

MEMORANDUM

TO: Dalina Boryszewski, Cumberland Farms
FROM: Jeffrey T. Bandini, P.E., PTOE
DATE: April 15, 2022
RE: Proposed Car Wash Addition
Cumberland Farms
87 West Natick Road
Warwick, RI

McMahon Associates (McMahon) has completed a traffic assessment for the proposed addition of a car wash facility to the existing Cumberland Farms gas station and convenience store located at 87 West Natick Road in Warwick, Rhode Island. This assessment is based on the Site Plan prepared by Civil Design Group, LLC dated December 8, 2021. A Traffic Impact Study was completed for the Cumberland Farms gas station and convenience store by McMahon in July of 2016, and the site was constructed in November 2018.

The following traffic assessment examines existing and projected traffic operations (both with and without the proposed car wash), reviews estimated project trip generation and site access and circulation associated with the proposed car wash.

Project Description

The existing Cumberland Farms is located at 87 West Natick Road in Warwick, Rhode Island at the northwest corner of the signalized intersection of Lambert Highway (Route 5) and West Natick Road. As shown in Figure 1, the proposed car wash would be located on the north side of the existing convenience store. The proposed addition would include the construction of a 3,218 square foot car wash with one bay and six parking spaces with self-service vacuums.

Access to the site would continue to be provided via the two existing full-access driveways, including one on the west side Lambert Lind Highway (Route 5) and one on the north side of West Natick Road at the signalized intersection with the Warwick Mall egress. The full-access driveway on Lambert Lind Highway (Route 5) contains an exclusive northbound left-turn lane for entering vehicles. The entrance to the car wash would be located on the northeast side of the site and circulate in a counterclockwise direction behind the existing convenience store. Vehicles would exit the car wash in the northwest corner of the site. The Site Plan is provided as an attachment.

Figure 1: Site Location Map



Existing Traffic Volumes

To assess peak hour traffic conditions, traffic count data was collected at the existing Cumberland Farms driveways during the weekday afternoon and Saturday midday peak periods. Manual turning movement counts were conducted on Tuesday, March 15, 2022, from 4:00 PM to 6:00 PM and Saturday, March 19 from 11:00 AM to 2:00 PM. The results of the turning movement counts are tabulated by 15-minute periods and are provided in as an attachment. The four highest consecutive 15-minute intervals during each of these count periods constitute the peak hours that are the basis of the traffic analysis provided in this memo. To present a conservative analysis, the individual peak hour of each of the two site driveways was utilized.

According to RIDOT’s 2017 Monthly Average Daily Traffic Factors, traffic volumes for an urban principal arterial roadway collected during the month of March are shown to be slightly lower than traffic volumes for the average month. Therefore, the existing peak hour through traffic volumes on Lambert Lind Highway (Route 5) were increased by four percent to represent an average month. Traffic volumes for an urban minor arterial roadway collected during the month of March are shown to be slightly higher than traffic volumes for the average month. To present a conservative analysis, the traffic volumes on West Natick Road were not adjusted downwards to an average month.

No Build Traffic Volumes

To be consistent with the TIS completed for the Cumberland Farms gas station and convenience store, an annual growth rate of 1.0 percent per year was applied to the 2022 Existing traffic volumes, compounded annually, over the seven-year study horizon (2022 to 2029) to develop the 2029 No Build peak hour traffic volumes. This growth rate was provided by the City of Warwick Planning Department and is anticipated to capture traffic growth associated with general changes in population and other developments that are not known at this time.

Project Trip Generation

To estimate the number of vehicle trips associated with the proposed car wash addition, the Institute of Transportation Engineers' (ITE) publication, *Trip Generation Manual, 11th Edition*, was referenced. ITE is a national research organization of transportation professionals, and the *Trip Generation Manual* provides traffic generation information for various land uses compiled from studies conducted by members nationwide. Vehicle trip estimates for the proposed car wash addition were developed based on data presented in this publication for Land Use Code 948 (Automated Car Wash). This reference establishes vehicle trip rates (in this case expressed in trips per square foot) based on actual traffic counts conducted at similar types of existing land uses. Table 1 presents the projected trip generation for the proposed car wash addition for the weekday afternoon and Saturday midday peak hours.

Table 1: Project Trip Generation

Description	Size	Weekday PM			Saturday		
		In	Out	Total	In	Out	Total
Proposed Car Wash ¹	3,218 sf	23	23	46	49	49	98

1 ITE Land Use Code 948 (Automated Car Wash), based on 3,218 sf.

As shown in Table 1, the proposed car wash addition is estimated to generate approximately 46 new vehicle trips during the weekday afternoon peak hour (23 entering vehicles and 23 exiting vehicles), and approximately 98 new vehicle trips during the Saturday midday peak hour (49 entering vehicles and 49 exiting vehicles). The estimated trip generation associated with the proposed car wash addition is considered to be conservative, as a portion of vehicles utilizing the car wash would be anticipated to already be using the existing Cumberland Farms convenience store and gas station. These shared trips between the car wash and the existing convenience store and gas station would reduce the overall increase in vehicle trips traveling to and from the project site. No credit was taken for shared trips between the proposed car wash and existing Cumberland Farms in the capacity analysis.

The traffic anticipated to be generated by the proposed car wash was assigned to enter the site based on the existing traffic patterns for vehicles accessing the existing Cumberland Farms driveways. The car wash trips were assigned to exit the site based on the proposed layout of the car wash and the logical internal circulation. The entrance to the car wash is proposed to be located on the east side of the site, while the exit of the car wash would be located on the west side of the site, closest to the signalized site driveway on West Natick Road.

Capacity Analysis Results

Intersection capacity analysis was conducted using Synchro capacity analysis software for the site driveways on West Natick Road and Lambert Lind Highway (Route 5) to evaluate the 2022 Existing, 2029 No Build and 2029 Build traffic conditions during the weekday afternoon and Saturday midday peak hours.

A summary of the capacity analysis results are presented in Table 2 below. A more detailed summary of the capacity analysis for each site driveway intersection is attached.

Table 2: Capacity Analysis Results

Intersection	Movement	Period	Existing 2022				No Build 2029				Build 2029				
			LOS ¹	Delay ²	V/C ³	95th Q ⁴	LOS	Delay	V/C	95th Q	LOS	Delay	V/C	95th Q	
Lambert Lind Highway (Route 5) at Site Driveway/Soule Street	EB	LTR	PM	D	29.9	0.41	48	E	35.5	0.46	55	E	41.0	0.54	63
			SAT	D	27.1	0.30	30	D	31.6	0.34	35	D	33.9	0.42	48
West Natick Road at Site Driveway/Warwick Mall egress	SB	LR	PM	B	12.0	0.33	25	B	12.0	0.33	25	B	14.7	0.39	36
			SAT	B	11.5	0.32	32	B	11.5	0.32	32	B	17.1	0.45	53
	Overall	PM	B	19.0	0.54	-	B	18.7	0.54	-	B	18.9	0.54	-	
		SAT	C	23.0	0.61	-	C	22.8	0.61	-	C	23.1	0.61	-	

- 1 Level-of-Service
- 2 Average vehicle delay in seconds
- 3 Volume to capacity ratio
- 4 95th percentile queue length (ft)

As shown in Table 2, the delay at the critical stop-controlled eastbound Cumberland Farms driveway at Lambert Lind Highway (Route 5) approach is shown to operate under capacity during both the weekday afternoon and Saturday midday peak hours under 2029 Build conditions.

The signalized intersection of West Natick Road at the Cumberland Farms Driveway/Warwick Mall egress would continue to operate at overall LOS B during the weekday afternoon peak hour and at overall LOS C during the Saturday midday peak hour under 2029 Build conditions.

Since the shared trips between the car wash and the existing convenience store and gas station would reduce the overall increase in vehicle trips traveling to and from the project site, the 2029 Build conditions results presented in Table 2 are anticipated to be conservative.

Field Observations

McMahon conducted field observations to establish the existing delay and vehicle queues experienced by drivers exiting the Site Driveway onto Lambert Lind Highway (Route 5). The field observations were conducted on Saturday, March 19, 2022, during the Saturday midday peak period. The number of queued vehicles waiting to turn left or right onto Lambert Lind Highway (Route 5) was recorded every 15 seconds from 12:00 PM to 12:30 PM. A review of the vehicle delay and queue data recorded at the site driveway eastbound approach to Lambert Lind Highway (Route 5) determined that the average delay for the approach was 17.3 seconds (LOS C) during the period analyzed with a 95th percentile queue of 27 feet. Based on the field data collected, the measured vehicle delay and queue length is slightly lower than the capacity analysis results for the Saturday midday peak hour under the 2022 Existing conditions.

Site Access and Circulation

Access to the site would continue to be provided via the two existing full-access driveways, including one on the west side Lambert Lind Highway (Route 5) and one on the north side of West Natick Road at the signalized intersection with the Warwick Mall egress. The proposed car wash addition would be located on the north side

of the site, between the existing convenience store building and Fessenden Street. The entrance to the car wash would be located on the northeast corner of the site, circulating counterclockwise with the car wash exit located in the northwest corner. The self-service vacuum spaces would be located in between the proposed car wash and the existing convenience store building. The internal site circulation with the addition of the proposed car wash is anticipated to have a minimal impact on the existing gas station and convenience store.

Findings

The proposed project includes the addition of a car wash facility to the existing Cumberland Farms gas station and convenience store located at 87 West Natick Road in Warwick, Rhode Island. Below is a summary of findings for the traffic assessment completed for the proposed car wash addition:

- Access to the project site would continue to be provided via the existing full-access driveways on West Natick Road and Lambert Lind Highway (Route 5).
- The proposed car wash is estimated to generate approximately 46 vehicle trips during the weekday afternoon peak hour (23 entering vehicles and 23 exiting vehicles), and approximately 98 vehicle trips during the Saturday midday peak hour (49 entering vehicles and 49 exiting vehicles). The estimated increase in vehicle trips associated with the proposed car wash addition is considered conservative, as a portion of vehicles utilizing the car wash would be anticipated to already be using the existing convenience store and gas station, decreasing the overall increase in new vehicle trips to the project site.
- The internal access and circulation for the proposed car wash would be anticipated to have minimal impacts on the existing circulation of the site.
- A field observation conducted on Saturday, March 19, 2022, indicated that the average delay and queuing exiting the site onto Lambert Lind Highway (Route 5) is comparable to what is presented using Synchro software.
- The capacity analysis results show that with the addition of the car wash trips, the Lambert Lind Highway (Route 5) and West Natick Road site driveways would continue to operate under capacity during both the weekday afternoon and Saturday midday peak hours.

Attachments

- Site Plan
- Traffic Count Data
- Traffic Projection Model
- Field Study Data
- Capacity/Level-of-Service Analysis

Site Plan

GENERAL NOTES

- ZONING INFORMATION OBTAINED FROM THE CITY OF WARWICK ZONING BY-LAWS AS DOWNLOADED OCTOBER 2021.
- THE PROJECT SITE INCLUDES LOTS 378 ON MAP 273 OF THE WARWICK ASSESSOR'S MAPS, TOTALING 0.54± ACRES.
- THE PROJECT LIES WITHIN THE A-7 RESIDENTIAL DISTRICT AND THE GENERAL BUSINESS (GB) DISTRICT.
- MODIFICATIONS TO THIS PLAN MAY OCCUR AS UNFORESSEEN CONDITIONS ARISE. ALL CHANGES SHALL BE APPROVED BY THE ENGINEER.
- ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, SITE ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS, AND PLANT SPECIFICATIONS TO THE OWNER AND SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
- THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF THE CONSTRUCTION.
- THIS PLAN SET REFERENCES RIDOT STANDARD DETAILS (DESIGNATED AS RIDOT STD X.X.X.). RIDOT STANDARD DETAILS ARE AVAILABLE FROM RIDOT AND ONLINE AT: WWW.DOT.STATE.RI.US/ENGINEERING/STANDARDS/INDEX.ASP.

