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September 14, 2021

**RE: Post Construction Memorandum
Starbucks with Drive-Through
Block 20.01, Lot 1
Borough of Midland Park, Bergen County, New Jersey
SE&D Job No. S-19073**

Stonefield Engineering and Design, LLC (“Stonefield”) has prepared this memorandum to examine the post-construction operations of the recently developed Starbucks with drive-through and compare that to the conclusions made in the Traffic Impact Study prepared by Stonefield, dated November 8, 2019. The subject property is located at the southwest quadrant of the intersection of Godwin Avenue and Habben Avenue in the Borough of Midland Park, Bergen County, New Jersey. The subject property is designated as Block 20.01, Lot 1 as depicted on the Borough of Midland Park Tax Map. The site has approximately 90 feet of frontage along Godwin Avenue, approximately 227 feet of frontage along Habben Avenue, and approximately 149 feet of frontage along Van Blarcom Avenue. Under the development program, the previously existing building was repurposed as a 2,800-square-foot Starbucks with drive-through service. Access is provided via one (1) ingress-only driveway along Van Blarcom Avenue and one (1) full-movement driveway along Van Blarcom Avenue.

2021 Data Collection

Manual turning movement counts, detailed queue length counts, parking counts, and drive-through transaction time counts were collected during the typical weekday morning and Saturday morning time periods to evaluate post-construction conditions at the subject site. Turning movement counts at the driveways were collected to identify the operational trip generation of the Starbucks with drive-through service. Specifically, data collection of the fully developed site were conducted on the following dates and during the following times:

- ◆ Tuesday, August 17, 2021 from 7:00 a.m. to 9:00 a.m.
- ◆ Saturday, August 21, 2021 from 7:00 a.m. to 9:30 a.m.

The study time periods were chosen as they are representative of the peak periods of both the adjacent roadway network and the proposed development. The study time periods are also consistent with those studied in the Traffic Impact Study prepared by Stonefield, dated November 8, 2019. The Technical Appendix contains a summary of the turning movement count data, the queue length counts, the parking counts and the transaction time counts.

Trip Generation

Based on the Traffic Impact Study prepared by Stonefield, dated November 8, 2019, trip generation projections were prepared utilizing the ITE’s Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 937 “Coffee/Donut Shop with Drive-Through Window” were cited for the 2,800-square-foot Starbucks with drive-through service. **Table I** provides the projected weekday morning and Saturday morning trip generation volumes from this study.

TABLE 1 – PROJECTED TRIP GENERATION

Land Use	Weekday Morning Peak Hour			Saturday Morning Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
2,800 SF Coffee Shop w/ Drive-Through Window <i>ITE Land Use 937</i>	118	113	231	114	114	228

The turning movement counts collected at the driveways as part of this study were used to determine the operational peak hour trip generation of the Starbucks with drive-through. **Table 2** provides the as-counted weekday morning and Saturday morning operational peak hour trip generation volumes associated with the development. **Table 3** compares the projected trip generation volumes for the development and the operational trip generation of the development.

TABLE 2 – OPERATIONAL TRIP GENERATION

Land Use	Weekday Morning Peak Hour			Saturday Morning Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Starbucks with Drive-Through Window	100	86	186	88	82	170

Note: As-counted volumes.

TABLE 3 – PROJECTED TRIP GENERATION vs. OPERATIONAL TRIP GENERATION

Trip Generation	Weekday Morning Peak Hour			Saturday Morning Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Projected	118	113	231	114	114	228
Operational	100	86	186	88	82	170
Difference	-18	-27	-45	-26	-32	-58

Based on Table 3 above, the projected trip generation of the site is greater than the operational trip generation.

