



181 WEST HIGH STREET
SOMERVILLE, NJ 08876

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TRAFFIC & PARKING STUDY

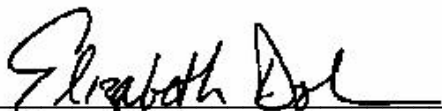
FOR

170 NORTH MAIN STREET

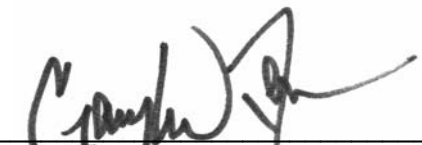
PROPOSED MIXED-USE DEVELOPMENT

BLOCK 301, LOT 1
BOROUGH OF WHARTON
MORRIS COUNTY, NEW JERSEY

OCTOBER 8, 2020



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TRAFFIC ENGINEERING
PARKING STUDIES
HIGHWAY DESIGN
DOT ACCESS PERMITS
MUNICIPAL CONSULTING

INTRODUCTION

Dolan & Dean Consulting Engineers, LLC (D&D) has prepared this traffic and parking study for redevelopment of a property located on the east side of North Main Street in the Borough of Wharton, Morris County, New Jersey. The subject location is south of Ross Street and north of the North Main Street Extension.

According to the site and architectural plans, the new mixed-use development will include the following uses:

- 54 one-bedroom dwelling units
- 12 two-bedroom dwelling units
- 9 three-bedroom dwelling units
- Two restaurants totaling approximately 3,000 square feet
- 7,819 square feet of retail space

Access is proposed via one right-in/right-out driveway on North Main Street, one full-movement driveway on Ross Street, and one full-movement driveway on the North Main Street Extension.

This report provides an assessment of the existing roadway infrastructure in the vicinity of the site, identification of projected trip generation and evaluation of the proposed on-site parking supply.



EXISTING CONDITIONS

The subject property is designated as Block 301, Lot 1, located with frontage along North Main Street and Ross Street. To the south, the site is bordered by the North Main Street Extension, which is under construction. The subject property is currently developed with an industrial building.

North Main Street is designated as County Route 634 with a north-south orientation, and curving horizontal alignment. One lane is provided per each direction of travel and the speed limit is 25 miles per hour. On-street parking is not permitted. Sidewalks are present on both sides of the street.

Ross Street is a local east/west roadway that intersects North Main Street from the northeast. Ross Street is a dead-end roadway with STOP sign control on the approach to North Main Street.

The North Main Street Extension is a new roadway under construction on the southerly side of the site, which will intersect North Main Street and extend to East Dewey Avenue northeast of the site. Along the site frontage one lane per direction of travel will be provided. On the approach to North Main Street, separate left-turn and right-turn lanes are proposed.



TRAFFIC CHARACTERISTICS OF THE PROPOSED USE

As noted, the new development will include approximately 7,800 square feet of commercial space, as well as approximately 3,000 square feet of restaurant space, in addition to 75 apartments. Although there are no specific restaurant tenants at this time, the applicant is anticipating a coffee/breakfast use and a second restaurant that will serve lunch and dinner. To estimate peak hour driveway volumes, reference is made to the 10th Edition of the Trip Generation Manual by the Institute of Transportation Engineers (ITE). The following ITE land use categories were specifically referenced:

- Land Use 932 – High-Turnover (Sit-Down) Restaurant
- Land Use 936 – Coffee/Donut Shop without Drive-Through
- Land Use 820 – Shopping Center
- Land Use 220 – Multifamily Residential (Mid-Rise)

Table I summarizes the total trip generation projections for each use, for the weekday morning and evening peak hours, and the Saturday midday peak hour.

TABLE I
TOTAL TRIP GENERATION PROJECTIONS

PEAK HOUR	LAND USE	ENTER	EXIT	TOTAL
Morning	1,500 SF Restaurant	8	7	15
	1,500 SF Coffee/Donut Shop	76	76	152
	7,819 SF Retail	4	3	7
	75 Apartments	<u>7</u>	<u>20</u>	<u>27</u>
	Total	95	106	201
Evening	1,500 SF Restaurant	9	6	15
	1,500 SF Coffee/Donut Shop	27	27	54
	7,819 SF Retail	41	41	82
	75 Apartments	<u>21</u>	<u>13</u>	<u>34</u>
	Total	98	87	185
Saturday	1,500 SF Restaurant	9	8	17
	1,500 SF Coffee/Donut Shop	44	44	88
	7,819 SF Retail	42	42	84
	75 Apartments	<u>19</u>	<u>19</u>	<u>38</u>
	Total	114	113	227



The estimates shown in Table I take no credit for use of public transportation or for shared trips between the residential and commercial uses. In addition, as documented in the 3rd Edition of ITE's Trip Generation Handbook, many land uses draw traffic already on the adjacent roads in the form of pass-by trips. Based on ITE and in-house data, the following pass-by credits are applicable:

- 34% retail pass-by during the evening peak hour
- 26% retail pass-by during the Saturday peak hour
- 50% pass-by for the coffee/donut shop during all peak hours

When the pass-by credits are applied, the following new and pass-by trips are calculated:

TABLE II
TRIP GENERATION BY USE AND TYPE

PEAK HOUR	TRIP TYPE	ENTER	EXIT	TOTAL
Morning	New	57	68	125
	Pass By	<u>38</u>	<u>38</u>	<u>76</u>
	Total	95	106	201
Evening	New	71	60	130
	Pass By	<u>27</u>	<u>27</u>	<u>54</u>
	Total	98	87	185
Saturday	New	81	80	161
	Pass By	<u>33</u>	<u>33</u>	<u>66</u>
	Total	114	113	227

As previously described, the site will be served via three driveways which will allow traffic to be distributed in different directions without negatively impacting the North Main Street intersections with Ross Street or the North Main Street Extension. Trips to/from the northeast will be made via the driveway on the North Main Street Extension, with no impacts to North Main Street. Trips to/from the north will likely use the Ross Street intersection and trips to/from the south on North Main Street will use the new intersection.



PARKING

The following parking requirements are summarized on the site plan by Stewart Surveying and Engineering, LLC:

- 1 space/400 SF of commercial space $7,819 \text{ SF}/400 = 19.5 \text{ spaces}$
- 1 space/4 restaurant seats $98 \text{ seats}/4 = 24.5 \text{ spaces}$
- 1.8 spaces/1-bedroom unit $54 \times 1.8 = 97.2 \text{ spaces}$
- 2.0 spaces/2-bedroom unit $12 \times 2.0 = 24 \text{ spaces}$
- 2.1 spaces/3-bedroom unit $9 \times 2.1 = 18.9 \text{ spaces}$

The overall requirement is 184 parking spaces, whereas the plan shows 167 parking spaces.

A shared parking analysis has been performed using data published in the 5th Edition of the Parking Generation Manual by the ITE. Appended to this report are the calculations showing the hour-by-hour parking demand for each of the proposed uses for both a weekday and Saturday. Using the parking requirements summarized on the site plan and the hour-by-hour ITE parking demands per land use, a maximum parking demand of 135 spaces is calculated for a weekday and a parking demand of 150 spaces is calculated for a Saturday.

Recognizing that residential parking demands peak overnight, when there is no commercial parking demand, the combination of uses can successfully share parking, with a calculated surplus of 17 spaces.



TECHNICAL APPENDIX

Hour	WEEKDAY SHARED PARKING ANALYSIS								Total Spaces
	Residential		Retail		Restaurant		Coffee/Donut Shop		
	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	
5:00 – 6:00 am	94	132	0	0	0	0	20	3	135
6:00 – 7:00 am	83	117	0	0	10	2	30	4	123
7:00 – 8:00 am	71	100	5	1	25	3	73	9	113
8:00 – 9:00 am	61	86	15	3	68	9	100	12	110
9:00 – 10:00 am	55	77	32	7	72	9	63	8	101
10:00 – 11:00 am	54	76	54	11	77	10	57	7	104
11:00 – 12:00 pm	53	75	71	15	83	10	42	6	106
12:00 – 1:00 pm	50	70	99	20	100	12	39	5	107
1:00 – 2:00 pm	49	69	97	20	91	11	27	4	104
2:00 – 3:00 pm	49	69	90	18	56	7	10	2	96
3:00 – 4:00 pm	50	70	83	17	42	6	5	1	94
4:00 – 5:00 pm	58	82	81	17	42	6	5	1	106
5:00 – 6:00 pm	64	90	84	17	64	8	5	1	116
6:00 – 7:00 pm	67	94	86	18	87	11	5	1	124
7:00 – 8:00 pm	70	98	80	16	79	10	5	1	125
8:00 – 9:00 pm	76	107	63	13	65	8	5	1	129
9:00 – 10:00 pm	83	117	42	9	42	6	5	1	133

¹ ITE Parking Generation 5th edition

Hour	SATURDAY SHARED PARKING ANALYSIS								Total Spaces
	Residential		Retail		Restaurant		Coffee/Donut Shop		
	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	Percent of Maximum Parking Requirement ¹	Number of Spaces	
5:00 – 6:00 am	99	139	0	0	0	0	20	0	139
6:00 – 7:00 am	97	136	0	0	15	2	100	12	150
7:00 – 8:00 am	95	133	0	0	28	4	90	11	148
8:00 – 9:00 am	88	124	27	6	52	7	80	10	147
9:00 – 10:00 am	83	117	46	10	75	9	65	8	144
10:00 – 11:00 am	75	105	67	14	91	11	62	8	138
11:00 – 12:00 pm	71	100	85	17	100	12	40	5	134
12:00 – 1:00 pm	68	96	95	19	90	11	32	4	130
1:00 – 2:00 pm	66	93	100	20	80	10	10	2	125
2:00 – 3:00 pm	70	98	98	20	67	9	5	1	128
3:00 – 4:00 pm	69	97	92	19	45	6	5	1	123
4:00 – 5:00 pm	72	101	86	18	39	5	5	1	125
5:00 – 6:00 pm	74	104	79	16	40	5	5	1	126
6:00 – 7:00 pm	74	104	71	15	40	5	5	1	125
7:00 – 8:00 pm	73	103	69	14	58	7	5	1	125
8:00 – 9:00 pm	75	105	60	12	40	5	5	1	123
9:00 – 10:00 pm	78	110	51	11	35	5	5	1	127

¹ ITE Parking Generation 5th edition