SITE LAYOUT NOTES

- THE BUILDING OUTLINE SHOWN ON THIS PLAN DEPICTS THE FINISH TO FINISH EXTENTS OF THE BUILDING. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR FOUNDATION PLANS FOR THE PURPOSE OF STAKING OUT THE BUILDING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND EXTERIOR FEATURES INCLUDING UTILITY METERS, BOLLARDS, DOORS, PILASTERS, RAMPS, ETC.
- BUILDING SIDEWALK DIMENSIONS ARE MEASURED FROM EXTERIOR FINISH MATERIAL OF STRUCTURE.
- ALL LIMITS OF PAVEMENT SHALL BE CURBED, UNLESS OTHERWISE NOTED.
- ALL ON-SITE CURB SHALL BE SLOPED GRANITE, VERTICAL AND MONOLITHIC CONCRETE AND OFF-SITE CURB SHALL BE VERTICAL GRANITE, UNLESS OTHERWISE SPECIFIED. SLOPED GRANITE CURB SHALL MEET OTHER CURB TYPES VIA A TRANSITIONAL CURB STONE INSTALLED FULLY WITHIN BITUMINOUS PAVEMENT LIMITS.
- PROPOSED NON-ACCESSIBLE PARKING SPACE DIMENSIONS AS SHOWN ON THE PLAN ARE 13' WIDE x 20' LONG.
- NON-ACCESSIBLE PAVEMENT MARKINGS AND STRIPING SHALL BE PAINTED WITH 2 COATS OF PAINT (WHITE OR YELLOW; SEE PLAN) PER FEDERAL SPECIFICATION TI-P-115 TYPE 1; ALKYD.
- PAVEMENT LETTERS SHALL BE 2" WIDE x 2" LONG.
- STOP BARS SHALL BE 12" WIDE AND SOLID WHITE LINES SHALL BE 4" IN WIDTH (SEE SITE PLAN FOR LENGTH).
- DIRECTIONAL AND ACCESSIBLE SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR COLOR AND SIZE.
- ACCESSIBLE RAMP LENGTHS MAY VARY. REFER TO SITE PLAN FOR ACTUAL DIMENSIONS.
- ALL FLAT WORK WITHIN THE RIGHT OF WAY SHALL CONFORM TO MUNICIPAL/STATE STANDARDS.
- SNOW SHALL NOT BE STORED IN ANY LANDSCAPED AREAS, EXCEPT FOR DESIGNATED SNOW STORAGE AREAS, AND SHALL NOT BE STORED IN ANY MANNER WHICH AFFECTS VISIBILITY FOR PEDESTRIANS AND VEHICLES. THE CLEARING OF SNOW MUST COMMENCE WHEN STOCKPILED SNOW EITHER IMPEDES THE SIDEWALK OR PARKING SPACE ACCESS, AT WHICH TIME, THE APPLICANT WOULD BE EXPECTED TO REMOVE THE SNOW.
- REPLACEMENT PAVEMENT AS A RESULT OF UTILITY AND DRAINAGE TRENCHING WITHIN THE RIGHT-OF-WAY SHALL MATCH EXISTING PAVEMENT THICKNESS.
- SITE LIGHTS TO BE INSTALLED PER DETAIL. CONTRACTOR SHALL NOTIFY THE ENGINEER IF THIS DISTANCE CANNOT BE ACHIEVED DUE TO DRAINAGE OR UTILITY CONFLICTS. REFER TO DETAILS FOR SITE LIGHT POLE BASE DETAILS AND SPECIFICATIONS.

RIDOT NOTES:

- ALL WORK WITHIN THE STATE'S R.O.W. WILL CONFORM TO RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED DECEMBER 2010 INCLUDING ALL REVISIONS AND THE RI STANDARD DETAILS.
- ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, INCLUDING ALL REVISIONS.
- NO LANE OR SHOULDER CLOSURES SHALL BE PERFORMED WITHIN THE STATE'S R.O.W. DURING PEAK TRAFFIC HOURS.
- SEWER AND WATER CONNECTIONS WITHIN THE STATE R.O.W. WILL REQUIRE A SEPARATE RIDOT UTILITY PERMIT. CONTRACTOR TO OBTAIN BEFORE CONSTRUCTION.
- THE DRAINAGE SYSTEM IS DESIGNED TO DECREASE BOTH STORM WATER RUNOFF DISCHARGE RATE, AND STORM WATER RUNOFF VOLUME TO THE STATE RIGHT-OF-WAY FROM PRE-DEVELOPMENT TO POST-DEVELOPMENT. THERE WILL BE NO INCREASE IN RUNOFF TO THE STATE RIGHT OF WAY FROM THE PROPOSED DEVELOPMENT.

TRAFFIC NOTES

- DURING CONSTRUCTION TRAFFIC CONES ARE TO BE USED FOR SEPARATION OF ACTIVE TRAFFIC FROM WORK ZONE.
- DURING CONSTRUCTION, FLAGGERS SHALL BE EMPLOYED TO ENSURE SAFETY FOR INTERACTION OF CONSTRUCTION VEHICLES AND ACTIVE TRAFFIC.
- ALL SIGNS, FLAGGERS, TRAFFIC CONTROL DEVICES, AND TEMPORARY TRAFFIC ZONE ACTIVITIES SHALL MEET THE REQUIREMENTS OF THE MUTCD LATEST EDITION AND SUBSEQUENT ADDENDUMS.
- TEMPORARY CONSTRUCTION SIGNS SHALL BE MOUNTED ON RIDOT APPROVED SUPPORTS AND SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.
- ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES CURRENT EDITION.

LAND COVERAGE CALCULATIONS

COVER	EXISTING	PROPOSED
BUILDING/CANOPY	0.00 AC±	0.08 AC±
PAVEMENT/CONCRETE	0.00 AC±	0.17 AC±
OPEN SPACE	0.46 AC±	0.24 AC±
WOODS	0.08 AC±	0.05 AC±
TOTAL	0.54 AC±	0.54 AC±

PARKING & LOADING INFORMATION

USE	REQUIRED	PROVIDED
PARKING: CAR WASH: NOT LISTED	NONE	6 SPACES
LOADING: ONE REQUIRED FOR USES >2,000 SF	1 SPACE	1 SPACE

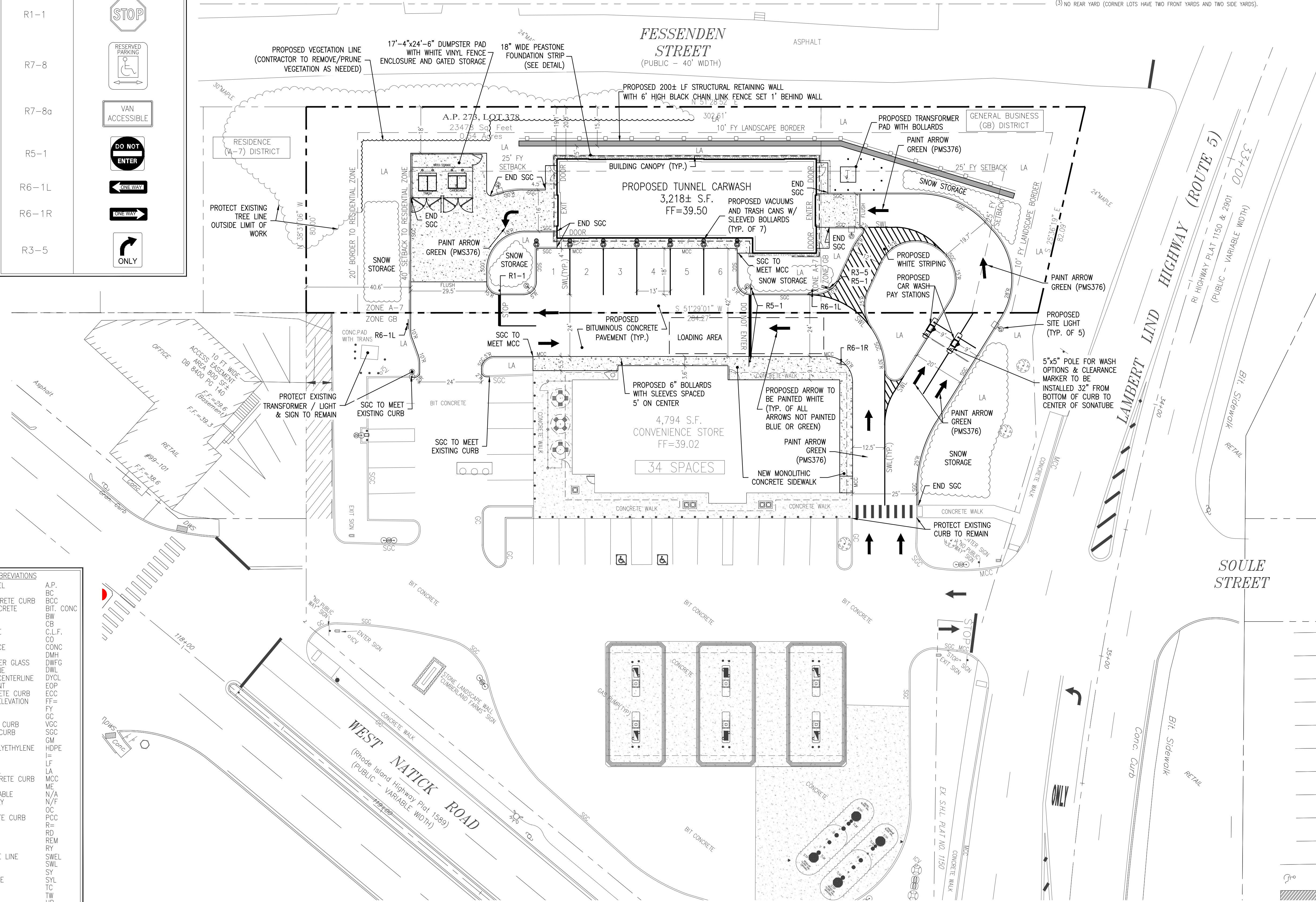
ZONING INFORMATION

REGULATION	ZONING DISTRICT - GENERAL BUSINESS (GB) ⁽¹⁾		
	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	6,000 SF	23,478± SF	23,478± SF
MIN. LOT FRONTAGE/WIDTH	60'	385± LF	385± LF
MIN. FY SETBACK	25'	N/A	19.1'± ⁽²⁾
MIN. SY SETBACK	15'	N/A	22'±
MIN. RY SETBACK	20'	N/A ⁽³⁾	N/A ⁽³⁾
MIN. SETBACK TO RES. ZONE	40'	N/A	96.3'± (BLDG) 40.1'± (CURB)
MAX. BUILDING HEIGHT	40'	N/A	<40'
MINIMUM LANDSCAPED AREA	10%	100%±	54%±

(1) A RE-ZONE TO GENERAL BUSINESS IS REQUIRED.
(2) VARIANCE REQUIRED.
(3) NO REAR YARD (CORNER LOTS HAVE TWO FRONT YARDS AND TWO SIDE YARDS).

