, it would be appropriate for the applicant to indicate whether any mitigation measures or signal retiming strategies were evaluated, even if ultimately deemed unwarranted, to demonstrate that reasonable operational improvements were considered.

5. Utility Design/Conflicts

- a. HR 275-9.E & 276-13. The applicant should review with the Town to confirm the availability of sufficient water flow to accommodate the car wash use. The applicant should also confirm the proposed 1.5" diameter service line is sufficient for the proposed water flow volumes.
- b. HR 275-9.E & 276-13. The applicant should provide more information regarding how the car wash will make use of the proposed reclaim tanks, their proposed maintenance requirements, and expected components of any discharges from these tanks to the sewer system.
- c. HR 275-9.E & 276-13. The Utility Plan shows 1,500 gallon reclamation tanks, but the detail included on sheet C13 is for a 2,000 gallon reclaim tank. The applicant should clarify the proposed size of the tanks and update the appropriate plan/detail.
- d. HR 275-9.E & 276-13. The applicant should provide information regarding expected sewer flows from the proposed car wash. We note that the Town of Hudson's sewer discharge is treated by the Nashua Wastewater Treatment Plant and a sewer flow allocation for the proposed site will need to be purchased from the Town. These available flow allocations may be limited, therefore all water reduction efforts should be considered.

- e. HR 275-9.E & 276-13. We note that commercial car wash operations have been included by the EPA in future PFAS regulations. The applicant should note that the Town of Hudson will require the car wash use to be permitted as part of their Industrial Pretreatment Program. This program will require effluent sampling for PFAS and the cost of that sampling will be the burden of the owner.
- f. The applicant has shown a water shutoff valve at the southern corner of the exiting parking lot. We note that no utility pipe is shown connecting to this valve. The applicant should confirm what is connected to this valve and what is proposed for this water line.
- g. Engineering Technical Guidelines & Typical Details (ETGTD) Section 720.8.3. The applicant has included the Town's Building Service Connection Detail S-5 in the plans. In accordance with this detail and the ETGTD specification a sewer manhole is required for industrial and commercial users at the property line/R.O.W. The applicant has not shown a manhole at the property line for the proposed sewer service connection.
- h. The applicant has not noted the size of the existing sewer main on Central Street. The applicant should confirm that pipe size prior to construction.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- a. HR 275-6.F. & 290-5.A.(4). Section C of the Stormwater Report states the reduction of pavement and increase of greenspace meets Section 290-5(4). The applicant should provide the required GRV worksheet within the Stormwater Report or coordinate with the Town to determine if a waiver is required to forgo the GRV requirement.
- b. HR 275-6.F. & 290-5.A.(4). It is noted in Section 1.B of the Stormwater Report that due to the existence of flood plain and 4.5' to 5' ESWT onsite, infiltration is not proposed. If GRV is required, the applicant should investigate if the implementation of shallow filtration basin/swales are applicable to meet the GRV requirement, that allow infiltration below 24" of filter media.
- c. HR 275-9.A. The applicant should remove the proposed watershed boundary from the pre-development watershed plan.
- d. HR 275-9.A. The applicant should review the CAD layering for the post development watershed plan to ensure the post development watershed boundary is fully and clearly illustrated.
- e. HR 290-5.A.(11). and 290-6. We note that the Stormwater Report Section III.A references an outdated NHDES Stormwater Manual and Erosion Control note #2 on Plan Sheet C6. The most recent updated manual can be downloaded from the following link: <https://extension.unh.edu/stormwater-center/nh-stormwater-manual>. The applicant should revise any reference in the Stormwater Report and plans accordingly.
- f. HR 290-6.A.(9). The applicant should ensure a note is upon the plan set stating all disturbed areas are required to be temporarily stabilized within 5 days.
- g. HR 290-7.A.(6). The applicant should provide rip rap apron sizing calculations for the two proposed sluice locations and provide dimensions upon the plan set.
- h. HR 290-7.A.(6). The applicant depicts a roof drain discharge oriented opposite the proposed flow direction within the swale, which will likely result in scouring. The applicant should review the need for riprap protection at the outlet of the Roof Drain.
- i. HR 290-7.A.(6). The applicant should revise the discharge direction of the roof drain to match the intended direction of flow, as runoff cannot navigate a bend at the outlet.
- j. HR 290-6.A.(13). The applicant should review the implementation of pretreatment upstream of the proposed treatment swale. The plans currently show only a riprap apron at the inlet. Incorporating a riprap forebay/plunge pool with a flow through stone berm level spreader would extend the Treatment Swale's service life and simplify maintenance by concentrating sediment in a single accessible location.
- k. HR 290-7.A.(6). The applicant should provide information regarding how the project is accounting for frozen ground conditions.

