

December 8, 2020

Rick Lincoln
Coneco Engineers and Scientists
4 First Street
Bridgewater, MA 02324

RE: Peer Review Response to Comments
Proposed Residential Development
Rockland, Massachusetts

Dear Mr. Lincoln:

McMahon Associates has completed a review of the Traffic Peer Review comments completed by J. Gillon Associates dated July 27, 2020 regarding the Pond Street Apartments (since named Shingle Mill Multi-Family Development) proposed to be located at 75 - 79 Pond Street in Rockland, MA. The purpose of this letter is to provide responses to the most recent comments provided by J. Gillon Associates based on the Traffic Impact Study (TIS) McMahon completed for Coneco Engineers and Scientists in November 2019.

The proposed project calls for the development of two five-story residential buildings. One building is proposed to consist of 127 dwelling units, and the second building is proposed to consist of 109 dwelling units, for a total of 236 dwelling units. The site is also proposed to include a 3,129 square foot community building to be used by residents. As part of the proposed project, a total of 293 surface parking spaces are to be provided on site. The residential development is proposed to be accessed via a full-access driveway on the southwest side of Pond Street, approximately 300 feet northwest of Longwater Drive.

The McMahon responses to the J. Gillon Associates comments are provided below:

Comment I:

The proponent has clearly documented that their 80 vehicle trips during the morning peak hour and 101 trips during the evening peak hour would not in and of itself overload the Hingham Street signalized intersections. However, my point was not to document the incremental increase in volume and delay for Rockland residents but was intended to document the corridor volumes and signal demands so the Town is assured the corridor is operating as efficiently as possible and further, to provide a baseline condition for other developments which may be introduced beyond this project. While the actual percent increase in volume and delay may be acceptable, it would be beneficial to identify the projected best signal operating condition at the southbound ramp intersection.

After fifty years in the traffic engineering field and preparing and reviewing traffic reports for 40B projects, I fully understand these projects are given latitude in addressing documented traffic impacts. Since the proponent has already utilized the 2013 Gallery Automotive traffic study, it appears these volumes could be brought up to date generally by balancing the earlier volumes at Home Depot with those at the Pond Street intersection and not

inflating the Home Depot generation. Bear in mind that it is not so important to precisely evaluate the southbound ramp intersection as it is to identify if the corridor signal system could operate most efficiently. Therefore, I continue to encourage the proponent to add this intersection to their Study Area.

If these traffic signals are of the newer adaptive control type where the internal mini-computer controller can adjust the timing of their green light cycles to match current traffic conditions on the ground where they are constantly collecting data about approaching vehicles and creating new timing sequences to match them, they should indicate the State is willing to maintain this system. It is therefore my opinion that the intersection of Hingham Street (Rte. 228) at the southbound Route 3 Ramp/Home Depot Driveway should be added to the Study Area.

Response I:

An intersection capacity analysis was conducted for the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway to evaluate the anticipated project impacts. The latest traffic signal timing and phasing plan for the intersection was obtained from MassDOT, which indicates that the intersection is operated by a fully actuated traffic signal in coordination with existing traffic signals at the intersections of Hingham Street (Route 228) at Pond Street/MassDOT Park & Ride, and Hingham Street (Route 228) at Route 3 Northbound Ramps.

The intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway is controlled by an actuated traffic signal with five phases for vehicular traffic, including a lead left-turn phase for eastbound traffic, a phase for eastbound and westbound traffic, a lag left-turn phase for westbound traffic, a phase for southbound traffic, and a phase for northbound traffic. There are no pedestrian accommodations at the intersection. Traffic volume data for the intersection was obtained from the Traffic Impact Assessment (TIA) completed for the Wendy's Restaurant development to be located at 111 Hingham Street (Route 228) on the west side of the Home Depot parking lot. The TIS was completed by MDM Transportation Consultants, Inc. and dated February 2018.

The traffic data collected as part of the Wendy's TIA included turning movement counts (TMCs) collected on Tuesday, December 5, 2017 at the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway during the weekday midday (11:00 AM to 1:00 PM) and weekday afternoon (4:00 PM to 6:00 PM), and on Saturday, December 12, 2017 during the Saturday midday (11:00 AM to 1:00 PM) peak periods. The Wendy's TIA applied an annual growth rate of 0.5% compounded annually to the seasonally adjusted 2017 traffic volumes to analyze the 2024 Build conditions. Weekday morning peak hour traffic volumes were not collected as part of the Wendy's TIA. Based on the capacity analysis presented in the TIS prepared by McMahon in November 2019 for the Shingle Mill Multi-Family Development, traffic volumes along Hingham Street (Route 228) during the weekday afternoon peak hour were shown to be higher than during the weekday morning peak hour. Therefore the weekday afternoon peak hour analysis is considered to be the critical time period to evaluate the impacts of the project and operations of the corridor.

