

PARKING EVALUATION
PLAINSBORO PLAZA
TOWNSHIP OF PLAINSBORO
MIDDLESEX COUNTY, NEW JERSEY

Prepared for:

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INTRODUCTION

The purpose of this Parking Evaluation is to evaluate the existing parking utilization and establish an appropriate parking requirement for this shopping center. We will also assess the impacts and parking demands related to the development of a 3,478 square foot stand-alone bank building with a single ATM drive-up lane (no teller service) and a bypass lane. The proposed bank pad will be located within the central portion of the existing parking lot, west of the CVS. Plainsboro Plaza currently contains a total of 228,294 square feet of which 192,969 square feet were occupied (84.5 percent occupancy) and operating at the time of our parking occupancy counts.

The existing center contains a mix of retail, day care, office/medical/dental, supermarket, restaurants and personal service uses. These are typical of a shopping center environment and the associated parking characteristics of a shopping center. While the CVS is located on a separate tax lot, its parking demand and the existing parking facilities are shared with the balance of the center. The square footage of the CVS is included within the total floor area of the shopping center.

This parking evaluation study has been prepared to provide recommendations regarding the appropriate parking requirement for this shopping center based upon a site specific parking occupancy study and a review of industry parking data. Industry parking data is based upon the Institute of Transportation Engineers (ITE) "Parking Generation Manual, 5th Edition". Further, we are also evaluating any potential impacts on parking supply as a result of the proposed bank with drive-up ATM window.

The proposed bank will generate a nominal increase in parking demand and will also eliminate a number of parking spaces. As part of this study, field observations were conducted during typical Friday afternoon hours and during typical Saturday hours during the midday period. This report will present the results of the field study, a review of ITE parking data, recommendations for appropriate parking requirements and an assessment of the change in parking demands and supply resulting from the proposed bank. The observed parking demands will be adjusted to calculate the parking demand for the unoccupied portion of the existing shopping center.

EXISTING CONDITIONS

The existing Plainsboro Plaza has been in operation for many years as a large neighborhood retail facility containing several large or anchor stores and surrounded by a number of smaller retail establishments. The main building contains approximately 215,794 square feet of space. There is also a separate building containing a CVS which contains 12,150 square feet adjacent to Schalks Crossing Road, for a total shopping center area of 228,294 square feet.

The shopping center can be accessed from four driveways, three along Schalks Crossing Road on the east side of the property and one along Plainsboro Road on the south side of the property. The parking lot supporting the retail center contains a clear

system of internal circulation aisles and right angled parking spaces. The main retail building has circulation aisles on all four sides.

Parking spaces on this property number a total of 984 parking spaces (plus 46 landbanked spaces), including 126 striped parking spaces in the rear of the main shopping center. There is a small parking area on the east side of the shopping center (by the McDonalds) which contains 53 spaces. The main parking area is located on the south side of the shopping center and contains a total of 805 parking spaces. This main parking area provides circulation aisles and access driveways permitting customers and employees to circulate freely throughout these main parking areas.

PARKING OCCUPANCY

We conducted parking occupancy counts on two typical days, Friday, November 4, 2022 between 12:00 PM and 5:30 PM and on Saturday, November 5, 2022 between 11:00 AM and 2:30 PM. The shopping center is currently at 84.5 percent occupancy. We had also previously performed parking occupancy counts on Friday, June 7, 2019 between 12:00 PM and 5:00 PM and on Saturday, June 8, 2019 between 11:30 AM and 2:30 PM. At the time of the parking counts in 2019 Plainsboro Plaza was at 46.4 percent occupancy. Based upon data published in the Institute of Transportation Engineers (ITE) Parking Generation Manual, 5th Edition, these times encompass the peak parking demand periods of a shopping center.

The parking accumulation counts were performed by circulating through the parking area and accounting for all occupied spaces in the shopping center. The observations included all of the parking areas serving the shopping center and CVS, including the rear parking areas. The overall parking for the center was divided into five (5) sectors which can be described as such:

- Area 1 – the parking area adjacent to the western portion of the shopping center, containing 384 parking spaces
- Area 2 – the parking area south of the Asian Food Market, containing 383 parking spaces
- Area 3 – the parking proximate to the CVS containing, 38 parking spaces
- Area 4 – the parking area between Schalks Crossing Road and the in-line stores facing east, containing 53 spaces
- Area 5 – the parking area behind the shopping center, containing 126 parking spaces

The summary of the 2022 parking observations for the Friday data are presented in Table 1 and for the Saturday data, in Table 2. The table includes date and time of the survey; and separates the observed parking demand into the five (5) previously described sectors. We have also calculated the parking demand using the data contained in the ITE Parking Generation Manual, 5th Edition, for the center at full occupancy.

