

STONEFIELD

April 11, 2023

Kenneth Spiegle
Major Access Permits
New Jersey Department of Transportation
1035 Parkway Avenue
PO Box 600
Trenton, NJ 08625

**RE: Traffic Analysis Report
Proposed Mixed-Use Development
NJSH Route 35 & Asbury Avenue
Block 701, Lot 1
Neptune Township, Monmouth County, New Jersey
Application No. (A-35-C-27855-2021)
SE&D Job No. PRI-200142**

Dear Mr. Spiegle:

Stonefield Engineering and Design, LLC (“Stonefield”) has prepared this analysis to examine the potential traffic impacts based on the change in the development plan for the proposed mixed-use development located at 704 NJSH Route 35 in Neptune Township, Monmouth County, New Jersey (Application Number A-35-C-27855-2021). The subject property is bounded by Asbury Avenue to the north, NJSH Route 35 to the south, Hollow Brook to the east, and a NJSH Route 35/Asbury Avenue interchange to the west. The subject property is designated as Block 701, Lot 1 as depicted on the Township of Neptune Tax Map. Under the proposed development plan, the previously approved 4,500-square-foot convenience store with six (6) fueling stations would be replaced by a 5,670-square-foot convenience store with six (6) fueling stations. Access to the proposed mixed-use development would remain consistent with the previously approved access plan via one (1) right-in/right-out driveway and one (1) full-movement driveway along NJSH Route 35 and two (2) full-movement driveways along Asbury Avenue. An exclusive left-turn lane along Route 35 southbound is proposed at the southerly site driveway and would provide storage for approximately three (3) passenger vehicles.

Trip Generation

Trip generation projections for the proposed mixed-use development were prepared utilizing NJDOT’s Highway Access Permit System (HAPS) and ITE’s Trip Generation Manual, 11th Edition. It is noted that the HAPS does not contain data for the enter/exit trip distribution for its land uses. Therefore, the enter/exit trip distribution for each land use was obtained from the ITE’s Trip Generation Manual, 11th Edition. Trip generation rates associated with Land Use 820 “Shopping Center,” Land Use 854 “Discount Supermarket,” Land Use 934 “Fast Food Restaurant with Drive Through Window,” and Land Use 960 “Super Convenience Market/Gas Station” were cited for the proposed 8,133 square feet of retail, 20,442-square-foot discount supermarket, 3,316-square-foot fast food restaurant with drive-through service, and 5,670-square-foot convenience store with fuel sales, respectively. **Table I** provides the weekday morning, weekday evening, and Saturday midday peak hour trip generation volumes associated with the proposed mixed-use development.

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TABLE 1 – PROPOSED TRIP GENERATION

Land Use	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
8,133 SF Shopping Center <i>HAPS Land Use 820</i>	5	3	8	44	49	93	45	40	85
20,442 SF Discount Supermarket <i>HAPS Land Use 854</i>	1	1	2	98	98	196	131	130	261
3,316 SF Fast-Food Restaurant with Drive Through <i>HAPS Land Use 934</i>	86	83	169	89	81	170	93	90	183
5,670 SF Super Convenience Store/Gas Station <i>HAPS Land Use 960</i>	236	235	471	196	197	393	181	181	362
Total	328	322	650	427	425	852	450	441	891

As stated within Chapter 6 of ITE’s Trip Generation Handbook, 3rd Edition, internally captured trips can be a component of the travel patterns at mixed-use developments, such as the one proposed. When combined within a single development, individual land uses tend to interact, and thus attract a portion of each other’s trip generation, such as customers of the discount supermarket eating at the fast-food restaurant. To calculate trip generation for mixed-use developments such as the proposed development, ITE recommends the procedure presented in the NCHRP Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments. The NJDOT references these rates as part of its Internal Trip Capture Rates for Trip Destinations within a Mixed-Use Development, which was cited to provide the internal trip capture percentages for the proposed site. Utilizing the published data, internal trips were calculated between the proposed uses during the weekday morning, weekday evening, and Saturday midday peak-hours. The internal capture portion of the site-generated traffic is shown in **Table 2**.