To remain consistent with the methodology presented in the TIS prepared for the Shingle Mill Multi-Family Development, the 2024 projected traffic volumes were grown by 1.5% compounded annually to reflect 2026 No Build conditions which were used as a basis of the supplemental traffic analysis. The 2026 No Build weekday

afternoon peak hour traffic volumes for the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway are shown in Figure 1 attached.

The vehicular trips associated with the proposed residential development were distributed through the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramp/Home Depot Driveway based on existing traffic patterns and logical travel routes, while accounting for the configuration of the Route 3 ramps in relation to the predominant movements during both the weekday morning and weekday afternoon peak hours within the study area. The resulting project arrival and departure patterns within the study area are presented in Figure 2 and the resulting distributed new project trips during the weekday afternoon peak hour are shown in Figure 3.

To establish the 2026 Build peak hour traffic volumes, the distributed new project trips were assigned to the subject intersection based on the project distribution patterns shown Figure 3. The resulting 2026 Build weekday afternoon peak hour traffic volumes for the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway are shown in Figure 4.

Capacity analyses were conducted for the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway for the 2026 No Build and 2026 Build weekday afternoon peak hour traffic conditions to evaluate the projected impacts to the intersection as a result of the proposed project. A summary of the capacity analysis results for the 2026 No Build and 2026 Build conditions are shown in Table 1 and the capacity analysis results are provided as an attachment.

**Table 1: Capacity Analysis - Hingham Street (Route 228) at
 Route 3 Southbound Ramps/Home Depot Driveway**

Weekday Afternoon Peak Hour								
Intersection	Movement		2026 No Build ⁽¹⁾			2026 Build ⁽²⁾		
			LOS ⁽³⁾	Delay ⁽⁴⁾	V/C ⁽⁵⁾	LOS	Delay	V/C
Hingham Street (Route 228) at Route 3 SB Ramps/ Home Depot Driveway	EB	L	E	64.3	0.92	E	62.2	0.91
		TR	D	42.4	0.92	D	40.5	0.90
	WB	L	D	37.7	0.36	D	40.9	0.32
		T	C	32.9	0.91	D	48.8	0.92
		R	A	0.0	0.29	A	0.5	0.31
	NB	L	E	71.6	0.68	E	69.1	0.66
		T	D	50.1	0.39	D	49.5	0.38
		R	A	2.4	0.32	A	2.0	0.30
	SB	L	E	68.2	0.95	F	81.1	1.00
		T	E	66.2	0.94	E	75.5	0.98
	R	A	0.5	0.29	A	0.5	0.29	
	Overall		D	37.8	0.80	D	42.5	0.81

(1) 2026 No Build volumes calculated using 2024 Build Traffic Volumes from Wendy’s study, grown by 1.5% annually to yield 2026 Shingle Mill No-Build conditions

(2) 2026 Build volumes calculated using 2026 No Build volumes plus vehicle trips from proposed Shingle Mill development

(3) Level-of-Service

(4) Average vehicle delay in seconds

(5) Volume to capacity ratio

As shown in Table 1, the addition of vehicular traffic associated with the proposed Shingle Mill Multi-Family Development is anticipated to result in an increase of less than six seconds of overall average vehicle delay to the signalized intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway during the weekday afternoon peak hour. The addition of vehicle trips from the proposed Shingle Mill Multi-Family Development is not anticipated to have a significant impact on operations at the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway. The optimization of the traffic signal timings at each of the three coordinated signalized intersection along the Hingham Street (Route 228) corridor may further improve overall operations.

Comment II:

The Proponent appears to indicate that while revising the trip assignments to reflect a Route 3 return trip via the Southbound Route 3 ramps and Union Point Commuter Rail Station is possible, a 25% change in either direction would only amount to approximately 25 trips and therefore would have no significant impact.

Again, I am not questioning the signal systems ability to process these vehicles but merely suggest the final report should reflect the expected volumes to assure the system is operating as efficiently as possible and provide a baseline network flow for other projects which may follow if we are not able to identify post covid-19 volumes for a while.