TABLE 1**Plainsboro Plaza Shopping Center, 10 Schalks Crossing Road, Plainsboro****Friday, November 4, 2022**

11/29/2022

Rev. 3/23/23

192,969

SF occupied (as
of 10/05/22)

START TIME	TOTAL	Area 1	Area 2	Area 3	Area 4	Area 5	PARKING RATIO (¹)
12:00 PM	333	122	92	24	47	48	1.73
12:30 PM	378	161	109	22	38	48	1.96
1:00 PM	350	139	99	19	44	49	1.81
1:30 PM	321	122	93	13	41	52	1.66
2:00 PM	302	109	83	16	47	47	1.57
2:30 PM	308	119	100	13	33	43	1.60
3:00 PM	311	103	104	23	40	41	1.61
3:30 PM	297	114	91	20	33	39	1.54
4:00 PM	287	117	102	20	24	24	1.49
4:30 PM	317	127	98	21	43	28	1.64
5:00 PM	353	154	124	23	25	27	1.83
5:30 PM	351	178	104	27	23	19	1.82
Parking Supply	984	384	383	38	53	126	
Available Parking Spaces @ Peak	606	223	274	16	15	78	
Peak Hour % Occupancy (¹)	38.4%	41.9%	28.5%	57.9%	71.7%	38.1%	
Max. % Occupancy (¹)	38.4%	46.4%	32.4%	71.1%	88.7%	41.3%	

ITE Parking Generation, 5th Edition - LUC 820, Weekday Friday, Average Peak Rate

Per Full Occupancy
(²)

2.61

(1) per occupied square footage (192,969 SF) on date of survey (11/4/22)

(2) full occupancy is 228,294 square feet

TABLE 2**Plainsboro Plaza Shopping Center, 10 Schalks Crossing Road, Plainsboro**
Saturday, November 5, 2022

11/29/2022

Rev. 3/23/23

192,969
SF occupied (as
of 10/05/22)

START TIME	TOTAL	Area 1	Area 2	Area 3	Area 4	Area 5	PARKING RATIO ⁽¹⁾
11:00 AM	299	108	118	13	43	17	1.55
11:30 AM	350	131	145	15	43	16	1.81
12:00 PM	357	149	133	18	40	17	1.85
12:30 PM	345	146	126	16	41	16	1.79
1:00 PM	363	159	128	17	42	17	1.88
1:30 PM	331	134	125	13	42	17	1.72
2:00 PM	287	119	107	13	34	14	1.49
2:30 PM	314	109	135	17	38	15	1.63
Parking Supply	984	384	383	38	53	126	
Available Parking Spaces @ Peak	621	225	255	21	11	109	
Peak Hour % Occupancy ⁽¹⁾	36.9%	41.4%	33.4%	44.7%	79.2%	13.5%	
Max. % Occupancy ⁽¹⁾	36.9%	41.4%	37.9%	47.4%	81.1%	13.5%	

ITE Parking Generation, 5th Edition - LUC 820, Saturday, Average Peak Rate

Per Full Occupancy ⁽²⁾

2.96

(1) per occupied square footage (192,969 SF) on date of survey (11/4/22)

(2) full occupancy is 228,294 square feet

Each table provides a total number of vehicles parked for each half-hour observation cycle and then a breakdown of the level of parking in each of the five sectors of the site's overall parking. The last column provides the parking ratio of observed parking to the current occupied square footage of the center. The shopping center had 192,969 square feet occupied (84.5% occupancy) and in operation at the time of our current parking occupancy studies.

The existing peak observed parking demand on a Friday occurred at 12:30 PM with an overall parking demand ration of 1.96 spaces per 1000 square feet of occupied space, with a peak parking utilization of only 38.4 percent. The ITE data calculates for a Friday that the average peak parking demand ration for a shopping center of this size is 2.61 spaces per 1000 square feet. Therefore, for Friday conditions this center is in the lower percentiles of the data presented in the ITE Parking Generation Manual. As shown in Table 1, there are currently 606 parking spaces in the center available for use at the peak time.