TABLE 2 – INTERNAL TRIP CAPTURE REDUCTION

Land Use	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
8,133 SF Shopping Center <i>HAPS Land Use 820</i>	5	3	8	44	49	93	45	40	85
<i>Internal Trip Capture Reduction</i>	-	-	-	-22	-20	-42	-28	-24	-52
Subtotal	5	3	8	22	29	51	17	16	33
20,442 SF Discount Supermarket <i>HAPS Land Use 854</i>	1	1	2	98	98	196	131	130	261
<i>Internal Trip Capture Reduction</i>	-	-	-	-40	-37	-77	-53	-52	-105
Subtotal	1	1	2	58	61	119	78	78	156
3,316 SF Fast-Food Restaurant with Drive Through <i>HAPS Land Use 934</i>	86	83	169	89	81	170	93	90	183
<i>Internal Trip Capture Reduction</i>	-31	-12	-43	-26	-33	-59	-	-	-
Subtotal	55	71	126	63	48	111	93	90	183
5,670 SF Super Convenience Store/Gas Station <i>HAPS Land Use 960</i>	236	235	471	196	197	393	181	181	362
<i>Internal Trip Capture Reduction</i>	-12	-31	-43	-49	-47	-96	-50	-55	-105
Subtotal	224	204	428	147	150	297	131	126	257
Total	285	279	564	290	288	578	319	310	629

As stated within Chapter 10 of ITE’s Trip Generation Handbook, 3rd Edition, there are instances when the total number of trips generated by a site is different from the amount of new traffic added to the street

system by the generator. Convenience stores with gas, retail stores, supermarkets, and fast-food restaurants are specifically located on or adjacent to busy streets to attract motorists already on the roadway. Therefore, the uses of the proposed development would be expected to attract a portion of its trips from the traffic passing the site on the way from an origin to an ultimate destination. These trips do not add new traffic to the adjacent roadway system and are referred to as pass-by trips.

Based upon the published NJDOT data, the following pass-by rates were utilized to calculate each land uses site-generated traffic volumes:

- ◆ Land Use 820 – 34% during the weekday evening peak hour and 26% during the Saturday midday peak hour;
- ◆ Land Use 854 – 21% during the weekday evening peak hour;
- ◆ Land Use 934 – 49% during the weekday morning peak hour and 50% during the weekday evening and Saturday midday peak hours;
- ◆ Land Use 960 – 76% during the weekday morning and weekday evening peak hours and 50% during the Saturday midday peak hours.

Table 3 shows the additional site generated traffic for the proposed development after applying the appropriate trip reductions.

TABLE 3 – PROPOSED TRIP GENERATION

Land Use Code	Land Use	Amount	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
820	Shopping Center	8,133 SF	5	3	8	44	49	93	45	40	85
854	Discount Supermarket	20,442 SF	1	1	2	98	98	196	131	130	261
934	Fast Food Restaurant with Drive Through	3,316 SF	86	83	169	89	81	170	93	90	183
960	Super Convenience Store/Gas Station	5,670 SF	236	235	471	196	197	393	181	181	362
ITE Trip Generation Total			328	322	650	427	425	852	450	441	891
Internal Capture Trip Reduction			-43	-43	-86	-137	-137	-274	-131	-131	-262
Land Use 820 Pass-By Trip Reduction			-	-	-	-9	-9	-18	-4	-4	-8
Land Use 854 Pass-By Trip Reduction			-	-	-	-12	-12	-24	-	-	-
Land Use 934 Pass-By Trip Reduction			-31	-31	-62	-28	-28	-56	-46	-46	-92
Land Use 960 Pass-By Trip Reduction			-163	-163	-326	-113	-113	-226	-65	-65	-130
Total New Vehicular Trips			91	85	176	128	126	254	204	195	399

At the site driveways, the calculated number of pass-by trips is shown as a negative number at the through movement as the vehicles are temporarily diverted from the through travel stream into and out of the site access point.

Trip Assignment/Distribution

The trips were assigned to the roadway network based on the previously approved trip distribution for the mixed-use development. Appended **Figures 1** and **2** illustrate the “New” Site-Generated traffic volumes and “Pass-By” Site-Generated traffic volumes at the NJSH Route 35 driveways. **Figure 3** illustrates the Total Site-

Generated Traffic Volumes. The Build Peak Summer Period traffic volumes are summarized on appended **Figure 4** and the Build Yearly Average traffic volumes are summarized on appended **Figure 5**.