Response II:

The capacity analysis conducted for the intersection of Hingham Street (Route 228) at Route 3 Southbound Ramps/Home Depot Driveway presented in Response to Comment I incorporates the updated trip distribution patterns.

The addition of vehicle trips from the proposed Shingle Mill Multi-Family Development is not anticipated to have a significant impact on operations at the intersection.

Comment III:

The proponent seems to acknowledge that the proposed left-turn queue from Pond Street to Longwater Drive will continue to have back-up problems but it will work much better than without this new lane and further, the design provides maximum storage. Moreover, the Proponent appears to see some merit in our suggestion about providing a "Do Not Block the Box" treatment for the site intersection, they only indicate the team is willing to engage with the Town of Rockland to establish the final design for this mitigation. While I fully understand only the Selectmen have the authority to authorize this work, the Zoning Board of Appeals should be provided a sketch of what the improvements may look like so they may have more confidence in the design's ability to work before formulating a recommendation to the Selectmen.

Response III:

The design of the proposed left-turn queue from Pond Street to Longwater Drive are included in the plan set.

Comment IV:

The Proponent acknowledges that some residents of this project may walk to the MassDOT Car Pool Lot for a bus to Boston. They also indicate the Proponent is willing to discuss pedestrian and bicycle safety improvements with the Town of Rockland to see if any of the MassDOT potential improvements are appropriate for this site. Again, it appears it may behoove the Proponent to provide a sketch for the Zoning Board of Appeals review so they can understand the Proponent's intent and support, both off-site and on-site, to provide connectivity between the site buildings and Hingham Street sidewalks and the public transit model stations.

It appears the Proponent has reviewed the site for a fire apparatus. Although there appears to be sufficient room, I suggest the Rockland Fire Chief or his designee should review this material since I've found many Cities and Town's now have their own design fire apparatus which they like to see utilized in evaluation prior to approval.

Response IV:

The pedestrian accommodations continue to be discussed with the Town of Rockland. The heavy and emergency vehicle circulation diagrams are included in the plan set and indicate the vehicles can access and circulate within the site without encroachment on parking or on-site operations.

Comment V:

It appears there will be significant truck usage during site development prior to occupancy. The Proponent has indicated that they are willing to engage in discussions with the Town of Rockland regarding heavy vehicle activity during construction. We are somewhat concerned about the impact of heavy trucks exiting Pond Street during the morning peak hour but it would help if the Proponent would identify how many cubic yards and truckloads of hauling will be required and how he would manage this operation during the morning peak hour.

Response V:

A more detailed outline of truckload quantities will be included in the specifications as part of the project submittal. The project team has previously indicated that construction deliveries would occur outside of the morning peak hour to minimize the impact to traffic operations along Pond Street.

Please let us know if you have any additional questions.

Very truly yours,



Jeffrey T. Bandini, P.E., PTOE
Project Manager

Attachments:

- Figures
- Capacity Analysis
- LOS Summary

N

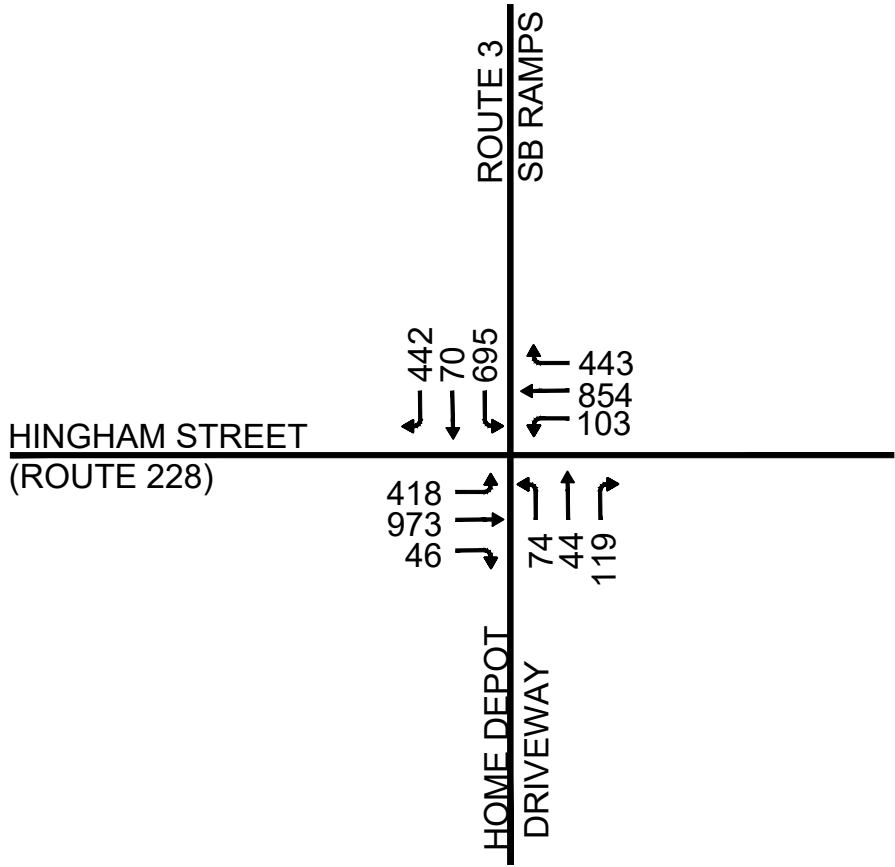


FIGURE 1 - 2026 NO BUILD WEEKDAY PM PEAK HOUR VOLUMES