Queue Length

Based on the Traffic Impact Study conducted by Stonefield, the Starbucks drive-through aisle was expected to provide a stacking capacity of nine (9) vehicles. During the post-construction site visit, the weekday morning peak hour average queue length was observed to be six (6) vehicles, the 85th percentile queue length was observed to be nine (9) vehicles, and the maximum queue length was observed to be 13 vehicles. During the Saturday morning peak hour, the average queue length was observed to be four (4) vehicles, the 85th percentile queue length was observed to be eight (8) vehicles, and the maximum queue length was observed to be 11 vehicles. The drive-through queue was observed to spill onto Van Blarcom Avenue once during the entire post construction study, and was cleared after one (1) vehicle.

Parking Counts

The Starbucks with drive-through provides a total of 18 parking spaces on-site, inclusive of two (2) ADA-accessible parking spaces. During the post-construction site visit, the weekday morning peak hour average parking demand was observed to be nine (9) vehicles and the maximum parking demand was observed to be 15 vehicles. During the Saturday morning peak hour, the average parking demand was observed to be 11 vehicles and the maximum parking demand was observed to be 15 vehicles. As such, the parking supply of 18 spaces is sufficient and accommodates the maximum observed parking demand.

Transaction Times

Starbucks has indicated that they strive to achieve four (4) minutes (or 240 seconds) between when a customer places an order and the pick-up window. During the post-construction site visit, the weekday morning peak hour average transaction time was observed to be 4 minutes and 10 seconds (or 250 seconds). During the Saturday morning peak hour, the average transaction time was observed to be 4 minutes and 18 seconds (or 258 seconds). As such, the observed transaction time is within 5% of the target transaction time during the weekday morning peak hour and within 7.5% of the target transaction time during the Saturday morning peak hour.

Conclusion

The projected operations of the Starbucks with drive-through in the Traffic Impact Study prepared by Stonefield, dated November 8, 2019, were compared to the observed operations of the constructed development. It was found that the operational peak hour trip generation was lower than the projected trip generation during the weekday morning and Saturday morning peak hours. The average operational queue length is less than the stacking provided on-site, and the queue spilled back onto Van Blarcom Avenue once during the entire study. The provided parking supply is greater than the observed maximum parking demand during the weekday morning and Saturday morning time periods. The operational transaction times are within 7.5% of the target transaction times during the weekday morning and Saturday morning time periods. Overall, the constructed Starbucks with drive-through operates consistently with the projections from the Traffic Impact Study.

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

Best regards,

DRAFT

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

TECHNICAL APPENDIX

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Table A1: Turning Movement Count Data

Borough of Midland Park, Bergen County, New Jersey

Intersection of Van Blarcom Avenue & Drive-Through Aisle

Time	Van Blarcom Avenue	
	Northbound	Southbound
	Left	Right
8/17/2021		
7:00:00 AM	3	8
7:15:00 AM	2	11
7:30:00 AM	0	18
7:45:00 AM	0	17
8:00:00 AM	1	18
8:15:00 AM	0	19
8:30:00 AM	3	20
8:45:00 AM	0	24
8/21/2021		
7:00:00 AM	1	8
7:15:00 AM	0	13
7:30:00 AM	0	9
7:45:00 AM	0	10
8:00:00 AM	1	12
8:15:00 AM	0	12
8:30:00 AM	0	14
8:45:00 AM	1	11
9:00:00 AM	3	14
9:15:00 AM	0	20

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Table A2: Turning Movement Count Data

Borough of Midland Park, Bergen County, New Jersey

Intersection of Van Blarcom Avenue & Full-Movement Driveway

Time	Full-Movement Driveway		Van Blarcom Avenue	
	Eastbound		Northbound	Southbound
	Right	Left	Left	Right
8/17/2021				
7:00:00 AM	5	6	0	0
7:15:00 AM	5	5	1	0
7:30:00 AM	12	4	5	1
7:45:00 AM	20	7	2	2
8:00:00 AM	10	5	2	0
8:15:00 AM	14	10	2	2
8:30:00 AM	8	8	0	3
8:45:00 AM	15	16	1	5
8/21/2021				
7:00:00 AM	4	8	0	5
7:15:00 AM	3	8	2	1
7:30:00 AM	8	10	1	2
7:45:00 AM	6	8	1	1
8:00:00 AM	10	6	4	3
8:15:00 AM	6	4	1	1
8:30:00 AM	11	11	2	7
8:45:00 AM	6	14	2	3
9:00:00 AM	12	6	4	1
9:15:00 AM	9	13	4	2