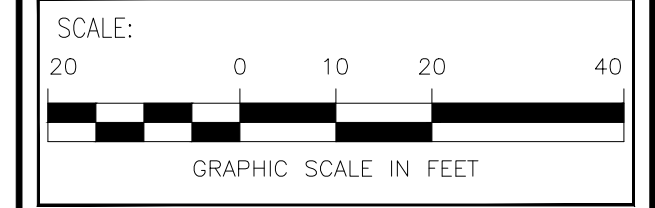
MUTCD REFERENCE	SIGN
R1-1	
R7-8	
R7-8a	
R5-1	
R6-1L	
R6-1R	
R3-5	

LEGEND			GENERAL ABBREVIATIONS		
EXISTING	PROPOSED	DESCRIPTION			
		PROPERTY LINE	A.P.	ASSESSORS PARCEL	
		BUILDING SETBACK/BUFFER	BC	BOTTOM OF CURB	
		WETLAND LINE/FLAGS	BCC	BITUMINOUS CONCRETE CURB	
		WETLAND/RESOURCE BUFFER	BIT.	BITUMINOUS CONCRETE	CONC
		PARKING SPACES	BW	BOTTOM OF WALL	
		CURB RADIUS	CB	CATCH BASIN	
		ACCESSIBLE PAVEMENT MARKINGS	CL.F.	CHAIN LINK FENCE	
		RAMP UPSLOPE DIRECTION	CO	CLEANOUT	
		SIGN	CONC	CONCRETE SURFACE	
		LIGHT	DMH	DRAIN MANHOLE	
		UTILITY POLE	DWFG	DOUBLE WALL FIBER GLASS	
		FENCE	DW	DASHED WHITE LINE	
		WOODEN GUIDERAIL	DYCL	DOUBLE YELLOW CENTERLINE	
		TREE LINE	EOP	EDGE OF PAVEMENT	
		BUILDING COLUMN	ECC	EXTRUDED CONCRETE CURB	
		PAINTED ARROW	FF	FINISHED FLOOR ELEVATION	
		DIRECTIONAL ARROW	GC	FRONT YARD	
		CONCRETE PAD/SIDEWALK	GY	GRANITE CURB	
		ACCESSIBLE RAMP	VGC	VERTICAL GRANITE CURB	
		IRON PIPE/IRON PIN	SGC	SLOPED GRANITE CURB	
		WELCOME SIGNS	GM	GAS METER	
		SEE YOU SOON SIGNS	HDP	HIGH DENSITY POLYETHYLENE	
			I=	INVERT ELEVATION	
			LF	LINEAL FEET	
			LA	LANDSCAPED AREA	
			MCC	MONOLITHIC CONCRETE CURB	
			ME	MATCH EXISTING	
			N/A	INVERT NOT AVAILABLE	
			N/F	NOW OR FORMERLY	
			OC	ON CENTER	
			PCC	PRECAST CONCRETE CURB	
			RE	RIM ELEVATION	
			RD	ROOF DRAIN	
			REM	REMOVE	
			RY	REAR YARD	
			SWEL	SOLID WHITE EDGE LINE	
			SWL	SOLID WHITE LINE	
			SY	SIDE YARD	
			SYL	SOLID YELLOW LINE	
			TC	TOP OF CURB	
			TP	TOP OF WALL	
			UP	UTILITY POLE	



NOT FOR CONSTRUCTION

REVISIONS:		
REV	DATE	COMMENT



DESIGNED BY: MAL
CHECK BY: PRH

SEAL:
DRAFT
PHILIP R. HENRY, P.E.

PREPARED FOR:
Cumberland Farms
165 FLANDERS ROAD
WESTBOROUGH, MA 01581

PROJECT:
87 WEST NATICK ROAD
WARWICK, RI 02886
CAR WASH
ORACLE #R13192

PREPARED BY:
CIVIL DESIGN GROUP, LLC
21 HIGH STREET, SUITE 207
NORTH ANDOVER, MA 01845
www.cdengineering.com
p: 978-794-5400 f: 978-965-3935

SHEET:
SITE PLAN
CFG04.0

CDG PROJECT #: 20045
DATE: 12/08/2021

Traffic Count Data

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: CF Drive/Mall Drive
 E/W: West Natick Road
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531A
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	12	0	2	0	2	60	0	0	14	1	90	0	72	78	7	0	338
04:15 PM	14	0	1	0	2	64	1	0	17	2	96	0	83	75	9	0	364
04:30 PM	11	0	1	0	2	67	0	0	21	1	94	0	65	63	7	0	332
04:45 PM	9	0	2	0	1	58	0	0	19	3	88	0	72	76	10	0	338
Total	46	0	6	0	7	249	1	0	71	7	368	0	292	292	33	0	1372
05:00 PM	13	0	1	0	4	81	1	0	16	4	103	0	79	80	8	0	390
05:15 PM	23	0	0	0	4	70	0	0	25	6	100	0	87	74	4	0	393
05:30 PM	11	0	0	0	0	74	0	0	17	2	100	0	80	72	10	0	366
05:45 PM	9	0	1	0	5	55	0	0	22	2	102	0	72	61	9	0	338
Total	56	0	2	0	13	280	1	0	80	14	405	0	318	287	31	0	1487
Grand Total	102	0	8	0	20	529	2	0	151	21	773	0	610	579	64	0	2859
Apprch %	92.7	0	7.3	0	3.6	96	0.4	0	16	2.2	81.8	0	48.7	46.2	5.1	0	
Total %	3.6	0	0.3	0	0.7	18.5	0.1	0	5.3	0.7	27	0	21.3	20.3	2.2	0	
Cars & Peds	101	0	8	0	20	528	2	0	151	21	771	0	608	577	64	0	2851
% Cars & Peds	99	0	100	0	100	99.8	100	0	100	100	99.7	0	99.7	99.7	100	0	99.7
Trucks & Buses																	
% Trucks & Buses	1	0	0	0	0	0.2	0	0	0	0	0.3	0	0.2	0.3	0	0	0.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0.2

Start Time	Cumberland Farms Shared Access From North					West Natick Road From East					Warwick Mall Limited Access (Macy's) From South					West Natick Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:45 PM	9	0	2	0	11	1	58	0	0	59	19	3	88	0	110	72	76	10	0	158	338
05:00 PM	13	0	1	0	14	4	81	1	0	86	16	4	103	0	123	79	80	8	0	167	390
05:15 PM	23	0	0	0	23	4	70	0	0	74	25	6	100	0	131	87	74	4	0	165	393
05:30 PM	11	0	0	0	11	0	74	0	0	74	17	2	100	0	119	80	72	10	0	162	366
Total Volume	56	0	3	0	59	9	283	1	0	293	77	15	391	0	483	318	302	32	0	652	1487
% App. Total	94.9	0	5.1	0		3.1	96.6	0.3	0		15.9	3.1	81	0		48.8	46.3	4.9	0		
PHF	.609	.000	.375	.000	.641	.563	.873	.250	.000	.852	.770	.625	.949	.000	.922	.914	.944	.800	.000	.976	.946
Cars & Peds	56	0	3	0	59	9	283	1	0	293	77	15	391	0	483	317	300	32	0	649	1484
% Cars & Peds	100	0	100	0	100	100	100	100	0	100	100	100	100	0	100	99.7	99.3	100	0	99.5	99.8
Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.3	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0.2	0.1

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: CF Drive/Mall Drive
 E/W: West Natick Road
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531A
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Cars & Peds

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	12	0	2	0	2	60	0	0	14	1	90	0	72	78	7	0	338
04:15 PM	14	0	1	0	2	63	1	0	17	2	96	0	83	75	9	0	363
04:30 PM	10	0	1	0	2	67	0	0	21	1	92	0	64	63	7	0	328
04:45 PM	9	0	2	0	1	58	0	0	19	3	88	0	71	74	10	0	335
Total	45	0	6	0	7	248	1	0	71	7	366	0	290	290	33	0	1364
05:00 PM	13	0	1	0	4	81	1	0	16	4	103	0	79	80	8	0	390
05:15 PM	23	0	0	0	4	70	0	0	25	6	100	0	87	74	4	0	393
05:30 PM	11	0	0	0	0	74	0	0	17	2	100	0	80	72	10	0	366
05:45 PM	9	0	1	0	5	55	0	0	22	2	102	0	72	61	9	0	338
Total	56	0	2	0	13	280	1	0	80	14	405	0	318	287	31	0	1487
Grand Total	101	0	8	0	20	528	2	0	151	21	771	0	608	577	64	0	2851
Apprch %	92.7	0	7.3	0	3.6	96	0.4	0	16	2.2	81.8	0	48.7	46.2	5.1	0	
Total %	3.5	0	0.3	0	0.7	18.5	0.1	0	5.3	0.7	27	0	21.3	20.2	2.2	0	

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds					
05:00 PM	13	0	1	0	4	81	1	0	86	16	4	103	0	123	79	80	8	0	167	390	
05:15 PM	23	0	0	0	23	4	70	0	0	74	25	6	100	0	131	87	74	4	0	165	393
05:30 PM	11	0	0	0	11	0	74	0	0	74	17	2	100	0	119	80	72	10	0	162	366
05:45 PM	9	0	1	0	10	5	55	0	0	60	22	2	102	0	126	72	61	9	0	142	338
Total Volume	56	0	2	0	58	13	280	1	0	294	80	14	405	0	499	318	287	31	0	636	1487
% App. Total	96.6	0	3.4	0	4.4	95.2	0.3	0			16	2.8	81.2	0		50	45.1	4.9	0		
PHF	.609	.000	.500	.000	.630	.650	.864	.250	.000	.855	.800	.583	.983	.000	.952	.914	.897	.775	.000	.952	.946

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: CF Drive/Mall Drive
 E/W: West Natick Road
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531A
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Trucks & Buses

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	1	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total	1	0	0	0	0	1	0	0	0	0	2	0	1	2	0	0	7
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	0	0	1	0	0	0	0	2	0	1	2	0	0	7
Apprch %	100	0	0	0	0	100	0	0	0	0	100	0	33.3	66.7	0	0	
Total %	14.3	0	0	0	0	14.3	0	0	0	0	28.6	0	14.3	28.6	0	0	

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	1	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total Volume	1	0	0	0	0	1	0	0	0	0	2	0	1	2	0	0	7
% App. Total	100	0	0	0	0	100	0	0	0	0	100	0	33.3	66.7	0	0	
PHF	.250	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.250	.250	.000	.000	.375
																	.438

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Transportation Data Corporation
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 Client: McM/L. Young

File Name : 05531A
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Bikes by Direction