RESIDENTIAL DEVELOPMENT
ROCKLAND, MASSACHUSETTS



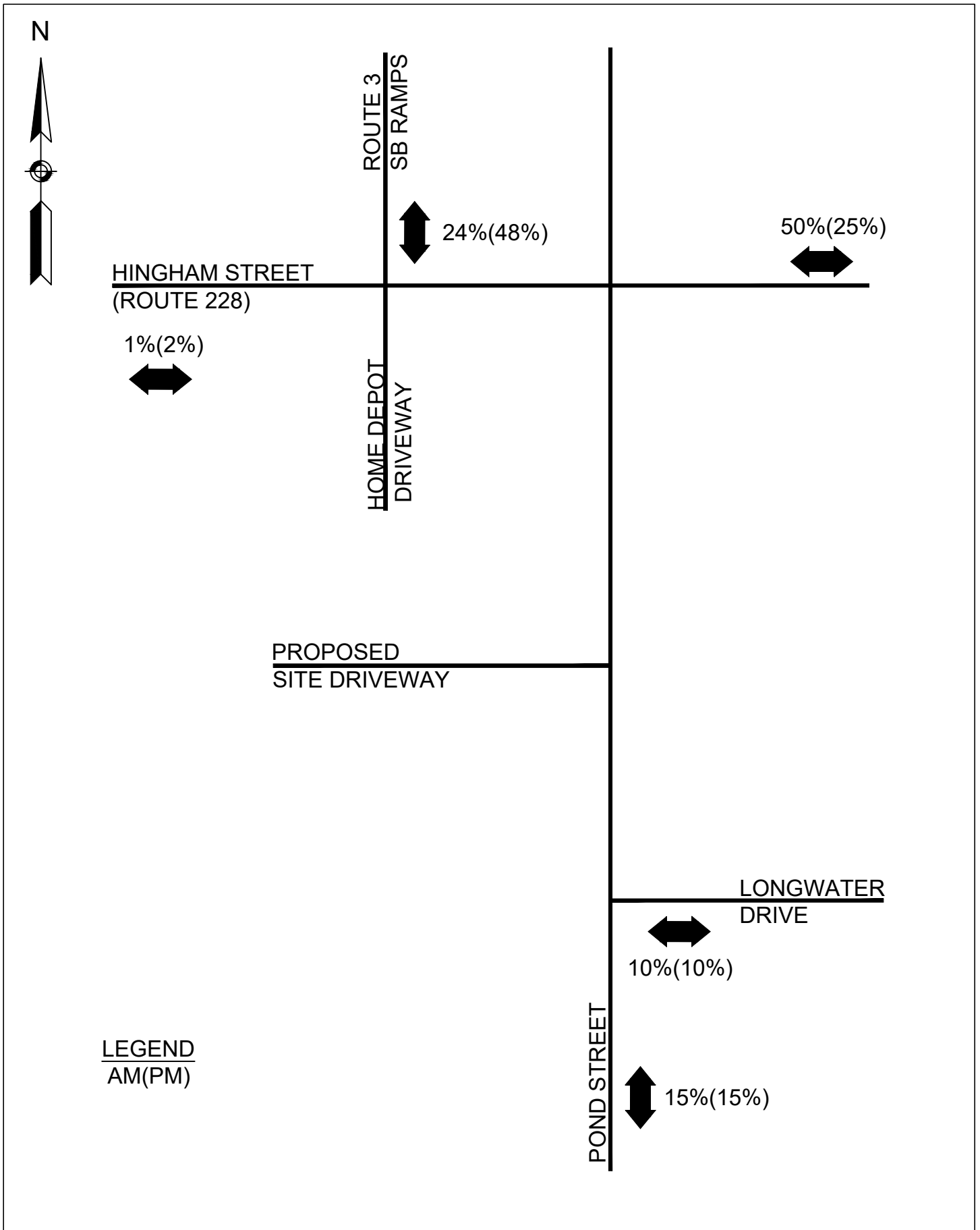
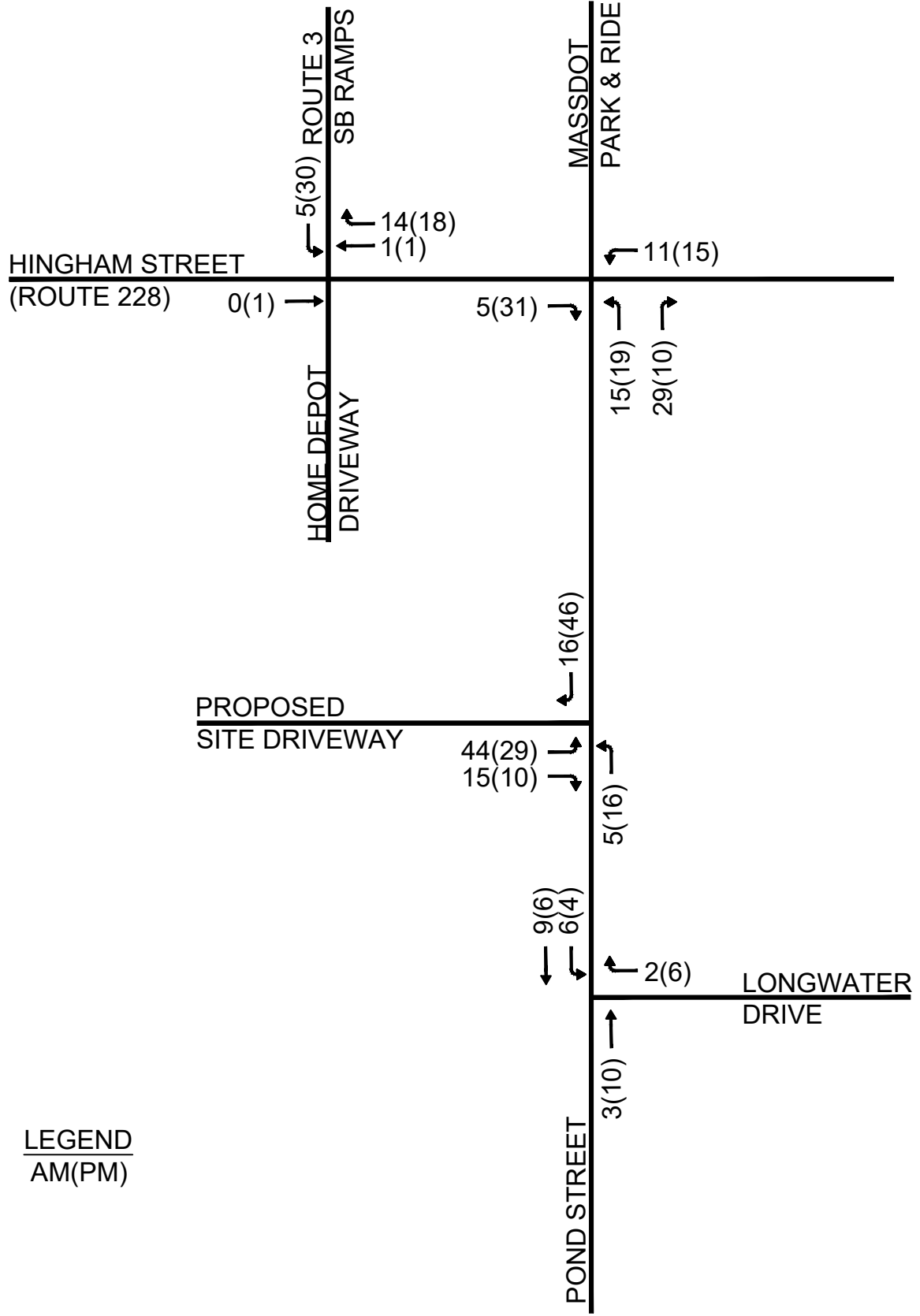