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Table A3: Queue Length Counts

Borough of Midland Park, Bergen County, New Jersey

Weekday AM			Saturday AM		
8/17/2021			8/21/2021		
Time	Cycle	Car	Time	Cycle	Car
7:00:00 AM	1	0	7:00:00 AM	1	2
7:05:00 AM	2	2	7:05:00 AM	2	2
7:10:00 AM	3	2	7:10:00 AM	3	3
7:15:00 AM	4	0	7:15:00 AM	4	1
7:20:00 AM	5	6	7:20:00 AM	5	7
7:25:00 AM	6	2	7:25:00 AM	6	8
7:30:00 AM	7	2	7:30:00 AM	7	6
7:35:00 AM	8	4	7:35:00 AM	8	2
7:40:00 AM	9	10	7:40:00 AM	9	0
7:45:00 AM	10	7	7:45:00 AM	10	1
7:50:00 AM	11	8	7:50:00 AM	11	3
7:55:00 AM	12	6	7:55:00 AM	12	0
8:00:00 AM	13	3	8:00:00 AM	13	1
8:05:00 AM	14	2	8:05:00 AM	14	4
8:10:00 AM	15	6	8:10:00 AM	15	3
8:15:00 AM	16	7	8:15:00 AM	16	3
8:20:00 AM	17	6	8:20:00 AM	17	1
8:25:00 AM	18	6	8:25:00 AM	18	2
8:30:00 AM	19	7	8:30:00 AM	19	4
8:35:00 AM	20	6	8:35:00 AM	20	7
8:40:00 AM	21	8	8:40:00 AM	21	8
8:45:00 AM	22	12	8:45:00 AM	22	5
8:50:00 AM	23	13	8:50:00 AM	23	3
8:55:00 AM	24	10	8:55:00 AM	24	4
9:00:00 AM	25	9	9:00:00 AM	25	5
Average Demand		6	9:05:00 AM	26	3
85th Percentile		9	9:10:00 AM	27	7
			9:15:00 AM	28	6
			9:20:00 AM	29	9
			9:25:00 AM	30	11
			9:30:00 AM	31	9
			Average Demand		4
			85th Percentile		8

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Table A4: Parking Counts

Borough of Midland Park, Bergen County, New Jersey

Weekday AM

8/17/2021

Time	Section			Total Demand
	A	B	C	
7:00:00 AM	3	3	0	6
7:05:00 AM	3	3	0	6
7:10:00 AM	3	3	0	6
7:15:00 AM	3	3	0	6
7:20:00 AM	3	3	0	6
7:25:00 AM	3	3	0	6
7:30:00 AM	4	3	0	7
7:35:00 AM	4	3	2	9
7:40:00 AM	3	3	2	8
7:45:00 AM	4	3	2	9
7:50:00 AM	6	3	2	11
7:55:00 AM	3	3	2	8
8:00:00 AM	3	3	2	8
8:05:00 AM	3	3	2	8
8:10:00 AM	4	3	2	9
8:15:00 AM	4	3	2	9
8:20:00 AM	4	3	2	9
8:25:00 AM	5	3	2	10
8:30:00 AM	5	3	2	10
8:35:00 AM	5	3	2	10
8:40:00 AM	5	3	3	11
8:45:00 AM	6	4	2	12
8:50:00 AM	5	3	2	10
8:55:00 AM	6	4	5	15
9:00:00 AM	4	3	2	9
Average Demand				9