This compares to an observed parking ration of 3.18 spaces per 1000 square feet based upon the counts performed on a Friday in June 2019. The occupancy changes since 2019 include the following tenants:

- The Asian Market – 43,152 SF (net rentable area, typical)
- Eden Autism Services – 13,578 SF
- Squash Tigers – 9,011 SF
- Fencing Academy – 5,449 SF
- Pho Today – 3,000 SF
- Sumi Ramen – 2,350 SF
- Shuu Café – 1,974 SF
- Kung Fu Tea – 1,800 SF
- Art & Nails – 1,655 SF
- Allied Vision – increased space by 1,400 SF

The existing peak observed parking demand on a Saturday occurred at 1:00 PM with an overall parking demand ration of 1.88 spaces per 1000 square feet with a peak utilization of 36.9 percent. The ITE data calculates for a Saturday that the average peak parking demand ration for a shopping center of this size is 2.96 spaces per 1000 square feet. Therefore, for Saturday conditions this center is also in the lower percentiles of the data presented in the ITE Parking Generation Manual. As shown in Table 2, there are currently 621 parking spaces in the center available for use at the peak time.

The existing parking demand on a Saturday is likely lower as the day care and medical/dental spaces are closed and not generating parking demands during weekend periods. This compares to an observed parking ration of 2.10 spaces per 1000 square feet based upon the counts performed on a Saturday in June 2019.

From a zoning perspective, the observed parking ratio needs to be adjusted to account for turnover of spaces and to minimize customers seeking spaces. Industry references generally indicate that the peak observed parking demands should represent 80 to 90

percent of the necessary parking supply. Therefore, adjusting the observed Friday peak parking ration (which is the higher of the two days of observations), the required parking requirement would be 2.18 to 2.45 spaces per 1000 square feet. Comparing this to the ITE Parking Generation Manual, 5th Edition, the Friday peak average parking demand is 2.61 spaces per 1000 square feet and the Saturday peak average parking demand is 2.96 spaces per 1000 square feet, both of which far exceed what has been found at this shopping center during the current parking occupancy study.

The existing parking requirement in the Plainsboro Zoning Ordinance (§85-44A) is 5.5 spaces per 1,000 square feet for the shopping center and the bank has a parking requirement of 1 space for every 250 square feet of building area. The parking requirement for the shopping center is 1,256 spaces, while the proposed bank would result in a requirement of 14 spaces, for an overall total 1,270 spaces. The center previously received a parking variance to permit 1,030 parking spaces of which 46 spaces were landbanked.

However, as our parking occupancy studies have shown, the actual parking demands for this center are significantly less than the Township requirements. Further, the ITE Parking Generation Manual, 5th Edition indicates that the average peak and the 85th percentile parking demands are also 30 to 50 percent lower than the current Township parking requirements. Therefore, it is our recommendation that the parking requirement for Plainsboro Plaza be established at 3.5 spaces per 1000 square feet. This ration represents an increase of 78 percent above the observed Friday peak period and 86 percent above the observed Saturday peak period.

FUTURE PARKING DEMANDS

As part of our determination of future parking demands, we first need to calculate the parking demand of a fully occupied shopping center (which includes the remaining 35,325 square feet of currently vacant spaces all located west of The Asian Market) to assess the sufficiency of the current parking supply of this center. To be conservative, we have used for the Friday period the parking ration of 2.61 spaces per 1000 square feet found in the ITE Parking Generation Manual as this is higher than the observed parking ration of 1.96 spaces per 1000 square feet. For the Saturday peak period, we used the ITE Parking Generation Manual ration of 2.96 spaces per 1000 square feet as this is higher than the observed parking ration of 1.88 spaces per 1000 square feet.

We have distributed the overall increase in parking demand of the existing vacant spaces to both Areas 1 and 2 with a portion to the rear parking area. Utilization of the rear parking area is based upon current utilization and the total square footage of the shopping center as a percentage of the currently occupied space (228,294 divided by 192,969 equals 1.18).

On a Friday, the peak parking demand for a fully occupied shopping center calculates to 492 parking spaces (existing observed parking demand plus 35,325 square feet times 2.61). On a Saturday, the peak parking demand for a fully occupied shopping center calculates to 481 parking spaces (existing peak demand plus 35,325 square feet times

2.96). Both future peak parking demands are similar in magnitude and are appropriate in evaluating the required parking for the shopping center.

With full occupancy of the shopping center, this is approximately 48 percent of the existing available parking spaces on site for a Friday and 47 percent for a Saturday, which is a fairly low utilization and affirms that there is plentiful parking available on site. During the peak period on a Friday, there will be 505 spaces available and on a Saturday there are 513 spaces available.