FIGURE 2 - DIRECTION OF ARRIVALS AND DEPARTURES

RESIDENTIAL DEVELOPMENT
ROCKLAND, MASSACHUSETTS





LEGEND
AM(PM)

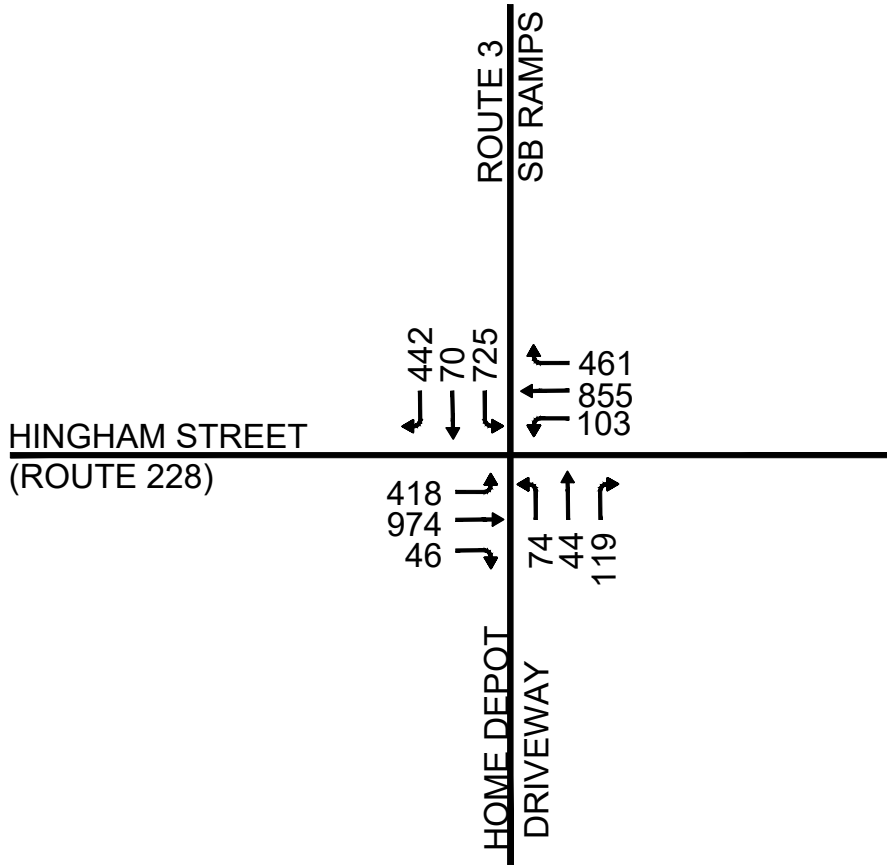


FIGURE 4 - 2026 BUILD
WEEKDAY PM PEAK HOUR VOLUMES

RESIDENTIAL DEVELOPMENT
ROCKLAND, MASSACHUSETTS

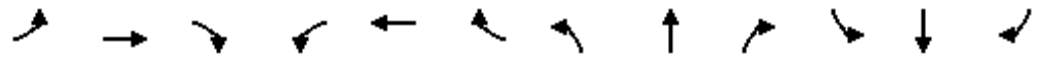


Rockland Residential Development

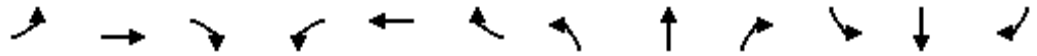
Weekday PM

10: Home Depot Driveway/Rte 3 Southbound Ramps & Hingham Street (Route 228)

