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**To:** Sean Neely – Stantec

**From:** Chris McLean – Langan

**CC:** Essex Vermont Development Review Board  
Daniel Clarey – Langan  
Leo Leighton – SPA Properties  
Jeff Polubinski – Gravel & Shea

**Date:** 24 June 2025

**Re:** Traffic Impact Statement Peer Review Response to Comments  
Proposed Delivery Station  
Kimo Drive  
Essex, Vermont  
Langan Project No.: 140278401

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Dear Mr. Neely:

Enclosed please find our responses to your letter dated June 20, 2025. Below please find each comment followed by our response in **bold**. Please reach out to our office if you have any questions, comments, or concerns.

1. Based on Stantec's review and understanding of WCG's SHIP Phase II Study and Langan's trip generation analysis, they will be exceeding the values in specific directional trips that were estimated in the SHIP Phase II Study. Based on WCG's SHIP Phase II Study, Stantec recommends Langan assess the operations and potential mitigation at the intersection of VT 117 and Kimo Drive with this development. This assessment will not only assist in identifying operations related to this development, but the capacity remaining upon its completion.

***COMMENT RESPONSE: As requested, we re-analyzed traffic operations at the Kimo Drive and VT-117 intersection to address the comment regarding specific directional trips exceeding the estimates from the SHIP Phase II Study. Two methodologies were used in this supplemental analysis to corroborate the original SHIP Phase II study analysis and each of the supplemental analysis scenarios. In either case, there are no significant changes to the results of the SHIP Phase II study.***

***Scenario 1 in this supplemental analysis reviewed the potential impacts of the delivery station by adding the exceeding trips to the overall analysis prepared by***

# MEMO

**WCG in the SHIP Phase II Study. Specifically, these exceeding volumes were added to the 2031 Build AM and 2031 Build PM scenarios, which assume a full build out of the subdivision. The excessive trips (10 exiting AM peak hour trips, and 15 entering PM peak hour trips) were added to WCG’s estimated traffic volumes and reanalyzed. The results of the Scenario 1 supplemental analysis resulted in little or no change to v/c ratio or delay, as shown below in Table 2.**

TABLE 1 (FROM LANGAN STUDY) ANTICIPATED TRIP GENERATION – ESSEX, VT DELIVERY STATION							
USE	LAND USE CODE <sup>1</sup>	AM PEAK HOUR			PM PEAK HOUR		
		ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SHIP Subdivision Trip Gen (528,100 SF)	130 <sup>2</sup>	145	34	180	40	140	180
Proposed Delivery Station (107,000 SF)	156 <sup>3</sup>	38	37	75	46	22	68
Adjustment Escalation (20%)		8	7	15	9	4	13
Proposed Delivery Station (107,000 SF)	156 <sup>3</sup>	46	44	90	55	26	81
<b>Remaining Trips</b>		<b>99</b>	<b>-10</b>	<b>90</b>	<b>-15</b>	<b>114</b>	<b>99</b>

<sup>1</sup> Land Use Codes based on ITE Trip Generation Manual 11th Edition

<sup>2</sup> Volume based on ITE Trip Generation Manual 11th Edition: Land Use Code 130: Industrial Park as presented in the September 2024 SHIP II Subdivision traffic study by WCG

<sup>3</sup> Volume based on ITE Trip Generation Manual 11th Edition: Land Use Code 156: High-Cube Parcel Hub Warehouse

TABLE 2 2031 BUILD ANALYSIS RESULTS COMPARISON - SCENARIO 1													
INTERSECTION	LANE USE	AM PEAK HOUR						PM PEAK HOUR					
		SHIP II RESULTS			SUPPLEMENTAL ANALYSIS RESULTS			SHIP II RESULTS			SUPPLEMENTAL ANALYSIS RESULTS		
		LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C
VT-117 & Site Access (Stop Controlled)	EB	A	9	0.08	A	8.8	0.08	A	9	0.02	A	9.4	0.03
	SB	C	22	0.15	C	21.8	0.18	D	33	0.53	D	33.6	0.54

**Scenario 2 in this supplemental analysis reviewed the potential impacts of the proposed delivery station by removing the trips assigned to the project lots based on the WCG SHIP Phase II study and adding in the estimated trips provided by Langan’s study in Table 1. In the SHIP Phase II study, Lots 4 and 5 were assigned**