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

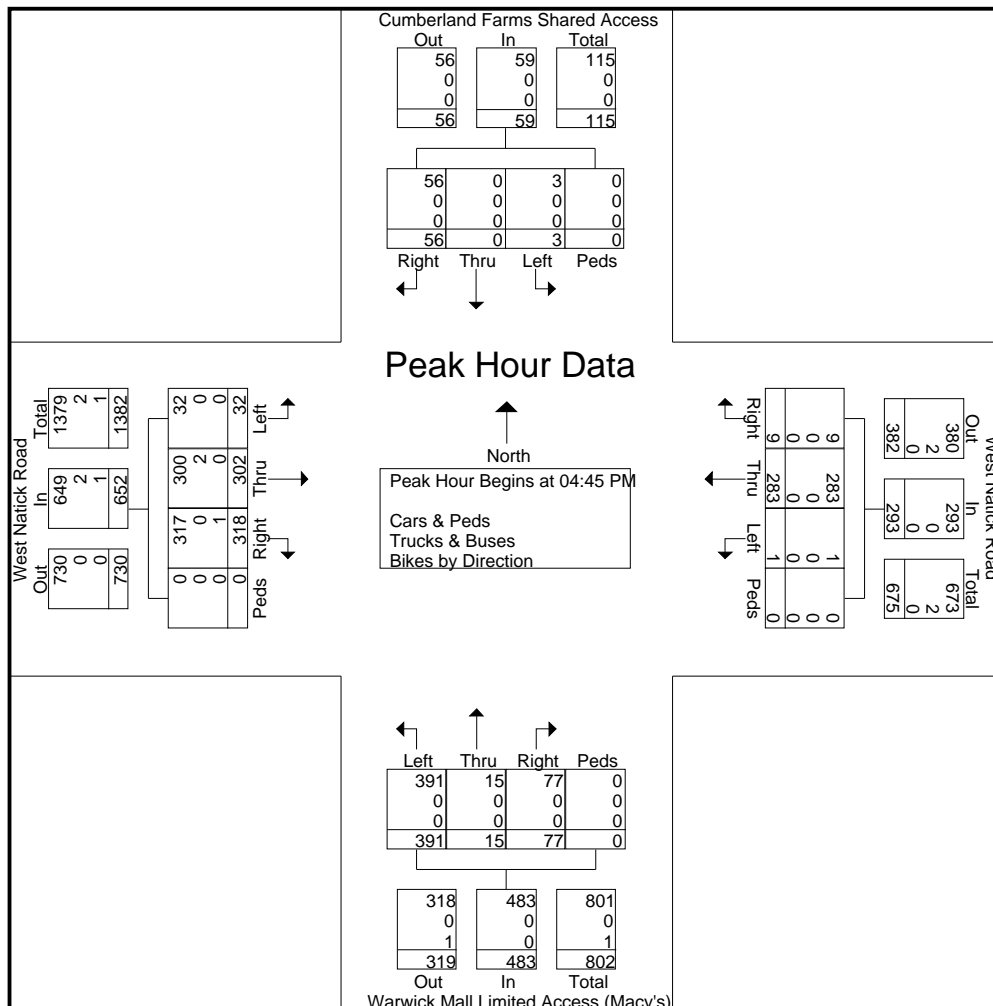
Transportation Data Corporation

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E/W: West Natick Road
City, State: Warwick, RI
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File Name : 05531A
Site Code : Y2226211
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Start Time	Cumberland Farms Shared Access From North					West Natick Road From East					Warwick Mall Limited Access (Macy's) From South					West Natick Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	9	0	2	0	11	1	58	0	0	59	19	3	88	0	110	72	76	10	0	158	338
05:00 PM	13	0	1	0	14	4	81	1	0	86	16	4	103	0	123	79	80	8	0	167	390
05:15 PM	23	0	0	0	23	4	70	0	0	74	25	6	100	0	131	87	74	4	0	165	393
05:30 PM	11	0	0	0	11	0	74	0	0	74	17	2	100	0	119	80	72	10	0	162	366
Total Volume	56	0	3	0	59	9	283	1	0	293	77	15	391	0	483	318	302	32	0	652	1487
% App. Total	94.9	0	5.1	0		3.1	96.6	0.3	0		15.9	3.1	81	0		48.8	46.3	4.9	0		
PHF	.609	.000	.375	.000	.641	.563	.873	.250	.000	.852	.770	.625	.949	.000	.922	.914	.944	.800	.000	.976	.946
Cars & Peds	56	0	3	0	59	9	283	1	0	293	77	15	391	0	483	317	300	32	0	649	1484
% Cars & Peds	100	0	100	0	100	100	100	100	0	100	100	100	100	0	100	99.7	99.3	100	0	99.5	99.8
Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.3	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0.2	0.1



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File Name : 05531AA
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	6	0	2	0	2	57	0	0	18	3	95	0	89	66	6	0	344
11:15 AM	7	0	2	0	3	34	0	0	23	2	104	0	100	68	6	0	349
11:30 AM	10	0	1	0	3	42	0	0	21	0	97	0	127	66	9	0	376
11:45 AM	15	0	0	0	3	54	0	0	40	2	121	0	122	52	6	0	415
Total	38	0	5	0	11	187	0	0	102	7	417	0	438	252	27	0	1484
12:00 PM	14	0	2	0	3	69	0	0	27	0	142	0	139	62	9	0	467
12:15 PM	16	0	1	0	3	66	0	0	44	5	130	0	145	66	11	0	487
12:30 PM	15	0	0	0	1	53	0	0	35	3	133	0	155	63	7	0	465
12:45 PM	14	0	4	0	4	67	0	0	28	2	159	0	164	68	12	0	522
Total	59	0	7	0	11	255	0	0	134	10	564	0	603	259	39	0	1941
01:00 PM	16	0	1	0	3	67	0	0	29	0	175	0	156	67	6	0	520
01:15 PM	12	0	1	0	4	70	0	0	39	2	168	0	152	63	5	0	516
01:30 PM	16	0	1	0	9	70	0	0	32	0	153	0	124	79	11	0	495
01:45 PM	9	0	2	0	0	63	0	0	38	2	169	0	137	57	11	0	488
Total	53	0	5	0	16	270	0	0	138	4	665	0	569	266	33	0	2019
Grand Total	150	0	17	0	38	712	0	0	374	21	1646	0	1610	777	99	0	5444
Apprch %	89.8	0	10.2	0	5.1	94.9	0	0	18.3	1	80.6	0	64.8	31.3	4	0	
Total %	2.8	0	0.3	0	0.7	13.1	0	0	6.9	0.4	30.2	0	29.6	14.3	1.8	0	
Cars & Peds	150	0	17	0	38	712	0	0	373	21	1645	0	1609	776	98	0	5439
% Cars & Peds	100	0	100	0	100	100	0	0	99.7	100	99.9	0	99.9	99.9	99	0	99.9
Trucks & Buses																	
% Trucks & Buses	0	0	0	0	0	0	0	0	0.3	0	0.1	0	0.1	0.1	1	0	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Cumberland Farms Shared Access From North					West Natick Road From East					Warwick Mall Limited Access (Macy's) From South					West Natick Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	14	0	4	0	18	4	67	0	0	71	28	2	159	0	189	164	68	12	0	244	522
01:00 PM	16	0	1	0	17	3	67	0	0	70	29	0	175	0	204	156	67	6	0	229	520
01:15 PM	12	0	1	0	13	4	70	0	0	74	39	2	168	0	209	152	63	5	0	220	516
01:30 PM	16	0	1	0	17	9	70	0	0	79	32	0	153	0	185	124	79	11	0	214	495
Total Volume	58	0	7	0	65	20	274	0	0	294	128	4	655	0	787	596	277	34	0	907	2053
% App. Total	89.2	0	10.8	0		6.8	93.2	0	0		16.3	0.5	83.2	0		65.7	30.5	3.7	0		
PHF	.906	.000	.438	.000	.903	.556	.979	.000	.000	.930	.821	.500	.936	.000	.941	.909	.877	.708	.000	.929	.983
Cars & Peds	58	0	7	0	65	20	274	0	0	294	128	4	655	0	787	596	277	33	0	906	2052
% Cars & Peds	100	0	100	0	100	100	100	0	0	100	100	100	100	0	100	100	100	97.1	0	99.9	100.0
Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9	0	0.1	0.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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File Name : 05531AA
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Groups Printed- Cars & Peds

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	6	0	2	0	2	57	0	0	18	3	95	0	89	66	6	0	344
11:15 AM	7	0	2	0	3	34	0	0	22	2	104	0	100	68	6	0	348
11:30 AM	10	0	1	0	3	42	0	0	21	0	97	0	127	66	9	0	376
11:45 AM	15	0	0	0	3	54	0	0	40	2	121	0	122	51	6	0	414
Total	38	0	5	0	11	187	0	0	101	7	417	0	438	251	27	0	1482
12:00 PM	14	0	2	0	3	69	0	0	27	0	141	0	139	62	9	0	466
12:15 PM	16	0	1	0	3	66	0	0	44	5	130	0	145	66	11	0	487
12:30 PM	15	0	0	0	1	53	0	0	35	3	133	0	154	63	7	0	464
12:45 PM	14	0	4	0	4	67	0	0	28	2	159	0	164	68	11	0	521
Total	59	0	7	0	11	255	0	0	134	10	563	0	602	259	38	0	1938
01:00 PM	16	0	1	0	3	67	0	0	29	0	175	0	156	67	6	0	520
01:15 PM	12	0	1	0	4	70	0	0	39	2	168	0	152	63	5	0	516
01:30 PM	16	0	1	0	9	70	0	0	32	0	153	0	124	79	11	0	495
01:45 PM	9	0	2	0	0	63	0	0	38	2	169	0	137	57	11	0	488
Total	53	0	5	0	16	270	0	0	138	4	665	0	569	266	33	0	2019
Grand Total	150	0	17	0	38	712	0	0	373	21	1645	0	1609	776	98	0	5439
Apprch %	89.8	0	10.2	0	5.1	94.9	0	0	18.3	1	80.7	0	64.8	31.3	3.9	0	
Total %	2.8	0	0.3	0	0.7	13.1	0	0	6.9	0.4	30.2	0	29.6	14.3	1.8	0	

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds					
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	14	0	4	0	18	4	67	0	0	71	28	2	159	0	189	164	68	11	0	243	521
01:00 PM	16	0	1	0	17	3	67	0	0	70	29	0	175	0	204	156	67	6	0	229	520
01:15 PM	12	0	1	0	13	4	70	0	0	74	39	2	168	0	209	152	63	5	0	220	516
01:30 PM	16	0	1	0	17	9	70	0	0	79	32	0	153	0	185	124	79	11	0	214	495
Total Volume	58	0	7	0	65	20	274	0	0	294	128	4	655	0	787	596	277	33	0	906	2052
% App. Total	89.2	0	10.8	0		6.8	93.2	0	0		16.3	0.5	83.2	0		65.8	30.6	3.6	0		
PHF	.906	.000	.438	.000	.903	.556	.979	.000	.000	.930	.821	.500	.936	.000	.941	.909	.877	.750	.000	.932	.985

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 Client: McM/L. Young

File Name : 05531AA
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Trucks & Buses

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
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	1	0	0	0	0	0	0	0	1
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	1	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
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	1	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	3
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	5
Apprch %	0	0	0	0	0	0	0	0	50	0	50	0	33.3	33.3	33.3	0	
Total %	0	0	0	0	0	0	0	0	20	0	20	0	20	20	20	0	

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
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	1	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	3
% App. Total	0	0	0	0	0	0	0	0	50	0	50	0	0	100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.750

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:15 AM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: CF Drive/Mall Drive
 E/W: West Natick Road
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531AA
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Bikes by Direction

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
11:00 AM	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
11:30 AM	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
Total	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
12:15 PM	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
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %																		

Start Time	Cumberland Farms Shared Access From North				West Natick Road From East				Warwick Mall Limited Access (Macy's) From South				West Natick Road From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
11:00 AM	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
11:30 AM	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
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