Previously Approved vs. Proposed Trip Generation

The proposed trip generation was compared to the previously approved trip generation at the site driveways along NJSH Route 35 per the access permit executed in July 2022. **Table 4** compares the trip generation of the proposed development and the trip generation of the previously approved development.

TABLE 4 – PREVIOUSLY APPROVED VS. PROPOSED TRIP GENERATION

Land Use	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Previously Approved Trip Generation	109	104	213	110	93	203	124	98	222
Proposed Trip Generation	129	123	252	128	109	237	142	112	254
Trip Generation Difference	+20	+19	+39	+18	+16	+34	+18	+14	+32

As shown in Table 4, the proposed development would generate 39 additional trips during the weekday morning peak hour, 34 additional trips during the weekday evening peak hour, and 32 additional trips during the Saturday midday peak hour at the site driveways along NJSH Route 35 compared to the July 2022 executed access permit.

Build Condition LOS/Capacity Analysis

A Level of Service and Volume/Capacity analysis was conducted for the Peak Summer and Typical Yearly Build Conditions during the weekday morning, weekday evening, and Saturday midday peak hours at the southerly site driveway to analyze the adequacy of the left-turn lane storage proposed along NJSH Route 35. **Tables 5 and 6** summarize the Peak Summer Period and Yearly Average Build Conditions Level of Service and delay values at the southerly site driveway compared to the previously approved Levels of Service and delay.

NJSH ROUTE 35 & SOUTHERLY SITE DRIVEWAY

WB (Westbound) approach is the site driveway approach
 SB (Southbound) approach is the NJSH Route 35 approach
 X (n) = Level of Service (seconds of delay)

TABLE 5 – BUILD CONDITION (SUMMER PEAK PERIOD)

Lane Group	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	Previously Approved	Proposed	Previously Approved	Proposed	Previously Approved	Proposed
WB Left/Right	D (31.3)	D (34.5)	D (32.6)	E (35.6)	D (34.5)	E (37.7)
SB Left	A (9.9)	B (10.0)	A (8.9)	A (9.0)	A (9.3)	A (9.4)

TABLE 6 – BUILD CONDITION (YEARLY AVERAGE)

Lane Group	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	Previously Approved	Proposed	Previously Approved	Proposed	Previously Approved	Proposed
WB Left/Right	C (23.9)	D (25.7)	C (24.8)	D (26.4)	D (25.9)	D (27.7)
SB Left	A (9.4)	A (9.5)	A (8.6)	A (8.7)	A (9.0)	A (9.0)

Based on the analysis conducted, the turning movements at the southerly site driveway would operate at acceptable Levels of Service during each of the peak hours studied and would operate at generally consistent delays compared to the previously approved development plan. **Tables 7 and 8** summarize the Peak Summer Period and Yearly Average Build Conditions 95th percentile queue lengths at the southerly site driveway compared to the previously approved 95th percentile queue lengths.

TABLE 7 – BUILD CONDITION (SUMMER PEAK PERIOD)

Lane Group	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	Previously Approved	Proposed	Previously Approved	Proposed	Previously Approved	Proposed
WB Left/Right	1.2 veh	1.6 veh	1.2 veh	1.5 veh	1.3 veh	1.6 veh
SB Left	0.2 veh	0.3 veh	0.2 veh	0.2 veh	0.2 veh	0.2 veh

TABLE 8 – BUILD CONDITION (YEARLY AVERAGE)

Lane Group	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	Previously Approved	Proposed	Previously Approved	Proposed	Previously Approved	Proposed
WB Left/Right	0.9 veh	1.1 veh	0.9 veh	1.1 veh	0.9 veh	1.2 veh
SB Left	0.2 veh	0.2 veh	0.2 veh	0.2 veh	0.2 veh	0.2 veh

As shown in Tables 7 and 8, the 95th percentile queue length within the NJSH Route 35 southbound left-turn lane was calculated to be less than one (1) vehicle during each of the peak hours studied and the 95th percentile queue lengths are generally consistent with the previously approved development plan. As such, the proposed left-turn lane, with 80 feet of available storage, would be sufficient to support the demand of the proposed development.