2026 Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	418	974	46	103	855	461	74	44	119	725	70	422
Future Volume (vph)	418	974	46	103	855	461	74	44	119	725	70	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	11	11	11	12	12	12
Storage Length (ft)	200		0	250		400	100		100	300		300
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3351	3514	0	3502	3539	1599	1745	1837	1561	1681	1702	1524
Flt Permitted	0.950			0.950			0.950			0.950	0.960	
Satd. Flow (perm)	3351	3514	0	3502	3539	1599	1745	1837	1561	1681	1702	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				490			206			435
Link Speed (mph)		45			30			30				30
Link Distance (ft)		376			728			218				469
Travel Time (s)		5.7			16.5			5.0				10.7
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	2%	0%	2%	1%	0%	0%	0%	2%	1%	6%
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	449	1096	0	110	910	490	77	46	124	411	408	435
Turn Type	Prot	NA		Prot	NA	Free	Split	NA	pm+ov	Split	NA	Free
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases						Free			4			Free
Detector Phase	1	6		5	2		4	4	5	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	12.0	25.0		12.0	25.0		11.0	11.0	12.0	22.0	22.0	
Total Split (s)	20.0	36.0		14.0	30.0		12.0	12.0	14.0	28.0	28.0	
Total Split (%)	22.2%	40.0%		15.6%	33.3%		13.3%	13.3%	15.6%	31.1%	31.1%	
Yellow Time (s)	4.5	4.5		3.0	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.0	3.0	2.5	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		5.5	7.0		6.0	6.0	5.5	6.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Recall Mode	None	C-Min		None	Min		None	None	None	None	None	
Act Effect Green (s)	13.3	31.1		8.8	25.1	90.0	6.0	6.0	14.0	22.0	22.0	90.0
Actuated g/C Ratio	0.15	0.35		0.10	0.28	1.00	0.07	0.07	0.16	0.24	0.24	1.00
v/c Ratio	0.91	0.90		0.32	0.92	0.31	0.66	0.38	0.30	1.00	0.98	0.29
Control Delay	62.2	40.5		40.9	48.8	0.5	69.1	49.5	2.0	81.1	75.5	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	40.5		40.9	48.8	0.5	69.1	49.5	2.0	81.1	75.5	0.5
LOS	E	D		D	D	A	E	D	A	F	E	A
Approach Delay		46.8			32.5			31.8				51.3
Approach LOS		D			C			C				D
Queue Length 50th (ft)	131	318		30	-275	0	44	26	0	-247	243	0
Queue Length 95th (ft)	#221	#459		56	#408	0	#111	60	2	#446	#437	0
Internal Link Dist (ft)		296			648			138			389	
Turn Bay Length (ft)	200			250		400	100		100	300		300

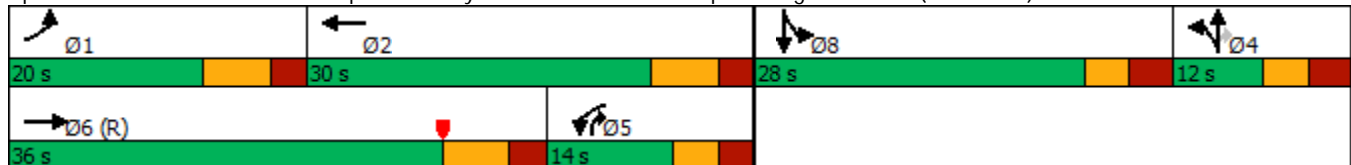


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	495	1218		341	987	1599	116	122	416	410	416	1524
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.90		0.32	0.92	0.31	0.66	0.38	0.30	1.00	0.98	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 80 (89%), Referenced to phase 6:EBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 42.5
 Intersection LOS: D
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Home Depot Driveway/Rte 3 Southbound Ramps & Hingham Street (Route 228)



Rockland Residential Development

Weekday PM

8: Home Depot Driveway/Rte 3 Southbound Ramps & Hingham Street (Route 228) 2026 No Build