***an estimated building size of 60,800 SF and 262,600 SF respectively for a total of 323,400 SF. The building size for Lots 4 and 5 constitute 61% of the overall 528,100 SF for the subdivision. As a result, 61% of the trips for the overall subdivision were removed from the total trips. We then added the proposed delivery station estimated trip generation results to the remaining trip allotment to obtain the revised overall subdivision trips. This methodology was implemented to provide a more precise representation of how the proposed delivery station trips will integrate within the overall trips approved in SHIP II subdivision. The results of the Scenario 2 supplemental analysis also resulted in negligible difference in delay and v/c ratio, as shown below in Tables 3 and 4.***

***Detailed Synchro analysis results are provided in the attachments.***

TABLE 3 ANTICIPATED TRIP GENERATION - ESSEX VT DELIVERY STATION							
USE	LAND USE CODE	AM PEAK HOUR			PM PEAK HOUR		
		ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SHIP Phase II Subdivision Total Approved Trips	130	145	34	180	40	140	180
Total Allotted for Proposed Delivery Station in SHIP Phase II (Lots 4 & 5 = 61% of total approved)	130	88	21	109	24	85	109
<i>Remaing Subtotal</i>	-	57	13	71	16	55	71
Proposed Delivery Station Adjusted (107,000 SF)	156	46	44	90	55	26	82
<b>Resulting Total Trips</b>		<b>103</b>	<b>57</b>	<b>161</b>	<b>71</b>	<b>81</b>	<b>153</b>

**TABLE 4  
 2031 BUILD ANALYSIS RESULTS COMPARISON - SCENARIO 2**

INTERSECTION	LANE USE	AM PEAK HOUR						PM PEAK HOUR					
		SHIP II RESULTS			SUPPLEMENTAL ANALYSIS RESULTS			SHIP II RESULTS			SUPPLEMENTAL ANALYSIS RESULTS		
		LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	V/C
VT-117 & Site Access (Stop Controlled)	EB	A	9	0.08	A	8.6	0.06	A	9	0.02	A	9.4	0.04
	SB	C	22	0.15	C	21.1	0.21	D	33	0.53	D	25.7	0.32

***Note that the original trip generation estimates were based on ITE data along with a 20% escalation factor in order to provide a conservative estimate for this type of facility. Further, this analysis assumes that the roadway peak hour and the facility peak hour to fully coincide, though we expect much of the development’s peak traffic to be outside the roadway. Despite these conservative steps, there are no significant changes to the results of the SHIP Phase II study.***

- In addition, traffic monitoring of actual trips to and from the proposed facility should be considered for 12 months after the facility is operational, to compare to those trip numbers forecasted in the Langan TIS. If actual trip numbers are significantly higher than those forecasted, additional mitigation measures should be considered.

***COMMENT RESPONSE: Comment acknowledged. Our understanding is that VTrans is recommending a similar post-opening study for the overall SHIP Phase II, which the subdivision applicant has agreed to.***

\\langan.com\data\NH\data4\140278401\Project Data\Correspondence\Response to Comments\2025-06-23 Response to Traffic Peer Review Comments\140278401 - Delivery Station - Essex, VT - Response to Peer Review Comments.docx

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↗		↘	
Traffic Vol, veh/h	86	553	368	59	29	18
Future Vol, veh/h	86	553	368	59	29	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	5	4	20	20	20
Mvmt Flow	86	553	368	59	29	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	427	0	-	0	1123 398
Stage 1	-	-	-	-	398 -
Stage 2	-	-	-	-	725 -
Critical Hdwy	4.3	-	-	-	6.6 6.4
Critical Hdwy Stg 1	-	-	-	-	5.6 -
Critical Hdwy Stg 2	-	-	-	-	5.6 -
Follow-up Hdwy	2.38	-	-	-	3.68 3.48
Pot Cap-1 Maneuver	1043	-	-	-	210 615
Stage 1	-	-	-	-	641 -
Stage 2	-	-	-	-	448 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1043	-	-	-	193 615
Mov Cap-2 Maneuver	-	-	-	-	193 -
Stage 1	-	-	-	-	589 -
Stage 2	-	-	-	-	448 -

Approach	EB	WB	SB
HCM Control Delay, s/v	1.18	0	21.76
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1043	-	-	-	261
HCM Lane V/C Ratio	0.082	-	-	-	0.18
HCM Control Delay (s/veh)	8.8	-	-	-	21.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

HCM 7th TWSC  
4: VT 117 & Kimo Drive

06/24/2025

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	536	625	29	64	76
Future Vol, veh/h	26	536	625	29	64	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	5	4	20	20	20
Mvmt Flow	26	536	625	29	64	76