Conclusions

This report was prepared to examine the traffic impacts based on the change in development plan for the proposed mixed-use development. The analysis findings, which have been based on industry standard guidelines, indicate that the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network compared to the previously approved development plan. The turning movements at the southerly site driveway would operate at acceptable Levels of Service and delay during each of the peak hours studied. Additionally, the left-turn lane constructed along NJSH Route 35 would provide sufficient storage to support the 95th percentile queue associated with the proposed development.

Please do not hesitate to contact our office if there are any questions.

Best regards,



Matthew J. Seckler, PE, PP, PTOE
Stonefield Engineering and Design, LLC

TECHNICAL APPENDIX

FIGURES

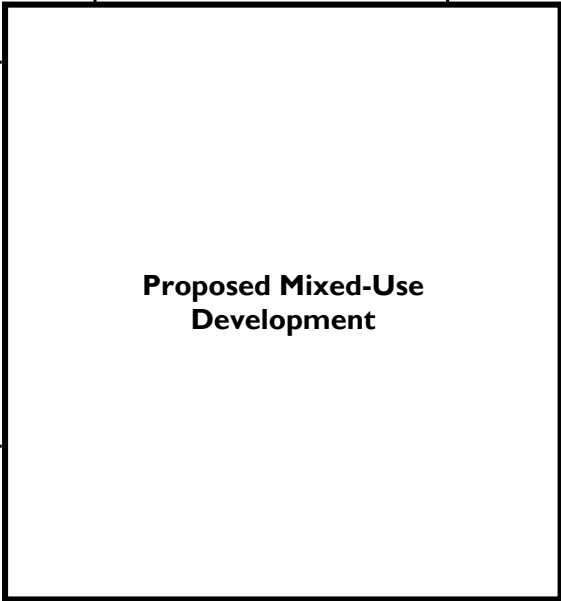


NJSH Route 66

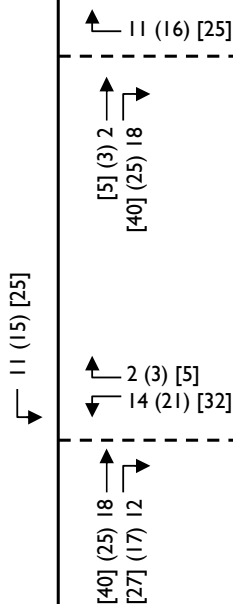
NJSH Route 35

Asbury Avenue


NJSH Route 35



Proposed Mixed-Use Development



LEGEND

- Existing Roadway
- - - Proposed Driveway
- ← AM (PM) [SAT] Peak Hour
-  Signalized Intersection

*not to scale

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Mixed-Use Development
NJSH Route 35 and Asbury Avenue
 Neptune Township, Monmouth County, New Jersey
Traffic Impact Study

FIGURE I
"New" Site-Generated Traffic
Volumes



NJSH Route 66

NJSH Route 35

Asbury Avenue

NJSH Route 35

Proposed Mixed-Use Development

← -43 (-45) [-29]
→ 43 (45) [29]


↑ 52 (32) [25]

← [-13] (-16) [-27]
→ [13] (16) [27]

↑ 18 (10) [8]
↓ 26 (27) [17]

↑ [-8] (-10) [-18]
→ [8] (10) [18]