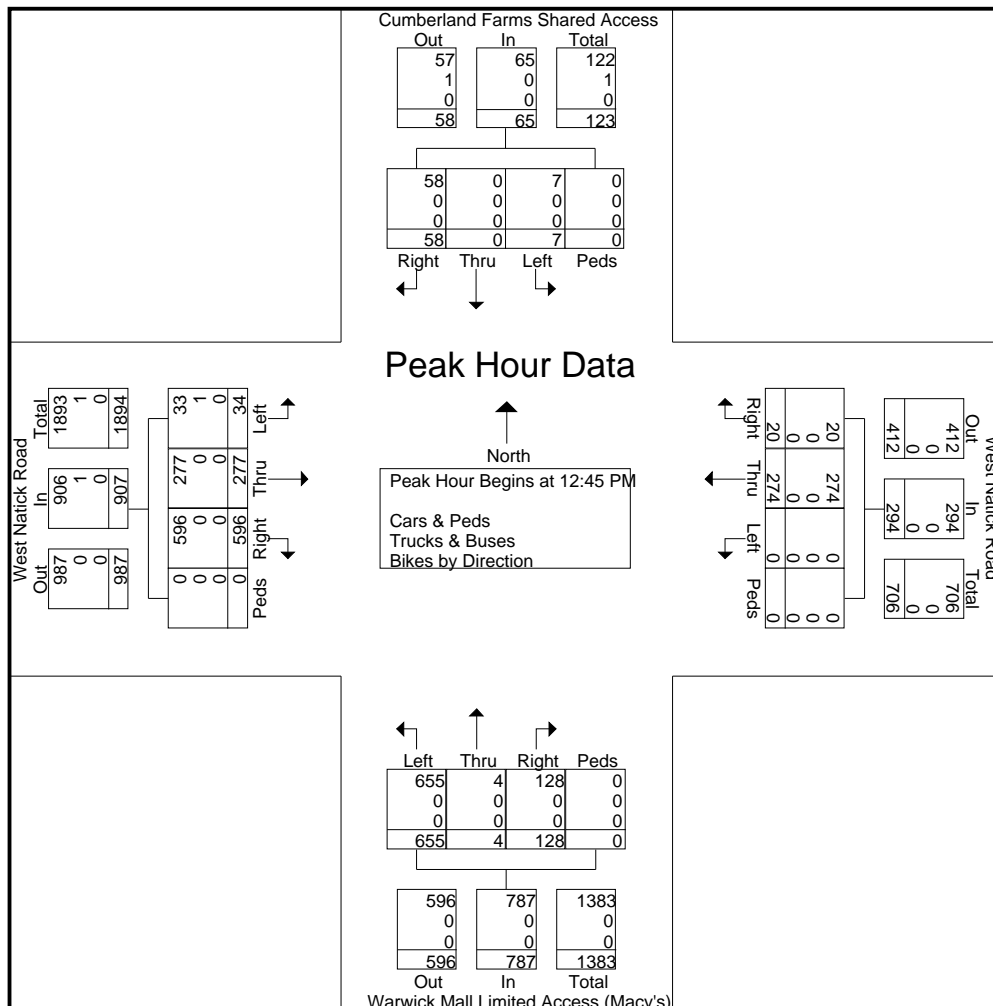
Peak Hour for Entire Intersection Begins at 11:00 AM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: CF Drive/Mall Drive
 E/W: West Natick Road
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531AA
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Start Time	Cumberland Farms Shared Access From North					West Natick Road From East					Warwick Mall Limited Access (Macy's) From South					West Natick Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	14	0	4	0	18	4	67	0	0	71	28	2	159	0	189	164	68	12	0	244	522
01:00 PM	16	0	1	0	17	3	67	0	0	70	29	0	175	0	204	156	67	6	0	229	520
01:15 PM	12	0	1	0	13	4	70	0	0	74	39	2	168	0	209	152	63	5	0	220	516
01:30 PM	16	0	1	0	17	9	70	0	0	79	32	0	153	0	185	124	79	11	0	214	495
Total Volume	58	0	7	0	65	20	274	0	0	294	128	4	655	0	787	596	277	34	0	907	2053
% App. Total	89.2	0	10.8	0		6.8	93.2	0	0		16.3	0.5	83.2	0		65.7	30.5	3.7	0		
PHF	.906	.000	.438	.000	.903	.556	.979	.000	.000	.930	.821	.500	.936	.000	.941	.909	.877	.708	.000	.929	.983
Cars & Peds	58	0	7	0	65	20	274	0	0	294	128	4	655	0	787	596	277	33	0	906	2052
% Cars & Peds	100	0	100	0	100	100	100	0	0	100	100	100	100	0	100	100	100	97.1	0	99.9	100.0
Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9	0	0.1	0.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531B
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Cars & Peds

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	8	173	0	0	2	0	3	1	3	170	9	1	7	1	9	0	387
04:15 PM	7	160	0	0	0	0	3	0	0	155	8	0	8	0	4	1	346
04:30 PM	13	148	1	0	3	0	0	0	0	174	12	0	12	0	13	0	376
04:45 PM	10	153	1	0	0	0	2	0	1	166	7	0	12	1	4	1	358
Total	38	634	2	0	5	0	8	1	4	665	36	1	39	2	30	2	1467
05:00 PM	15	159	1	0	4	0	1	0	0	169	7	0	11	1	9	0	377
05:15 PM	11	170	1	0	3	1	1	0	2	166	6	0	10	0	7	0	378
05:30 PM	5	132	2	0	0	0	2	0	1	158	7	0	8	0	7	0	322
05:45 PM	9	134	0	2	1	0	1	0	0	139	3	0	11	0	7	1	308
Total	40	595	4	2	8	1	5	0	3	632	23	0	40	1	30	1	1385
Grand Total	78	1229	6	2	13	1	13	1	7	1297	59	1	79	3	60	3	2852
Apprch %	5.9	93.5	0.5	0.2	46.4	3.6	46.4	3.6	0.5	95.1	4.3	0.1	54.5	2.1	41.4	2.1	
Total %	2.7	43.1	0.2	0.1	0.5	0	0.5	0	0.2	45.5	2.1	0	2.8	0.1	2.1	0.1	

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds					
04:30 PM	13	148	1	0	162	3	0	0	0	3	0	174	12	0	186	12	0	13	0	25	376
04:45 PM	10	153	1	0	164	0	0	2	0	2	1	166	7	0	174	12	1	4	1	18	358
05:00 PM	15	159	1	0	175	4	0	1	0	5	0	169	7	0	176	11	1	9	0	21	377
05:15 PM	11	170	1	0	182	3	1	1	0	5	2	166	6	0	174	10	0	7	0	17	378
Total Volume	49	630	4	0	683	10	1	4	0	15	3	675	32	0	710	45	2	33	1	81	1489
% App. Total	7.2	92.2	0.6	0		66.7	6.7	26.7	0		0.4	95.1	4.5	0		55.6	2.5	40.7	1.2		
PHF	.817	.926	1.00	.000	.938	.625	.250	.500	.000	.750	.375	.970	.667	.000	.954	.938	.500	.635	.250	.810	.985

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531B
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Trucks & Buses

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
04:00 PM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	7
04:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
Total	0	8	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	15
05:00 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4
05:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
05:45 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
Total	0	8	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	13
Grand Total	0	16	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	28
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	
Total %	0	57.1	0	0	0	0	0	0	0	42.9	0	0	0	0	0	0	0	

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds					
04:00 PM	0	4	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	7
04:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	3
04:45 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	3
Total Volume	0	8	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	15
% App. Total	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.583	.000	.000	.583	.000	.000	.000	.000	.000	.000	.536

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Transportation Data Corporation
 Mario Perone, mperone1@verizon.net
 tel (781) 587-0086 cell (781) 439-4999

N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531B
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Groups Printed- Bikes by Direction

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

Start Time	Lambert Lind Highway (Route 5) From North					Ross Simons Plaza Drive From East					Lambert Lind Highway (Route 5) From South					Cumberland Farms Driveway From West					Int. Total
	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Transportation Data Corporation

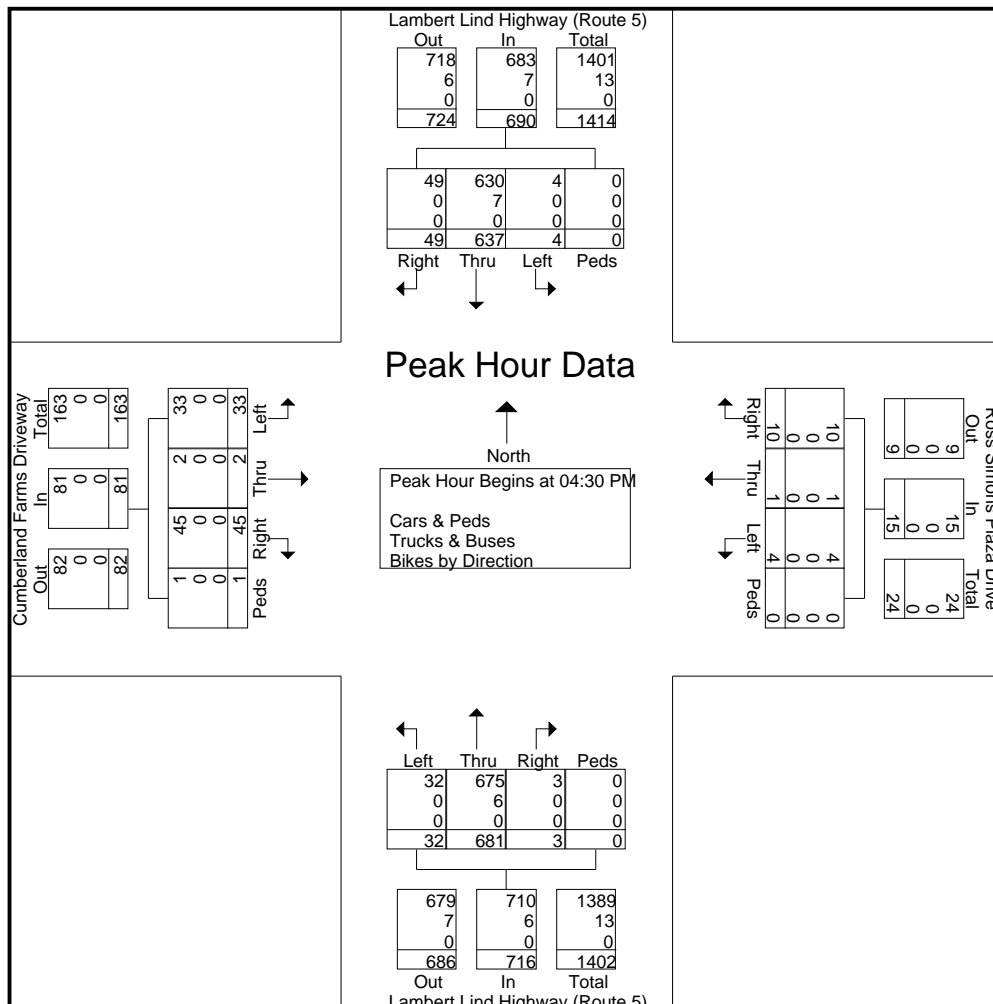
Mario Perone, mperone1@verizon.net

tel (781) 587-0086 cell (781) 439-4999

N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531B
 Site Code : Y2226211
 Start Date : 3/15/2022
 Page No : 1

Start Time	Lambert Lind Highway (Route 5) From North					Ross Simons Plaza Drive From East					Lambert Lind Highway (Route 5) From South					Cumberland Farms Driveway From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	13	149	1	0	163	3	0	0	0	3	0	176	12	0	188	12	0	13	0	25	379
04:45 PM	10	154	1	0	165	0	0	2	0	2	1	168	7	0	176	12	1	4	1	18	361
05:00 PM	15	161	1	0	177	4	0	1	0	5	0	171	7	0	178	11	1	9	0	21	381
05:15 PM	11	173	1	0	185	3	1	1	0	5	2	166	6	0	174	10	0	7	0	17	381
Total Volume	49	637	4	0	690	10	1	4	0	15	3	681	32	0	716	45	2	33	1	81	1502
% App. Total	7.1	92.3	0.6	0		66.7	6.7	26.7	0		0.4	95.1	4.5	0		55.6	2.5	40.7	1.2		
PHF	.817	.921	1.00	.000	.932	.625	.250	.500	.000	.750	.375	.967	.667	.000	.952	.938	.500	.635	.250	.810	.986
Cars & Peds	49	630	4	0	683	10	1	4	0	15	3	675	32	0	710	45	2	33	1	81	1489
% Cars & Peds	100	98.9	100	0	99.0	100	100	100	0	100	100	99.1	100	0	99.2	100	100	100	100	100	99.1
Trucks & Buses	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	13
% Trucks & Buses	0	1.1	0	0	1.0	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0.9
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531BB
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Cars & Peds