The owner of Plainsboro Plaza proposes the construction of a stand-alone bank building containing 3,478 square feet plus one drive-up ATM lane based upon site plans prepared by Van Note – Harvey Division of Pennoni dated July 20, 2023. This bank pad is proposed in the southcentral portion of the Area 2 sector. The construction of this building and associated improvements would reduce the parking supply by a net of 63 parking spaces (75 spaces removed, 12 new spaces added) reducing the total number of on-site spaces to 921 spaces, and reducing the available landbanked spaces to 38, which are not included in the above parking totals.

Parking demand for this proposed bank is calculated with the use of the ITE Parking Generation Manual, 5th Edition. The calculated average peak parking demand for the building is presented in Table 3 for a typical weekday and Saturday.

TABLE 3
PARKING GENERATION – DRIVE-THRU BANK

LAND USE CATEGORY	SIZE	Average Demand	
		Weekday	Saturday
Bank w/Drive-Thru	3,478 SF	13	11

As can be seen in this table, the additional parking demand generated by the bank is fairly small. Adding the bank's peak parking demand to the parking demand of a fully occupied shopping center, the future parking demand (based upon ITE data) with the bank is 492 spaces (479 + 13) on a Friday and 482 spaces (471 + 11) on a Saturday.

We have then added the proposed parking demand for the bank to Area 2 and reduced the available parking in this sector as a result of the proposed bank construction. The proposed parking demand and utilization for Friday conditions is presented in Table 4; and for Saturday conditions in Table 5.

With the proposed bank and full occupancy of the existing shopping center there will still be 429 parking spaces available, at peak parking utilization of 53.4 percent, during the Friday peak period. On a Saturday with the proposed bank and full occupancy of the shopping center there will be 439 spaces available, at a peak parking utilization of 52.3 percent for the Saturday peak hour. **There will continue to be more than sufficient available parking on-site at full occupancy of the shopping center and with the proposed bank.**

TABLE 4

11/29/2022

Plainsboro Plaza Shopping Center, 10 Schalks Crossing Road, Plainsboro
Proposed Friday Conditions

Last Rev. 10/11/2023

	TOTAL	Area 1	Area 2	Area 3	Area 4	Area 5
Peak Existing Demand	378	161	109	22	38	48
Parking Demand - Occupancy of Existing Space ⁽¹⁾	101	39	53	0	0	9
Bank Demand	13		13			
TOTAL	492	200	175	22	38	57
Parking Supply ⁽²⁾	921	384	320	38	53	126
Available Parking Spaces	429	184	145	16	15	69
Peak Hour % Occupancy ⁽³⁾	53.4%	52.1%	54.7%	57.9%	71.7%	45.2%

(1) Vacant space @ ITE parking demand ratio of 2.61

(2) Main sector supply is reduced by a net of 63 spaces related to proposed bank, does not include 38 landbanked spaces

TABLE 5

11/29/2022

**Plainsboro Plaza Shopping Center, 10 Schalks Crossing Road, Plainsboro
Proposed Saturday Conditions**

Last Rev. 10/11/2023

	TOTAL	Area 1	Area 2	Area 3	Area 4	Area 5
Peak Existing Demand	363	159	128	17	42	17
Parking Demand - Occupancy of Existing Space ⁽¹⁾	108	44	60	0	0	3
Bank Demand	11		11			
TOTAL	482	203	199	17	42	20
Parking Supply ⁽²⁾	921	384	320	38	53	126
Available Parking Spaces	439	181	121	21	11	106
Peak Hour % Occupancy ⁽³⁾	52.3%	52.9%	62.3%	44.7%	79.2%	15.9%

(1) Vacant space @ ITE parking demand ratio of 2.96

(2) Main sector supply is reduced by a net of 63 spaces related to proposed bank, does not include 38 landbanked spaces

We have also prepared an analysis of the parking demand for the shopping center using the 85th percentile rates as contained in the ITE Parking Generation Manual, 5th Edition for the shopping center and drive-in bank land use categories. The findings of this calculation is contained in Table 6, which is based upon the full occupancy of the shopping center plus the proposed bank. As shown in Table 6, based upon current occupancy levels plus the proposed bank, the total 85th percentile parking demand would be 750 spaces on a Friday and 739 spaces on a Saturday. This represents approximately 80 to 81 percent capacity of the available parking not including the land banked spaces. These parking levels are approximately double of what we observed at this center.