LEGEND

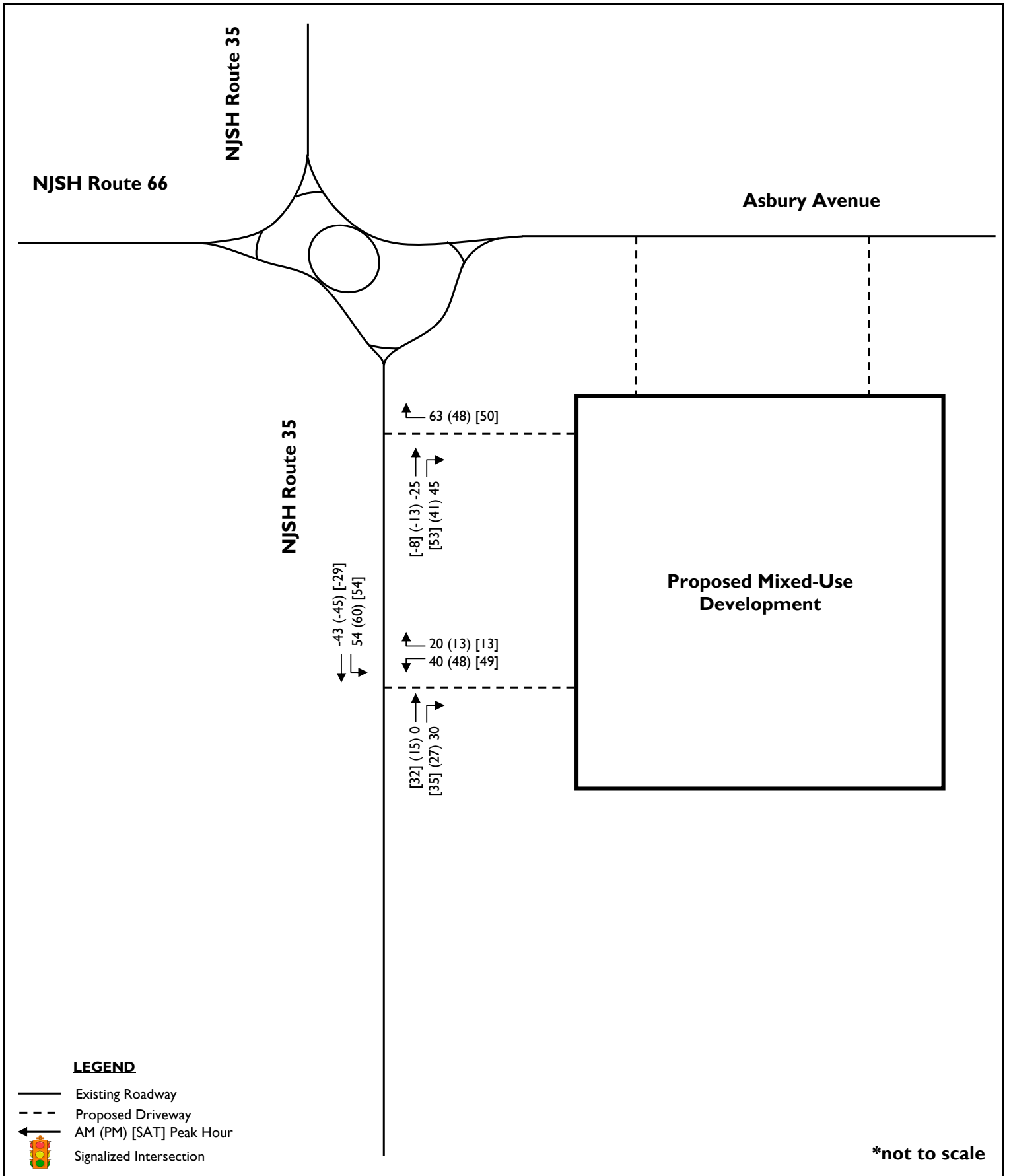
- Existing Roadway
- - - Proposed Driveway
- ← AM (PM) [SAT] Peak Hour
-  Signalized Intersection

*not to scale

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Mixed-Use Development
NJSH Route 35 and Asbury Avenue
 Neptune Township, Monmouth County, New Jersey
Traffic Impact Study

FIGURE 2
"Pass-By" Site-Generated
Traffic Volumes



<p>STONEFIELD</p>	<p>Mixed-Use Development NJSH Route 35 and Asbury Avenue Neptune Township, Monmouth County, New Jersey Traffic Impact Study</p>	<p>FIGURE 3 Total Site Generated Trips</p>
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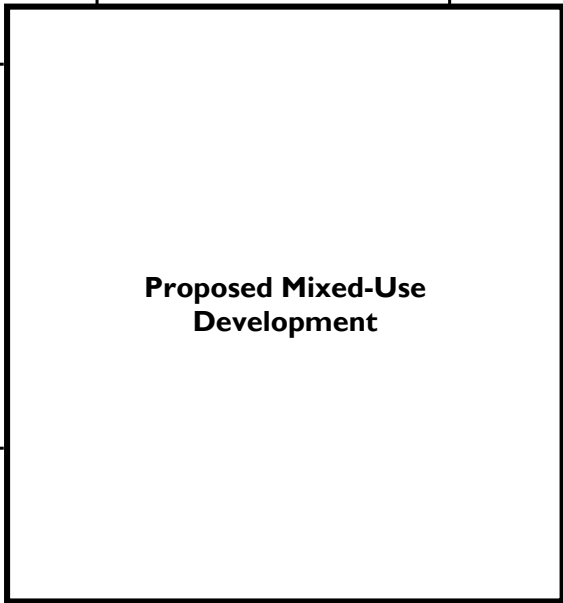