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	12	153	0	1	0	1	0	1	1	152	3	0	12	0	5	0	341
11:15 AM	3	148	1	0	1	0	0	0	0	165	5	0	7	0	3	0	333
11:30 AM	13	149	2	2	1	0	1	0	3	143	5	0	10	0	6	0	335
11:45 AM	20	164	0	0	2	0	0	0	0	145	9	0	12	0	11	2	365
Total	48	614	3	3	4	1	1	1	4	605	22	0	41	0	25	2	1374
12:00 PM	16	164	0	0	0	0	1	0	0	166	6	0	15	0	7	0	375
12:15 PM	7	172	2	0	1	0	2	0	0	179	8	0	7	0	6	0	384
12:30 PM	13	174	1	0	1	0	3	1	0	152	7	2	7	0	5	0	366
12:45 PM	14	198	1	0	1	0	2	0	1	169	6	1	10	0	4	1	408
Total	50	708	4	0	3	0	8	1	1	666	27	3	39	0	22	1	1533
01:00 PM	9	182	1	0	1	0	1	1	1	182	7	1	6	0	5	3	400
01:15 PM	14	184	0	0	1	0	1	0	1	164	7	0	13	0	5	0	390
01:30 PM	9	177	3	1	2	0	0	0	2	177	5	1	10	0	7	1	395
01:45 PM	6	204	1	0	0	1	1	0	0	179	5	0	9	0	6	0	412
Total	38	747	5	1	4	1	3	1	4	702	24	2	38	0	23	4	1597
Grand Total	136	2069	12	4	11	2	12	3	9	1973	73	5	118	0	70	7	4504
Apprch %	6.1	93.2	0.5	0.2	39.3	7.1	42.9	10.7	0.4	95.8	3.5	0.2	60.5	0	35.9	3.6	
Total %	3	45.9	0.3	0.1	0.2	0	0.3	0.1	0.2	43.8	1.6	0.1	2.6	0	1.6	0.2	

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total				
	Right		Peds	App. Total	Right		Peds	App. Total	Right		Peds	App. Total	Right		Peds	App. Total					
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	9	182	1	0	192	1	0	1	1	3	1	182	7	1	191	6	0	5	3	14	400
01:15 PM	14	184	0	0	198	1	0	1	0	2	1	164	7	0	172	13	0	5	0	18	390
01:30 PM	9	177	3	1	190	2	0	0	0	2	2	177	5	1	185	10	0	7	1	18	395
01:45 PM	6	204	1	0	211	0	1	1	0	2	0	179	5	0	184	9	0	6	0	15	412
Total Volume	38	747	5	1	791	4	1	3	1	9	4	702	24	2	732	38	0	23	4	65	1597
% App. Total	4.8	94.4	0.6	0.1		44.4	11.1	33.3	11.1		0.5	95.9	3.3	0.3		58.5	0	35.4	6.2		
PHF	.679	.915	.417	.250	.937	.500	.250	.750	.250	.750	.500	.964	.857	.500	.958	.731	.000	.821	.333	.903	.969

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N/S: Lambert Lind Hwy. (Route 5)
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 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531BB
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Trucks & Buses

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
11:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
11:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
11:30 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	0	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	10
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3
Total	0	4	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	8
01:00 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
01:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
01:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	8
Grand Total	0	11	0	0	0	0	0	0	0	14	0	0	0	1	0	0	0	26
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	
Total %	0	42.3	0	0	0	0	0	0	0	53.8	0	0	0	3.8	0	0	0	

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
11:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
11:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
11:30 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total Volume	0	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	10
% App. Total	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.750	.000	.000	.750	.000	.000	.000	.000	.833

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:00 AM

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N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531BB
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Groups Printed- Bikes by Direction

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
12:00 PM	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
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
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
Total %	0	50	0	0	0	0	0	0	0	0	0	0	50	0	0	0	

Start Time	Lambert Lind Highway (Route 5) From North				Ross Simons Plaza Drive From East				Lambert Lind Highway (Route 5) From South				Cumberland Farms Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
% App. Total	0	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
PHF	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.500

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:00 AM

Transportation Data Corporation

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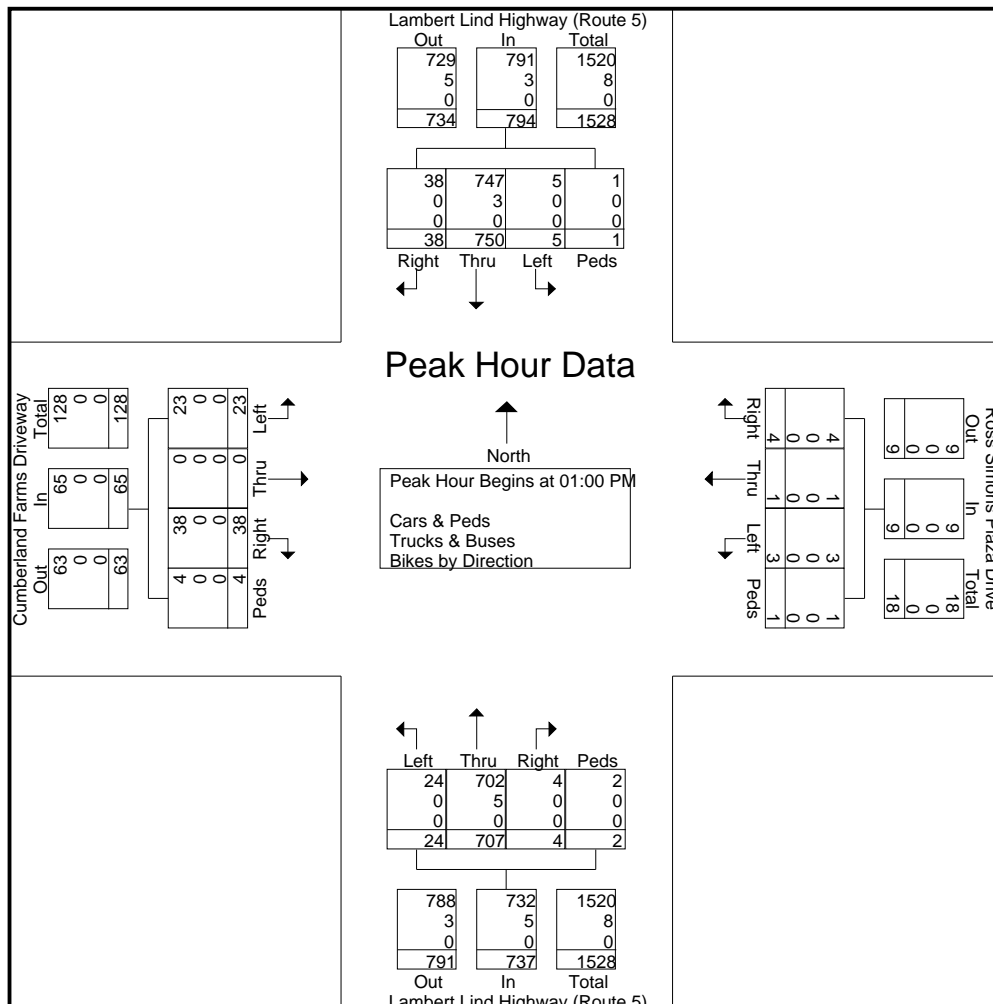
N/S: Lambert Lind Hwy. (Route 5)
 E/W: Plaza Drive/Cumberland Farms Drive
 City, State: Warwick, RI
 Client: McM/L. Young

File Name : 05531BB
 Site Code : Y2226211
 Start Date : 3/19/2022
 Page No : 1

Start Time	Lambert Lind Highway (Route 5) From North					Ross Simons Plaza Drive From East					Lambert Lind Highway (Route 5) From South					Cumberland Farms Driveway From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
01:00 PM	9	183	1	0	193	1	0	1	1	3	1	184	7	1	193	6	0	5	3	14	403
01:15 PM	14	186	0	0	200	1	0	1	0	2	1	164	7	0	172	13	0	5	0	18	392
01:30 PM	9	177	3	1	190	2	0	0	0	2	2	179	5	1	187	10	0	7	1	18	397
01:45 PM	6	204	1	0	211	0	1	1	0	2	0	180	5	0	185	9	0	6	0	15	413
Total Volume	38	750	5	1	794	4	1	3	1	9	4	707	24	2	737	38	0	23	4	65	1605
% App. Total	4.8	94.5	0.6	0.1		44.4	11.1	33.3	11.1		0.5	95.9	3.3	0.3		58.5	0	35.4	6.2		
PHF	.679	.919	.417	.250	.941	.500	.250	.750	.250	.750	.500	.961	.857	.500	.955	.731	.000	.821	.333	.903	.972
Cars & Peds	38	747	5	1	791	4	1	3	1	9	4	702	24	2	732	38	0	23	4	65	1597
% Cars & Peds	100	99.6	100	100	99.6	100	100	100	100	100	100	99.3	100	100	99.3	100	0	100	100	100	99.5
Trucks & Buses	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	8
% Trucks & Buses	0	0.4	0	0	0.4	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0.5
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 01:00 PM



Traffic Projection Model

TRAFFIC PROJECTION MODEL

Weekday Afternoon Peak Hour
Proposed Car Wash
Warwick, RI

Intersection	Dir.	Turn	2021 Counted Volumes	Sesonal Adj. 1.04	2021 Existing Volumes	Background Growth 7 yrs (at 1.0% per year)	2028 No Build Volumes	New Project Trips PERCENT ENTER	New Project Trips Trips ENTER	New Project Trips PERCENT EXIT	New Project Trips Trips EXIT	New Project Trips TOTAL	Pass-by Trips	2028 Build Volumes
West Natick Road at Cumberland Farms Driveway/ Mall Driveway	EB	L	32		32		32	30%	7		0	7		39
		T	302		302	22	324		0		0	0		324
	WB	T	284		284	20	304		0		0	0		304
		R	9		9		9	10%	2		0	2		11
	NB	L	391		391		391		0		0	0		391
		T	15		15		15		0		0	0		15
		R	77		77		77		0		0	0		77
	SB	L	3		3		3		0	20%	5	5		8
		R	56		56		56		0	45%	10	10		66
	Lambert Lind Highway (Route 5) at Cumberland Farms Driveway/ Plaza Driveway	EB	L	33		33		33		0	5%	1	1	
		T	2		2		2		0		0	0		2
		R	45		45		45		0	30%	7	7		52
WB		L	4		4		4		0		0	0		4
		T	1		1		1		0		0	0		1
		R	10		10		10		0		0	0		10
NB		L	32		32		32	25%	6		0	6		38
		T	681	27	708	51	759		0	15%	3	3		762
		R	3		3		3		0		0	0		3
SB		L	4		4		4		0		0	0		4
	T	637	25	662	48	710		0		0	0		710	
	R	49		49		49	35%	8		0	8		57	