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	654	0	-	0	1228 640
Stage 1	-	-	-	-	640 -
Stage 2	-	-	-	-	588 -
Critical Hdwy	4.3	-	-	-	6.6 6.4
Critical Hdwy Stg 1	-	-	-	-	5.6 -
Critical Hdwy Stg 2	-	-	-	-	5.6 -
Follow-up Hdwy	2.38	-	-	-	3.68 3.48
Pot Cap-1 Maneuver	853	-	-	-	181 445
Stage 1	-	-	-	-	493 -
Stage 2	-	-	-	-	521 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	853	-	-	-	175 445
Mov Cap-2 Maneuver	-	-	-	-	175 -
Stage 1	-	-	-	-	478 -
Stage 2	-	-	-	-	521 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.43	0	33.61
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	853	-	-	-	261
HCM Lane V/C Ratio	0.03	-	-	-	0.536
HCM Control Delay (s/veh)	9.4	-	-	-	33.6
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	2.9

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	553	368	43	38	22
Future Vol, veh/h	60	553	368	43	38	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	5	4	20	20	20
Mvmt Flow	60	553	368	43	38	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	411	0	-	0	1063 390
Stage 1	-	-	-	-	390 -
Stage 2	-	-	-	-	673 -
Critical Hdwy	4.3	-	-	-	6.6 6.4
Critical Hdwy Stg 1	-	-	-	-	5.6 -
Critical Hdwy Stg 2	-	-	-	-	5.6 -
Follow-up Hdwy	2.38	-	-	-	3.68 3.48
Pot Cap-1 Maneuver	1057	-	-	-	229 621
Stage 1	-	-	-	-	647 -
Stage 2	-	-	-	-	475 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1057	-	-	-	216 621
Mov Cap-2 Maneuver	-	-	-	-	216 -
Stage 1	-	-	-	-	610 -
Stage 2	-	-	-	-	475 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.84	0	21.07
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1057	-	-	-	284
HCM Lane V/C Ratio	0.057	-	-	-	0.212
HCM Control Delay (s/veh)	8.6	-	-	-	21.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8

HCM 7th TWSC  
1: VT 117 & Kimo Drive

06/24/2025

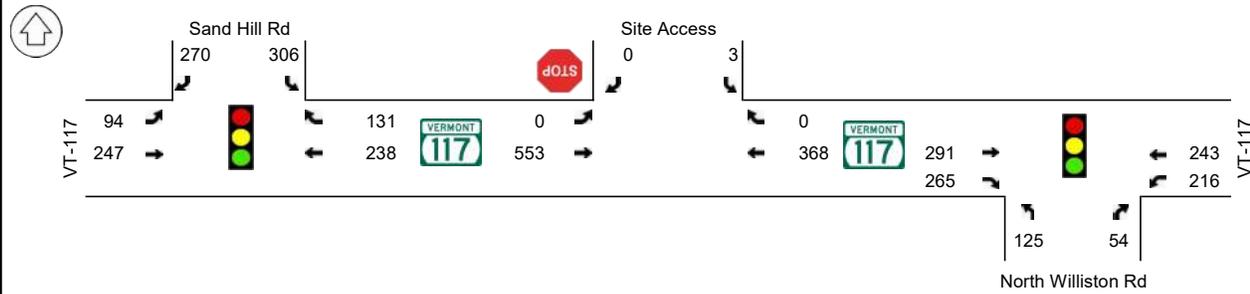
Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	536	625	38	37	44
Future Vol, veh/h	34	536	625	38	37	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	5	4	20	20	20
Mvmt Flow	34	536	625	38	37	44

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	663	0	-	0	1248 644
Stage 1	-	-	-	-	644 -
Stage 2	-	-	-	-	604 -
Critical Hdwy	4.3	-	-	-	6.6 6.4
Critical Hdwy Stg 1	-	-	-	-	5.6 -
Critical Hdwy Stg 2	-	-	-	-	5.6 -
Follow-up Hdwy	2.38	-	-	-	3.68 3.48
Pot Cap-1 Maneuver	846	-	-	-	176 442
Stage 1	-	-	-	-	490 -
Stage 2	-	-	-	-	512 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	846	-	-	-	169 442
Mov Cap-2 Maneuver	-	-	-	-	169 -
Stage 1	-	-	-	-	471 -
Stage 2	-	-	-	-	512 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.56	0	25.67
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	846	-	-	-	254
HCM Lane V/C Ratio	0.04	-	-	-	0.319
HCM Control Delay (s/veh)	9.4	-	-	-	25.7
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