NJSH Route 66

NJSH Route 35

Asbury Avenue

NJSH Route 35



Proposed Mixed-Use Development

640 (952) [873]
54 (60) [54]

63 (48) [50]

[630] (551) 695
[53] (41) 45

20 (13) [13]
40 (48) [49]

[670] (579) 720
[35] (27) 30

LEGEND

- Existing Roadway
- Proposed Driveway
- AM (PM) [SAT] Peak Hour
- Signalized Intersection

*not to scale

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Mixed-Use Development
NJSH Route 35 and Asbury Avenue
 Neptune Township, Monmouth County, New Jersey
Traffic Impact Study

FIGURE 4
Build Traffic Volumes (Peak Summer Period)



NJSH Route 66

NJSH Route 35

Asbury Avenue

NJSH Route 35



Proposed Mixed-Use Development

543 (812) [746]
54 (60) [54]

63 (48) [50]

[540] (471) 593
[53] (41) 45

20 (13) [13]
40 (48) [49]

[580] (499) 618
[35] (27) 30

LEGEND

- Existing Roadway
- Proposed Driveway
- AM (PM) [SAT] Peak Hour
- Signalized Intersection

*not to scale

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Mixed-Use Development
NJSH Route 35 and Asbury Avenue
 Neptune Township, Monmouth County, New Jersey
Traffic Impact Study

FIGURE 5
Build Traffic Volumes (Yearly Average)

**PREVIOUSLY APPROVED HIGHWAY CAPACITY
ANALYSIS DETAIL SHEETS**

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	17	721	26	45	648
Future Vol, veh/h	34	17	721	26	45	648
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	40	20	838	30	52	753

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1710	853	0	0	868
Stage 1	853	-	-	-	-
Stage 2	857	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	162	459	-	-	785
Stage 1	421	-	-	-	-
Stage 2	419	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	151	459	-	-	785
Mov Cap-2 Maneuver	151	-	-	-	-
Stage 1	421	-	-	-	-
Stage 2	391	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.3	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	195	785
HCM Lane V/C Ratio	-	-	0.304	0.067
HCM Control Delay (s)	-	-	31.3	9.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.2	0.2

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	41	11	579	24	50	960
Future Vol, veh/h	41	11	579	24	50	960
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	42	11	597	25	52	990

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1704	610	0	0	622	0
Stage 1	610	-	-	-	-	-
Stage 2	1094	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	163	590	-	-	969	-
Stage 1	546	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	154	590	-	-	969	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.6	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	183	969
HCM Lane V/C Ratio	-	-	0.293	0.053
HCM Control Delay (s)	-	-	32.6	8.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.2	0.2

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Saturday Midday Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	11	668	31	46	878
Future Vol, veh/h	43	11	668	31	46	878
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	45	11	696	32	48	915

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1723	712	0	0	728
Stage 1	712	-	-	-	-
Stage 2	1011	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	160	531	-	-	885
Stage 1	490	-	-	-	-
Stage 2	355	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	151	531	-	-	885
Mov Cap-2 Maneuver	151	-	-	-	-
Stage 1	490	-	-	-	-
Stage 2	336	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.5	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	177	885
HCM Lane V/C Ratio	-	-	0.318	0.054
HCM Control Delay (s)	-	-	34.5	9.3
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Yearly Average)
Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	17	619	26	45	551
Future Vol, veh/h	34	17	619	26	45	551
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	40	20	720	30	52	641

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1480	735	0	0	750
Stage 1	735	-	-	-	-
Stage 2	745	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	211	519	-	-	868
Stage 1	478	-	-	-	-
Stage 2	473	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	198	519	-	-	868
Mov Cap-2 Maneuver	198	-	-	-	-
Stage 1	478	-	-	-	-
Stage 2	445	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	249	868
HCM Lane V/C Ratio	-	-	0.238	0.06
HCM Control Delay (s)	-	-	23.9	9.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	11	499	24	50	820
Future Vol, veh/h	41	11	499	24	50	820
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	42	11	514	25	52	845