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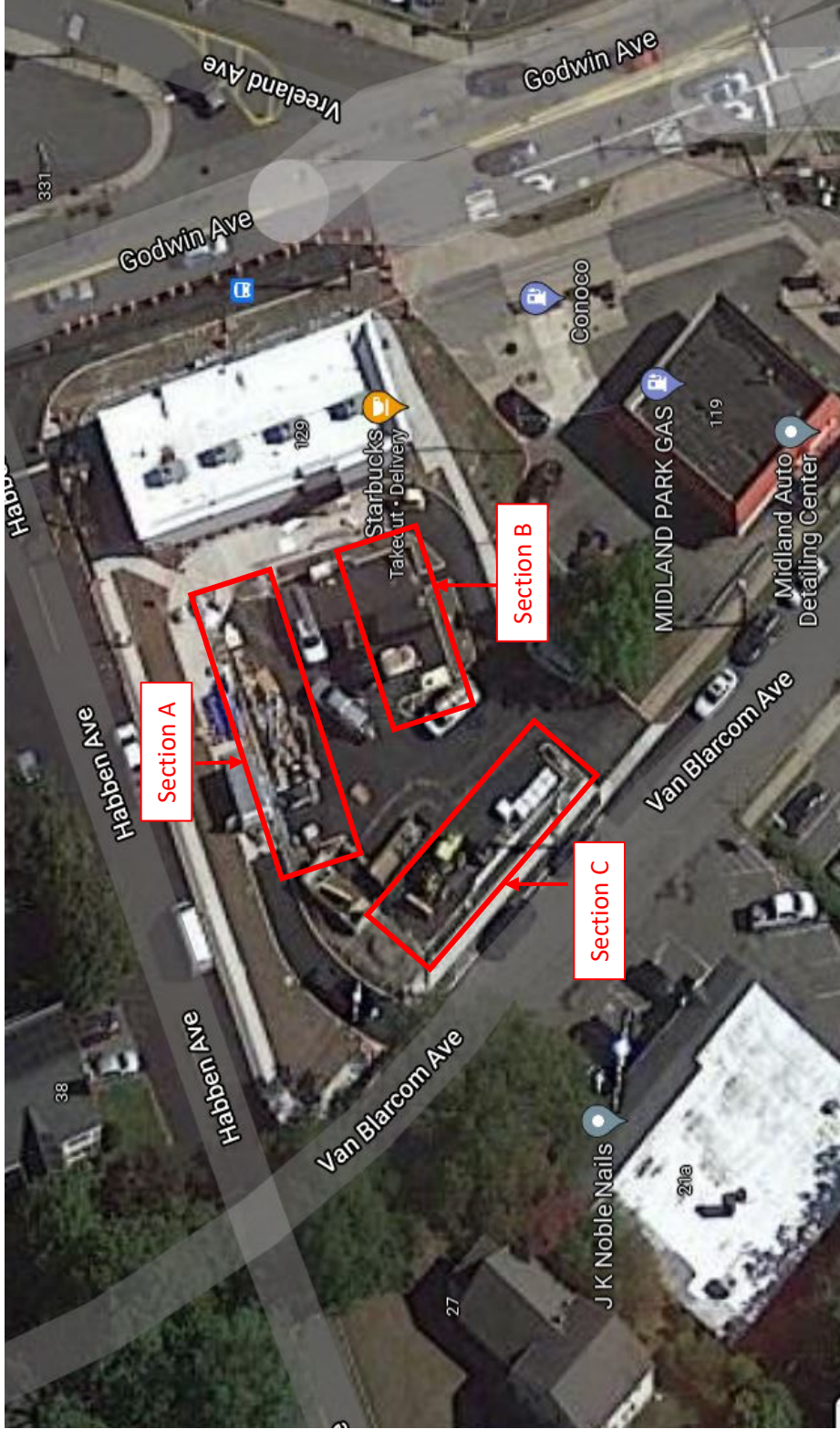
Table A5: Parking Counts