Peak Hour: 4:30 PM to 5:30 PM

TRAFFIC PROJECTION MODEL

Saturday Midday Peak Hour
Proposed Car Wash
Warwick, RI

Intersection	Dir.	Turn	2021 Counted Volumes	Sesonal Adj. 1.04	2021 Existing Volumes	Background Growth 7 yrs (at 1.0% per year)	2028 No Build Volumes	New Project Trips PERCENT ENTER	New Project Trips Trips ENTER	New Project Trips PERCENT EXIT	New Project Trips Trips EXIT	New Project Trips TOTAL	Pass-by Trips	2028 Build Volumes
West Natick Road at Cumberland Farms Driveway/ Mall Driveway	EB	L	34		34		34	30%	15		0	15		49
		T	277		277	20	297		0		0	0		297
	WB	T	274		274	20	294		0		0	0		294
		R	20		20		20	10%	5		0	5		25
	NB	L	655		655		655		0		0	0		655
		T	4		4		4		0		0	0		4
		R	128		128		128		0		0	0		128
	SB	L	7		7		7		0	20%	10	10		17
		R	58		58		58		0	45%	22	22		80
	Lambert Lind Highway (Route 5) at Cumberland Farms Driveway/ Plaza Driveway	EB	L	23		23		23		0	5%	2	2	
		T	0		0		0		0		0	0		0
		R	38		38		38		0	30%	15	15		53
WB		L	3		3		3		0		0	0		3
		T	1		1		1		0		0	0		1
		R	4		4		4		0		0	0		4
NB		L	24		24		24	25%	12		0	12		36
		T	707	28	735	53	788		0	15%	7	7		795
		R	4		4		4		0		0	0		4
SB		L	5		5		5		0		0	0		5
	T	750	30	780	56	836		0		0	0		836	
	R	38		38		38	35%	17		0	17		55	

Peak Hour: 12:45 PM to 1:45 PM

Field Study Data

INTERSECTION DELAY STUDY

FIELD SHEET

Location CF Warwick

Approach Rte 5 Driveway

Movement EB

Date 3/19/2022

Weather Cloudy

Study No. _____

Observer EKB

Time (minute starting at)	Total Number of Vehicles Stopped in the Approach at Time:				Approach Volume	
	+0 sec	+15 sec	+30 sec	+45 sec	Number Stopped	Number Not Stopping
12:00 PM	1	1	0	0	1	
12:01 PM	0	0	1	1	3	
12:02 PM	1	0	0	0	1	
12:03 PM	0	0	0	0	1	
12:04 PM	0	2	2	1	4	
12:05 PM	1	1	0	0	1	
12:06 PM	0	0	1	0	1	
12:07 PM	0	0	0	0	0	
12:08 PM	0	0	0	0	0	
12:09 PM	0	0	0	0	0	
12:10 PM	1	1	3	1	4	
12:11 PM	0	1	1	0	2	
12:12 PM	0	0	0	0	1	
12:13 PM	0	0	1	1	1	
12:14 PM	0	0	1	0	2	
12:15 PM	0	0	0	0	0	
12:16 PM	0	0	0	0	0	
12:17 PM	0	0	0	0	0	
12:18 PM	0	0	0	1	1	
12:19 PM	0	0	0	0	0	
12:20 PM	0	0	0	0	0	
12:21 PM	0	0	0	0	1	
12:22 PM	1	0	0	1	2	
12:23 PM	0	0	0	1	1	
12:24 PM	1	0	0	0	0	
12:25 PM	0	0	0	0	0	
12:26 PM	0	0	2	3	3	

INTERSECTION DELAY STUDY

FIELD SHEET

Location CF Warwick

Approach Rte 5 Driveway

Movement EB

Date 3/19/2022

Weather Cloudy

Study No. _____

Observer EKB

Time (minute starting at)	Total Number of Vehicles Stopped in the Approach at Time:				Approach Volume	
	+0 sec	+15 sec	+30 sec	+45 sec	Number Stopped	Number Not Stopping
12:27 PM	3	1	0	0	0	
12:28 PM	0	0	0	0	0	
12:29 PM	0	0	0	0	3	
Subtotal	9	7	12	10	33	
Total	38				33	

VEHICLE DELAY CALCULATIONS

Total Delay = Total Number Stopped x Sampling Interval

$$= \underline{38} \times 15 = \underline{570} \text{ veh-sec}$$

Average Delay per Stopped Vehicle = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$$= \underline{570/33} = \underline{17.3} \text{ sec.}$$

QUEUE LENGTH CALCULATIONS

	No. of Veh	Length (ft)*
50th Percentile	0.00	0
95th Percentile	1.05	26
Max Queue	3.00	75

*assuming a vehicle length of 25 feet

Capacity/Level-of-Service Analysis

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
Timing Plan: 2022 Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕	
Traffic Volume (vph)	32	302	0	0	284	9	391	15	77	3	0	56
Future Volume (vph)	32	302	0	0	284	9	391	15	77	3	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3560	0	0	3592	0	1715	1726	1615	0	1652	0
Flt Permitted		0.900					0.950	0.956			0.997	
Satd. Flow (perm)	0	3220	0	0	3592	0	1715	1726	1615	0	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				143			82
Link Speed (mph)		30			30			30				30
Link Distance (ft)		419			369			273				389
Travel Time (s)		9.5			8.4			6.2				8.8
Peak Hour Factor	0.98	0.98	0.98	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							48%					
Lane Group Flow (vph)	0	341	0	0	345	0	221	220	84	0	74	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		19.5	19.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		45.5			45.5		16.1	16.1	80.0		7.2	
Actuated g/C Ratio		0.57			0.57		0.20	0.20	1.00		0.09	
v/c Ratio		0.19			0.17		0.64	0.63	0.05		0.33	
Control Delay		10.8			10.5		36.8	36.5	0.1		12.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		10.8			10.5		36.8	36.5	0.1		12.0	
LOS		B			B		D	D	A		B	
Approach Delay		10.8			10.5			30.8			12.0	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		41			41		109	108	0		0	
Queue Length 95th (ft)		87			81		152	151	0		25	
Internal Link Dist (ft)		339			289			193			309	
Turn Bay Length (ft)												
Base Capacity (vph)		1829			2042		610	614	1615		327	

CF Warwick Car Wash
 6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
 Timing Plan: 2022 Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.19			0.17		0.36	0.36	0.05		0.23	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	19.0
Intersection LOS:	B
Intersection Capacity Utilization	54.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



CF Warwick Car Wash
4: Lambert Lind Highway & Site Driveway/Soule Street

Weekday PM
Timing Plan: 2022 Existing

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	33	2	45	4	1	10	32	708	3	4	662	49
Future Vol, veh/h	33	2	45	4	1	10	32	708	3	4	662	49
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	95	95	95	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	41	2	56	5	1	13	34	745	3	4	712	53

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1189	1564	384	1180	1589	374	766	0	0	748	0	0
Stage 1	748	748	-	815	815	-	-	-	-	-	-	-
Stage 2	441	816	-	365	774	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	146	113	620	148	109	629	856	-	-	870	-	-
Stage 1	375	423	-	342	394	-	-	-	-	-	-	-
Stage 2	570	393	-	632	411	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	137	107	619	128	104	629	855	-	-	870	-	-
Mov Cap-2 Maneuver	137	107	-	128	104	-	-	-	-	-	-	-
Stage 1	360	419	-	328	378	-	-	-	-	-	-	-
Stage 2	535	377	-	567	407	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.9		19.7		0.4		0.1	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	855	-	-	241	264	870	-	-
HCM Lane V/C Ratio	0.039	-	-	0.41	0.071	0.005	-	-
HCM Control Delay (s)	9.4	-	-	29.9	19.7	9.2	0	-
HCM Lane LOS	A	-	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	0.2	0	-	-

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Saturday Midday
Timing Plan: 2022 Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕↕	
Traffic Volume (vph)	34	277	0	0	274	20	655	4	128	7	0	58
Future Volume (vph)	34	277	0	0	274	20	655	4	128	7	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3580	0	0	3574	0	1715	1720	1615	0	1662	0
Flt Permitted		0.893					0.950	0.953			0.994	
Satd. Flow (perm)	0	3213	0	0	3574	0	1715	1720	1615	0	1662	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10				143			82
Link Speed (mph)		30			30			30				30
Link Distance (ft)		243			369			342				389
Travel Time (s)		5.5			8.4			7.8				8.8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	0	335	0	0	317	0	348	353	136	0	72	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		22.5	22.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		40.2			40.2		21.4	21.4	80.0			7.2
Actuated g/C Ratio		0.50			0.50		0.27	0.27	1.00			0.09
v/c Ratio		0.21			0.18		0.76	0.77	0.08			0.32
Control Delay		13.7			13.0		37.4	37.9	0.1			11.5
Queue Delay		0.0			0.0		0.0	0.0	0.0			0.0
Total Delay		13.7			13.0		37.4	37.9	0.1			11.5
LOS		B			B		D	D	A			B
Approach Delay		13.7			13.0			31.5				11.5
Approach LOS		B			B			C				B
Queue Length 50th (ft)		48			44		168	171	0			0
Queue Length 95th (ft)		92			83		232	235	0			32
Internal Link Dist (ft)		163			289			262				309
Turn Bay Length (ft)												
Base Capacity (vph)		1615			1801		611	613	1615			328

CF Warwick Car Wash
 6: Warwick Mall egress/Site Driveway & W. Natick Road

Saturday Midday
 Timing Plan: 2022 Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.21			0.18		0.57	0.58	0.08		0.22	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	23.0
Intersection LOS:	C
Intersection Capacity Utilization	61.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



CF Warwick Car Wash
 4: Lambert Lind Highway & Site Driveway/Soule Street

Saturday Midday
 Timing Plan: 2022 Existing

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	23	0	38	3	1	4	24	735	4	5	780	38
Future Vol, veh/h	23	0	38	3	1	4	24	735	4	5	780	38
Conflicting Peds, #/hr	1	0	2	2	0	1	1	0	4	4	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	26	0	42	4	1	5	25	766	4	5	830	40

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1296	1685	438	1249	1703	390	871	0	0	774	0	0
Stage 1	861	861	-	822	822	-	-	-	-	-	-	-
Stage 2	435	824	-	427	881	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	122	95	572	132	93	614	783	-	-	851	-	-
Stage 1	321	375	-	339	391	-	-	-	-	-	-	-
Stage 2	575	390	-	581	367	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	116	91	571	118	89	611	782	-	-	848	-	-
Mov Cap-2 Maneuver	116	91	-	118	89	-	-	-	-	-	-	-
Stage 1	310	370	-	327	377	-	-	-	-	-	-	-
Stage 2	550	376	-	531	362	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	27.1		25.6		0.3		0.2	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	782	-	-	230	185	848	-	-
HCM Lane V/C Ratio	0.032	-	-	0.295	0.054	0.006	-	-
HCM Control Delay (s)	9.8	-	-	27.1	25.6	9.3	0.1	-
HCM Lane LOS	A	-	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.2	0	-	-

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
Timing Plan: 2029 No Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕↕	
Traffic Volume (vph)	32	324	0	0	304	9	391	15	77	3	0	56
Future Volume (vph)	32	324	0	0	304	9	391	15	77	3	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3560	0	0	3596	0	1715	1726	1615	0	1652	0
Flt Permitted		0.901					0.950	0.956			0.997	
Satd. Flow (perm)	0	3223	0	0	3596	0	1715	1726	1615	0	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				143			82
Link Speed (mph)		30			30			30				30
Link Distance (ft)		419			369			273				389
Travel Time (s)		9.5			8.4			6.2				8.8
Peak Hour Factor	0.98	0.98	0.98	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							48%					
Lane Group Flow (vph)	0	364	0	0	369	0	221	220	84	0	74	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		19.5	19.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		45.5			45.5		16.1	16.1	80.0			7.2
Actuated g/C Ratio		0.57			0.57		0.20	0.20	1.00			0.09
v/c Ratio		0.20			0.18		0.64	0.63	0.05			0.33
Control Delay		10.9			10.6		36.8	36.5	0.1			12.0
Queue Delay		0.0			0.0		0.0	0.0	0.0			0.0
Total Delay		10.9			10.6		36.8	36.5	0.1			12.0
LOS		B			B		D	D	A			B
Approach Delay		10.9			10.6			30.8				12.0
Approach LOS		B			B			C				B
Queue Length 50th (ft)		44			44		109	108	0			0
Queue Length 95th (ft)		94			86		152	151	0			25
Internal Link Dist (ft)		339			289			193				309
Turn Bay Length (ft)												
Base Capacity (vph)		1831			2045		610	614	1615			327