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1476	527	0	0	539	0
Stage 1	527	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	212	643	-	-	1040	-
Stage 1	596	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	201	643	-	-	1040	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	360	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.8	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	235	1040
HCM Lane V/C Ratio	-	-	0.228	0.05
HCM Control Delay (s)	-	-	24.8	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	11	578	31	46	751
Future Vol, veh/h	43	11	578	31	46	751
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	45	11	602	32	48	782

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1496	618	0	0	634
Stage 1	618	-	-	-	-
Stage 2	878	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	207	585	-	-	959
Stage 1	542	-	-	-	-
Stage 2	410	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	197	585	-	-	959
Mov Cap-2 Maneuver	197	-	-	-	-
Stage 1	542	-	-	-	-
Stage 2	390	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.9	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	228	959
HCM Lane V/C Ratio	-	-	0.247	0.05
HCM Control Delay (s)	-	-	25.9	9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2

**PROPOSED HIGHWAY CAPACITY
ANALYSIS DETAIL SHEETS**

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	40	20	720	30	54	640
Future Vol, veh/h	40	20	720	30	54	640
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	47	23	837	35	63	744

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1725	855	0	0	872	0
Stage 1	855	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	160	458	-	-	782	-
Stage 1	420	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	147	458	-	-	782	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	380	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.5	0	0.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	190	782
HCM Lane V/C Ratio	-	-	0.367	0.08
HCM Control Delay (s)	-	-	34.5	10
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	1.6	0.3

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	48	13	579	27	60	952
Future Vol, veh/h	48	13	579	27	60	952
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	49	13	597	28	62	981

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1716	611	0	0	625	0
Stage 1	611	-	-	-	-	-
Stage 2	1105	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	161	589	-	-	966	-
Stage 1	546	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	151	589	-	-	966	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	300	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.6	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	179	966
HCM Lane V/C Ratio	-	-	0.351	0.064
HCM Control Delay (s)	-	-	35.6	9
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Peak Summer Period)
Saturday Midday Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	49	13	670	35	54	873
Future Vol, veh/h	49	13	670	35	54	873
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	51	14	698	36	56	909

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1737	716	0	0	734
Stage 1	716	-	-	-	-
Stage 2	1021	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	157	529	-	-	880
Stage 1	488	-	-	-	-
Stage 2	351	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	147	529	-	-	880
Mov Cap-2 Maneuver	147	-	-	-	-
Stage 1	488	-	-	-	-
Stage 2	329	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.7	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	173	880
HCM Lane V/C Ratio	-	-	0.373	0.064
HCM Control Delay (s)	-	-	37.7	9.4
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	40	20	618	30	54	543
Future Vol, veh/h	40	20	618	30	54	543
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	47	23	719	35	63	631

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1494	737	0	0	754
Stage 1	737	-	-	-	-
Stage 2	757	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	207	518	-	-	865
Stage 1	477	-	-	-	-
Stage 2	467	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	192	518	-	-	865
Mov Cap-2 Maneuver	192	-	-	-	-
Stage 1	477	-	-	-	-
Stage 2	433	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.7	0	0.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	243	865
HCM Lane V/C Ratio	-	-	0.287	0.073
HCM Control Delay (s)	-	-	25.7	9.5
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.1	0.2

HCM 6th TWSC
2: NJSH Route 35 & Southerly Site Driveway

2023 Build Condition (Yearly Average)
Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	48	13	499	27	60	812
Future Vol, veh/h	48	13	499	27	60	812
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	49	13	514	28	62	837

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1489	528	0	0	542	0
Stage 1	528	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	209	642	-	-	1037	-
Stage 1	596	-	-	-	-	-
Stage 2	374	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	196	642	-	-	1037	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.4	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	230	1037
HCM Lane V/C Ratio	-	-	0.273	0.06
HCM Control Delay (s)	-	-	26.4	8.7
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.1	0.2

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		T		T	T
Traffic Vol, veh/h	49	13	580	35	54	746
Future Vol, veh/h	49	13	580	35	54	746
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	51	14	604	36	56	777

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1511	622	0	0	640	0
Stage 1	622	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	203	583	-	-	954	-
Stage 1	539	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	191	583	-	-	954	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	381	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.7	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	222	954
HCM Lane V/C Ratio	-	-	0.291	0.059
HCM Control Delay (s)	-	-	27.7	9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.2	0.2