Borough of Midland Park, Bergen County, New Jersey

Saturday AM

8/21/2021

Time	Section			Total Demand
	A	B	C	
7:00:00 AM	5	2	0	7
7:05:00 AM	4	2	0	6
7:10:00 AM	5	3	1	9
7:15:00 AM	5	3	2	10
7:20:00 AM	5	3	2	10
7:25:00 AM	5	3	4	12
7:30:00 AM	5	3	4	12
7:35:00 AM	5	3	5	13
7:40:00 AM	5	3	3	11
7:45:00 AM	4	3	3	10
7:50:00 AM	4	3	3	10
7:55:00 AM	4	3	2	9
8:00:00 AM	3	3	2	8
8:05:00 AM	3	3	3	9
8:10:00 AM	3	3	4	10
8:15:00 AM	4	3	2	9
8:20:00 AM	3	3	3	9
8:25:00 AM	3	3	3	9
8:30:00 AM	4	4	3	11
8:35:00 AM	5	4	4	13
8:40:00 AM	5	4	6	15
8:45:00 AM	4	4	5	13
8:50:00 AM	4	4	4	12
8:55:00 AM	5	4	3	12
9:00:00 AM	4	4	3	11
9:05:00 AM	5	4	2	11
9:10:00 AM	4	4	3	11
9:15:00 AM	5	4	3	12
9:20:00 AM	4	4	5	13
9:25:00 AM	4	4	4	12
9:30:00 AM	4	4	4	12
Average Demand				11



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129 Godwin Avenue
Borough of Midland Park, Bergen County, New Jersey

Figure A1:
Parking Section Map

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Table A6: Transation Time Counts

Borough of Midland Park, Bergen County, New Jersey

Weekday AM			Saturday AM		
8/17/2021			8/21/2021		
Time In	Time Out	Total Time	Time In	Time Out	Total Time
7:01:00 AM	7:03:00 AM	02:00	7:03:00 AM	7:07:00 AM	04:00
7:03:00 AM	7:06:00 AM	03:00	7:04:00 AM	7:07:00 AM	03:00
7:05:00 AM	7:08:00 AM	03:00	7:09:00 AM	7:11:00 AM	02:00
7:11:00 AM	7:14:00 AM	03:00	7:17:00 AM	7:20:00 AM	03:00
7:18:00 AM	7:20:00 AM	02:00	7:18:00 AM	7:26:00 AM	08:00
7:19:00 AM	7:24:00 AM	05:00	7:21:00 AM	7:30:00 AM	09:00
7:21:00 AM	7:25:00 AM	04:00	7:24:00 AM	7:31:00 AM	07:00
7:25:00 AM	7:28:00 AM	03:00	7:32:00 AM	7:37:00 AM	05:00
7:27:00 AM	7:30:00 AM	03:00	7:36:00 AM	7:39:00 AM	03:00
7:39:00 AM	7:46:00 AM	07:00	7:41:00 AM	7:43:00 AM	02:00
7:50:00 AM	7:55:00 AM	05:00	7:50:00 AM	7:55:00 AM	05:00
8:05:00 AM	8:08:00 AM	03:00	8:00:00 AM	8:04:00 AM	04:00
8:10:00 AM	8:15:00 AM	05:00	8:03:00 AM	8:08:00 AM	05:00
8:18:00 AM	8:22:00 AM	04:00	8:12:00 AM	8:14:00 AM	02:00
8:23:00 AM	8:27:00 AM	04:00	8:13:00 AM	8:15:00 AM	02:00
8:33:00 AM	8:36:00 AM	03:00	8:24:00 AM	8:29:00 AM	05:00
8:37:00 AM	8:44:00 AM	07:00	8:32:00 AM	8:35:00 AM	03:00
8:43:00 AM	8:51:00 AM	08:00	8:44:00 AM	8:48:00 AM	04:00
8:52:00 AM	8:59:00 AM	07:00	8:48:00 AM	8:51:00 AM	03:00
			8:52:00 AM	8:57:00 AM	05:00
			8:58:00 AM	9:04:00 AM	06:00
			9:00:00 AM	9:05:00 AM	05:00
			9:07:00 AM	9:12:00 AM	05:00
			9:14:00 AM	9:19:00 AM	05:00
			9:19:00 AM	9:25:00 AM	06:00
			9:20:00 AM	9:26:00 AM	06:00