- l. HR 290-7.B.(16). The applicant should provide the proposed snow storage locations upon the I&M plan.
- m. HR 290-7.B.(16). We note that snow shall not be plowed or stockpiled within proposed Stormwater BMPs, as doing so impairs treatment performance and can damage or kill the vegetative cover. The applicant should review with the Town Engineer if signage is preferred on-site to restrict snow storage to specific areas.
- n. HR 290-8.A.(4). and (5). The applicant should ensure a note is included in the plans stating the requirement to coordinate the need for a Bond or Escrow with the Town Engineer.
- o. HR 290-12. The applicant should review with the Town Engineer if a wavier is required for the proposed sluices (curb cuts).
- p. HR 290-12. We note that the "end curb" and "begin curb" leader notes point to the location of the pavement curbing, while curbing continues down to the rip rap for the sluice. The applicant should review the location of the leader note at the northern and western sluices to ensure that it is constructed as intended, and curbing lines the sluice.
- q. The applicant 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. The applicant has noted that the project has been designed to meet MS4 requirements.
- r. Please note that this review was carried out in accordance with applicable regulations and standards in place in New Hampshire at this time. Note that conditions at the site, including average weather conditions, patterns and trends, and design storm characteristics, may change in the future. In addition, future changes in federal, state or local laws, rules or regulations, or in generally accepted scientific or industry information concerning environmental, atmospheric and geotechnical conditions and developments may affect the information and conclusions set forth in this review. In no way shall Fuss & O'Neill be liable for any of these changed conditions that may impact this review, regardless of the source of or reason for such changed conditions. Other than as described herein, no other investigation or analysis has been requested by the Client or performed by Fuss & O'Neill in preparing this review.

7. Zoning (ZO 334)

- a. ZO 334-17 & 334-21. The subject parcel is located within the Business (B) zoning district and the applicant has noted this on the plans. The proposed car wash use is allowed within the district.
- b. ZO 334-33. We note that the site is not located within the Wetlands Conservation District.
- c. ZO 334-83 and HR 218-4.E. The applicant has noted that the site is located within a Food Hazard Area. We note that no buildings are proposed within the 100-year flood zone.

8. Erosion Control/Wetland Impacts

- a. The applicant has shown the stabilized construction entrance past the pavement sawcut line and into the right-of-way. We recommend that the applicant adjust the stabilized construction entrance to be within the site and pavement sawcut area.
- b. The applicant has noted that the Town of Hudson reserves the right to require any additional erosion control measures as needed.

9. Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 275-17 & 276-11.1.B.(14))

- a. HR 275-17.D.2. The applicant should note the hours of operation for the site and the relationship of those hours to the site lighting, including if any timers or motion detectors are proposed to reduce light levels during non-operating hours.
- b. HR 275-17.D.6. The applicant has shown light trespass onto the abutting roadway at the driveway location.

- c. HR 275-17.D.7. The applicant has not provided any information about sign lighting on the plan.
- d. HR 275-17.E.1. The applicant should revise their light pole base detail to match the Regulation.

10. State and Local Permits (HR 275-9.G.)

- a. HR 275-9.G. The applicant has listed the required permits and their status on the plan set. The applicant should revise the list to note the Driveway permit is required from NHDOT instead of NHDES.
- b. HR 275-9.G. The applicant should provide copies of any applicable Town, State or Federal approvals or permits.
- c. Additional local and state permitting may be required.

11. Other

- a. The proposed stop sign and stop bar are shown over 10 feet from each other. The applicant should review their orientation to each other.
- b. ETGTD Section 565.1.1. The applicant should note on the plans the requirement that the Contractor shall not import any fill over ten cubic yards per source without soils testing verifying the absence of constituents of concern.
- c. The applicant has shown aisle widths for the drive-thru of 11' and 13' widths. We note that these widths are not curb-to-curb in the area of the gates. We recommend that the applicant show the curb-to-curb widths to be sure the aisles are manageable for vehicles and plows.
- d. The grading plan shows 0.58' between top of curb and bottom of curb grades, while the Granite Curb Detail on sheet C10 shows a 6" reveal. The applicant should coordinate the grading plan and detail.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
Granite Engineering, LLC – jchristie@graniteeng.com