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	418	973	46	103	854	443	74	44	119	685	70	422
Future Volume (vph)	418	973	46	103	854	443	74	44	119	685	70	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	11	11	11	12	12	12
Storage Length (ft)	200		0	250		400	100		100	300		300
Storage Lanes	2		0	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3351	3514	0	3502	3539	1599	1745	1837	1561	1681	1704	1524
Flt Permitted	0.950			0.950			0.950			0.950	0.961	
Satd. Flow (perm)	3351	3514	0	3502	3539	1599	1745	1837	1561	1681	1704	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				434			206			435
Link Speed (mph)		45			30			30				30
Link Distance (ft)		465			740			305				418
Travel Time (s)		7.0			16.8			6.9				9.5
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	2%	0%	2%	1%	0%	0%	0%	2%	1%	6%
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	449	1095	0	110	909	471	77	46	124	388	390	435
Turn Type	Prot	NA		Prot	NA	Free	Split	NA	pm+ov	Split	NA	Free
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases						Free			4			Free
Detector Phase	1	6		5	2		4	4	5	8	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	12.0	25.0		12.0	25.0		11.0	11.0	12.0	22.0	22.0	
Total Split (s)	20.0	36.0		14.0	30.0		12.0	12.0	14.0	28.0	28.0	
Total Split (%)	22.2%	40.0%		15.6%	33.3%		13.3%	13.3%	15.6%	31.1%	31.1%	
Yellow Time (s)	4.5	4.5		4.5	4.5		3.0	3.0	4.5	3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.0	3.0	2.5	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	7.0	6.0	6.0	
Lead/Lag	Lead	Lead		Lag	Lag					Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min		None	Min		None	None	None	None	None	
Act Effect Green (s)	13.1	30.6		7.8	25.3	90.0	5.8	5.8	11.8	22.0	22.0	90.0
Actuated g/C Ratio	0.15	0.34		0.09	0.28	1.00	0.06	0.06	0.13	0.24	0.24	1.00
v/c Ratio	0.92	0.92		0.36	0.91	0.29	0.68	0.39	0.32	0.95	0.94	0.29
Control Delay	64.3	42.4		37.7	32.9	0.0	71.6	50.1	2.4	68.2	66.2	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	42.4		37.7	32.9	0.0	71.6	50.1	2.4	68.2	66.2	0.5
LOS	E	D		D	C	A	E	D	A	E	E	A
Approach Delay		48.7			22.9			32.9				43.3
Approach LOS		D			C			C				D
Queue Length 50th (ft)	131	317		30	-275	0	44	26	0	228	229	0
Queue Length 95th (ft)	#221	#458		m26	m214	m0	#111	60	3	#413	#412	0
Internal Link Dist (ft)		385			660			225			338	
Turn Bay Length (ft)	200			250		400	100		100	300		300



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	488	1196		305	994	1599	116	122	384	410	416	1524
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.92		0.36	0.91	0.29	0.66	0.38	0.32	0.95	0.94	0.29

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 37.8 Intersection LOS: D

Intersection Capacity Utilization 79.7% ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

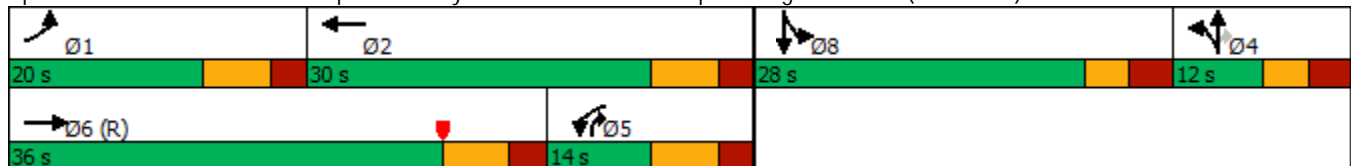
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Home Depot Driveway/Rte 3 Southbound Ramps & Hingham Street (Route 228)



Capacity Analysis Summary
Residential Development
Rockland, MA

Weekday Afternoon Peak Hour								
Intersection	Movement		2026 No Build			2026 Build		
			LOS ¹	Delay ²	V/C ³	LOS	Delay	V/C
Hingham Street (Route 228) at Route 3 SB Ramps/ Home Depot Driveway	EB	L	E	64.3	0.92	E	62.2	0.91
		TR	D	42.4	0.92	D	40.5	0.90
	WB	L	D	37.7	0.36	D	40.9	0.32
		T	C	32.9	0.91	D	48.8	0.92
		R	A	0.0	0.29	A	0.5	0.31
	NB	L	E	71.6	0.68	E	69.1	0.66
		T	D	50.1	0.39	D	49.5	0.38
		R	A	2.4	0.32	A	2.0	0.30
	SB	L	E	68.2	0.95	F	81.1	1.00
		T	E	66.2	0.94	E	75.5	0.98
		R	A	0.5	0.29	A	0.5	0.29
		Overall		D	37.8	0.80	D	42.5

1 Level-of-Service

2 Average vehicle delay in seconds

3 Volume to capacity ratio

Queue Summary
Residential Development
Rockland, MA

Weekday Morning Peak Hour						
Intersection	Movement		2026 No Build		2026 Build	
			50th Queue¹	95th Queue²	50th Queue	95th Queue
Hingham Street (Route 228) at Route 3 SB Ramps/ Home Depot Driveway	EB	L	131	221	131	221
		TR	317	458	318	459
	WB	L	30	26	30	56
		T	275	214	275	408
		R	0	0	0	0
	NB	L	44	111	44	111
		T	26	60	26	60
		R	0	3	0	2
	SB	L	228	413	247	446
		T	229	412	243	437
		R	0	0	0	0

1 50th Percentile Queue Length (ft)

2 95th Percentile Queue Length (ft)