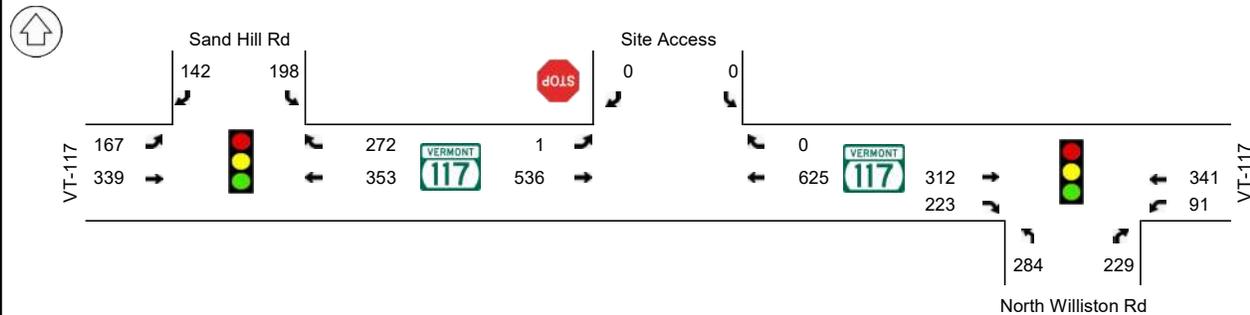
**2031 No Build Weekday AM**



Values rounded to the nearest whole number

Schematic drawing, not to scale

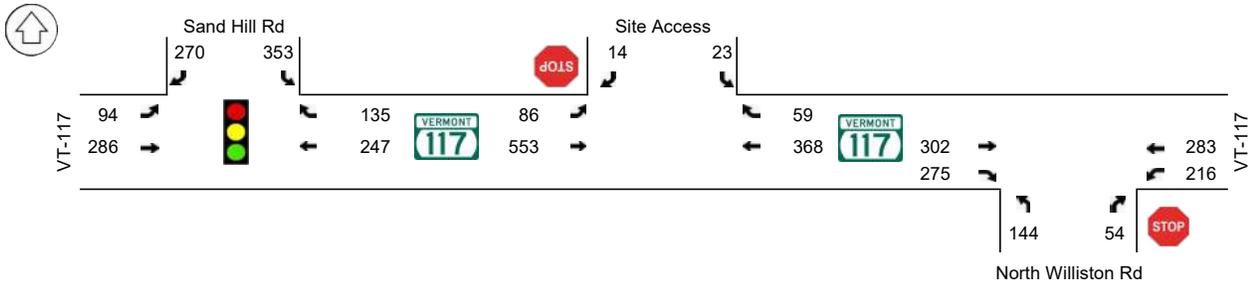
**2031 No Build Weekday PM**



Values rounded to the nearest whole number

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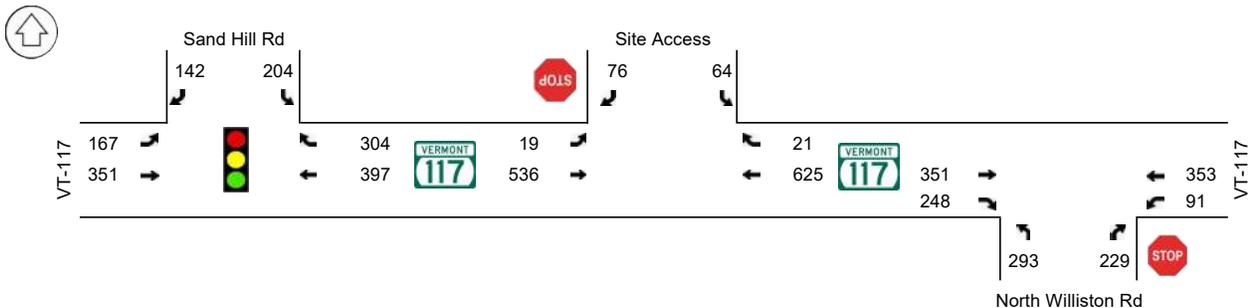
**2031 Build Weekday AM**



Values rounded to the nearest whole number

Schematic drawing, not to scale

**2031 Build Weekday PM**



Values rounded to the nearest whole number

Schematic drawing, not to scale