CF Warwick Car Wash
 6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
 Timing Plan: 2029 No Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.20			0.18		0.36	0.36	0.05		0.23	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	18.7
Intersection LOS:	B
Intersection Capacity Utilization	54.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



CF Warwick Car Wash
4: Lambert Lind Highway & Site Driveway/Soule Street

Weekday PM
Timing Plan: 2029 No Build

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	33	2	45	4	1	10	32	759	3	4	710	49
Future Vol, veh/h	33	2	45	4	1	10	32	759	3	4	710	49
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	95	95	95	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	41	2	56	5	1	13	34	799	3	4	763	53

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1267	1669	409	1260	1694	401	817	0	0	802	0	0
Stage 1	799	799	-	869	869	-	-	-	-	-	-	-
Stage 2	468	870	-	391	825	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	128	97	597	129	94	604	820	-	-	830	-	-
Stage 1	350	401	-	317	372	-	-	-	-	-	-	-
Stage 2	550	372	-	610	390	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	119	92	597	110	89	604	819	-	-	830	-	-
Mov Cap-2 Maneuver	119	92	-	110	89	-	-	-	-	-	-	-
Stage 1	335	397	-	304	356	-	-	-	-	-	-	-
Stage 2	514	356	-	545	386	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	35.5		21.7		0.4		0	
HCM LOS	E		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	819	-	-	214	234	830	-	-
HCM Lane V/C Ratio	0.041	-	-	0.462	0.08	0.005	-	-
HCM Control Delay (s)	9.6	-	-	35.5	21.7	9.4	0	-
HCM Lane LOS	A	-	-	E	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.3	0	-	-

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Saturday Midday
Timing Plan: 2029 No Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕↕	
Traffic Volume (vph)	34	297	0	0	294	20	655	4	128	7	0	58
Future Volume (vph)	34	297	0	0	294	20	655	4	128	7	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3581	0	0	3574	0	1715	1720	1615	0	1662	0
Flt Permitted		0.893					0.950	0.953			0.994	
Satd. Flow (perm)	0	3214	0	0	3574	0	1715	1720	1615	0	1662	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9				143			82
Link Speed (mph)		30			30			30				30
Link Distance (ft)		243			369			342				389
Travel Time (s)		5.5			8.4			7.8				8.8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	0	356	0	0	338	0	348	353	136	0	72	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		22.5	22.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		40.2			40.2		21.4	21.4	80.0			7.2
Actuated g/C Ratio		0.50			0.50		0.27	0.27	1.00			0.09
v/c Ratio		0.22			0.19		0.76	0.77	0.08			0.32
Control Delay		13.8			13.1		37.4	37.9	0.1			11.5
Queue Delay		0.0			0.0		0.0	0.0	0.0			0.0
Total Delay		13.8			13.1		37.4	37.9	0.1			11.5
LOS		B			B		D	D	A			B
Approach Delay		13.8			13.1			31.5				11.5
Approach LOS		B			B			C				B
Queue Length 50th (ft)		52			47		168	171	0			0
Queue Length 95th (ft)		97			89		232	235	0			32
Internal Link Dist (ft)		163			289			262				309
Turn Bay Length (ft)												
Base Capacity (vph)		1616			1801		611	613	1615			328

CF Warwick Car Wash
 6: Warwick Mall egress/Site Driveway & W. Natick Road

Saturday Midday
 Timing Plan: 2029 No Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.22			0.19		0.57	0.58	0.08		0.22	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	22.8
Intersection LOS:	C
Intersection Capacity Utilization	61.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	23	0	38	3	1	4	24	788	4	5	836	38
Future Vol, veh/h	23	0	38	3	1	4	24	788	4	5	836	38
Conflicting Peds, #/hr	1	0	2	2	0	1	1	0	4	4	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	26	0	42	4	1	5	25	821	4	5	889	40

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1382	1799	468	1334	1817	418	930	0	0	829	0	0
Stage 1	920	920	-	877	877	-	-	-	-	-	-	-
Stage 2	462	879	-	457	940	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	105	81	547	114	79	589	744	-	-	811	-	-
Stage 1	296	352	-	314	369	-	-	-	-	-	-	-
Stage 2	554	368	-	558	345	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	99	77	546	101	75	587	743	-	-	808	-	-
Mov Cap-2 Maneuver	99	77	-	101	75	-	-	-	-	-	-	-
Stage 1	286	347	-	302	355	-	-	-	-	-	-	-
Stage 2	528	354	-	507	340	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.6	29	0.3	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	743	-	-	202	160	808	-	-
HCM Lane V/C Ratio	0.034	-	-	0.336	0.063	0.007	-	-
HCM Control Delay (s)	10	-	-	31.6	29	9.5	0.1	-
HCM Lane LOS	B	-	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	0.2	0	-	-

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
Timing Plan: 2029 Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕↕	
Traffic Volume (vph)	39	324	0	0	304	11	391	15	77	8	0	66
Future Volume (vph)	39	324	0	0	304	11	391	15	77	8	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3560	0	0	3592	0	1715	1726	1615	0	1664	0
Flt Permitted		0.886					0.950	0.956			0.995	
Satd. Flow (perm)	0	3170	0	0	3592	0	1715	1726	1615	0	1664	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5				143			83
Link Speed (mph)		30			30			30				30
Link Distance (ft)		419			369			273				389
Travel Time (s)		9.5			8.4			6.2				8.8
Peak Hour Factor	0.98	0.98	0.98	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							48%					
Lane Group Flow (vph)	0	371	0	0	371	0	221	220	84	0	93	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		19.5	19.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		45.2			45.2		16.1	16.1	80.0		7.5	
Actuated g/C Ratio		0.56			0.56		0.20	0.20	1.00		0.09	
v/c Ratio		0.21			0.18		0.64	0.63	0.05		0.40	
Control Delay		11.2			10.8		36.8	36.5	0.1		15.8	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		11.2			10.8		36.8	36.5	0.1		15.8	
LOS		B			B		D	D	A		B	
Approach Delay		11.2			10.8			30.8			15.8	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		45			44		109	108	0		5	
Queue Length 95th (ft)		98			89		152	151	0		36	
Internal Link Dist (ft)		339			289			193			309	
Turn Bay Length (ft)												
Base Capacity (vph)		1791			2031		610	614	1615		330	

CF Warwick Car Wash
 6: Warwick Mall egress/Site Driveway & W. Natick Road

Weekday PM
 Timing Plan: 2029 Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.21			0.18		0.36	0.36	0.05		0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	19.0
Intersection LOS:	B
Intersection Capacity Utilization	54.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	34	2	52	4	1	10	38	762	3	4	710	57
Future Vol, veh/h	34	2	52	4	1	10	38	762	3	4	710	57
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	95	95	95	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	42	2	64	5	1	13	40	802	3	4	763	61

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1285	1688	413	1275	1717	403	825	0	0	805	0	0
Stage 1	803	803	-	884	884	-	-	-	-	-	-	-
Stage 2	482	885	-	391	833	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	124	95	594	126	91	603	814	-	-	828	-	-
Stage 1	348	399	-	311	366	-	-	-	-	-	-	-
Stage 2	540	366	-	610	386	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	115	89	594	105	86	603	813	-	-	828	-	-
Mov Cap-2 Maneuver	115	89	-	105	86	-	-	-	-	-	-	-
Stage 1	331	395	-	296	348	-	-	-	-	-	-	-
Stage 2	501	348	-	536	382	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	37.1		22.4		0.5		0	
HCM LOS	E		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	813	-	-	217	226	828	-	-
HCM Lane V/C Ratio	0.049	-	-	0.501	0.083	0.005	-	-
HCM Control Delay (s)	9.7	-	-	37.1	22.4	9.4	0	-
HCM Lane LOS	A	-	-	E	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.5	0.3	0	-	-

CF Warwick Car Wash
6: Warwick Mall egress/Site Driveway & W. Natick Road

Saturday Midday
Timing Plan: 2029 Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕	↕		↕↕	
Traffic Volume (vph)	49	297	0	0	294	25	655	4	128	17	0	80
Future Volume (vph)	49	297	0	0	294	25	655	4	128	17	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		25
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3569	0	0	3567	0	1715	1720	1615	0	1674	0
Flt Permitted		0.861					0.950	0.953			0.991	
Satd. Flow (perm)	0	3095	0	0	3567	0	1715	1720	1615	0	1674	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12				143			89
Link Speed (mph)		30			30			30				30
Link Distance (ft)		243			369			342				389
Travel Time (s)		5.5			8.4			7.8				8.8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	0	372	0	0	343	0	348	353	136	0	108	0
Turn Type	Perm	NA			NA		Split	NA	Free	Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1								Free			
Detector Phase	1	1			1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.5	19.5			19.5		30.5	30.5		22.5	22.5	
Total Split (s)	30.0	30.0			30.0		33.0	33.0		17.0	17.0	
Total Split (%)	37.5%	37.5%			37.5%		41.3%	41.3%		21.3%	21.3%	
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lead			Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes					Yes	Yes	
Recall Mode	C-Min	C-Min			C-Min		None	None		None	None	
Act Effct Green (s)		39.7			39.7		21.4	21.4	80.0			7.8
Actuated g/C Ratio		0.50			0.50		0.27	0.27	1.00			0.10
v/c Ratio		0.24			0.19		0.76	0.77	0.08			0.45
Control Delay		14.6			13.6		37.4	37.9	0.1			17.1
Queue Delay		0.0			0.0		0.0	0.0	0.0			0.0
Total Delay		14.6			13.6		37.4	37.9	0.1			17.1
LOS		B			B		D	D	A			B
Approach Delay		14.6			13.6			31.5				17.1
Approach LOS		B			B			C				B
Queue Length 50th (ft)		55			47		168	171	0			9
Queue Length 95th (ft)		107			94		232	235	0			53
Internal Link Dist (ft)		163			289			262				309
Turn Bay Length (ft)												
Base Capacity (vph)		1534			1774		611	613	1615			336



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.24			0.19		0.57	0.58	0.08		0.32	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	4 (5%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	23.1
Intersection LOS:	C
Intersection Capacity Utilization	61.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 6: Warwick Mall egress/Site Driveway & W. Natick Road



CF Warwick Car Wash
 4: Lambert Lind Highway & Site Driveway/Soule Street

Saturday Midday
 Timing Plan: 2029 Build

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	25	0	53	3	1	4	36	795	4	5	836	55
Future Vol, veh/h	25	0	53	3	1	4	36	795	4	5	836	55
Conflicting Peds, #/hr	1	0	2	2	0	1	1	0	4	4	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	28	0	59	4	1	5	38	828	4	5	889	59

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1422	1842	477	1367	1869	421	949	0	0	836	0	0
Stage 1	930	930	-	910	910	-	-	-	-	-	-	-
Stage 2	492	912	-	457	959	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	98	76	540	108	73	587	732	-	-	807	-	-
Stage 1	291	349	-	300	356	-	-	-	-	-	-	-
Stage 2	532	355	-	558	338	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	91	71	539	91	68	585	731	-	-	804	-	-
Mov Cap-2 Maneuver	91	71	-	91	68	-	-	-	-	-	-	-
Stage 1	276	344	-	284	336	-	-	-	-	-	-	-
Stage 2	498	335	-	490	333	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	33.9		31.3			0.4			0.1		
HCM LOS	D		D								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	731	-	-	209	147	804	-	-
HCM Lane V/C Ratio	0.051	-	-	0.415	0.068	0.007	-	-
HCM Control Delay (s)	10.2	-	-	33.9	31.3	9.5	0.1	-
HCM Lane LOS	B	-	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.9	0.2	0	-	-