The 85th percentile parking demand for a fully occupied shopping center plus the proposed bank would be 884 spaces on a Friday and 871 spaces on a Saturday. This represents approximately 91 to 92 percent of the existing parking supply including the land banked parking spaces.

These are very conservative parking demands and experience has shown they are unlikely to occur and even if they were to occur it would be for very few hours throughout the year. The mix of non-retail space and restaurants results in less peaking of the parking demand as it is spread over a larger period of time on a given day.

SITE PLAN REVIEW

The proposed bank layout is shown on the Van Note-Harvey site plans dated July 20, 2023. These site plans were preliminarily reviewed by the Township earlier this year and the current site plans incorporate the prior comments received from the Township. The size of the bank has been refined to comply with Chase's current prototype containing 3,478 square feet; and provides a single drive-up ATM lane with a bypass lane. There is no teller service available through the drive-up lane. The drive-up lane provides queuing for at least six (6) vehicles without blocking the bypass lane. This exceeds the five (5) vehicle queue storage requirement as set forth in §101-52R(6). Given that the drive-up lane only provides ATM service this queue length is more than sufficient as it is not anticipated there would be a queue of more than 1 or 2 vehicles behind the vehicle being serviced at the ATM.

The drive-up and associated bypass lane has been moved further from the southern site driveway, providing a minimum separation of approximately 45 feet which is an increase over the previously submitted concept plan. Further we note that the drive-up lane is further from the southern driveway than the existing parking spaces along this parking aisle. There is a minimum sight distance of 200 feet from the drive-up lane toward the southwest which represents the stopping sight distance for a 30 MPH design speed. We note that an approaching vehicle has even greater sight lines to the drive-up lane so they will be able to observe this traffic from a greater distance.

We have also relocated the refuse/recycling enclosure for the bank to the adjacent parking aisle. For this location Chase may not require a dumpster as their cleaning service may remove the refuse and recycling from the site. As this will be accessed

TABLE 6

3/23/2023

**Plainsboro Plaza Shopping Center, 10 Schalks Crossing Road, Plainsboro
ITE Parking Generation Manual, 5th Ed., 85th Percentile Parking Demand**

Last Rev. 10/11/2023

EXISTING OCCUPANCY	85th Percentile Parking Ration	Friday	85th Percentile Parking Ration	Saturday
Existing Parking Demand (192,929 SF)	3.78	729	3.74	722
Bank Demand (3,478 SF)	6.00	21	4.77	17
TOTAL - Existing Occupancy + Prop. Bank		750		739
Parking Supply ⁽¹⁾		921		921
Available Parking Spaces		171		182
Peak Hour % Occupancy		81.4%		80.2%

FULL OCCUPANCY	85th Percentile Parking Ration	Friday	85th Percentile Parking Ration	Saturday
Total Parking Demand (228,294 SF)	3.78	863	3.74	854
Bank Demand (3,478 SF)	6.00	21	4.77	17
TOTAL - Full Occupancy + Prop. Bank		884		871
Parking Supply ⁽²⁾		959		959
Available Parking Spaces		75		88
Peak Hour % Occupancy		92.2%		90.8%

(1) Main sector supply is reduced by the 63 spaces lost to proposed bank, does not include 38 landbanked spaces

(2) Main sector supply is reduced by the 63 spaces lost to proposed bank, includes 38 landbanked spaces

during early morning hours, there will be minimal conflicts with the adjacent parking spaces and circulation within the center. This masonry enclosure also is integrated into an evergreen landscape buffer that will shield the headlights of vehicles using the drive-up lane. This is an enhancement from the current parking configuration where screening does not exist.

SUMMARY AND CONCLUSIONS

This parking evaluation collected data regarding current parking activity at Plainsboro Plaza on a typical Friday and Saturday. The Friday observations were made during the 12:00 to 5:30 PM period; while the Saturday observations were made during the 11:00 AM to 2:30 PM period; both of which encompass the typical peak periods of shopping activity. It is recognized that at the time of the parking occupancy study the shopping center was operating at approximately 84.5 percent of full occupancy.

From the observed data, we calculated the observed parking ratio for the center which indicated that the Friday ratio was 1.96 spaces per 1000 square feet and Saturday was 1.88 spaces per 1000 square feet. The ITE Parking Generation Manual, 5th Edition indicates that the Friday average peak parking ratio calculates to be 2.61 spaces per 1000 square feet and the Saturday average peak parking ratio calculates to be 2.96 spaces per 1000 square feet. We calculated the parking occupancy of a fully leased and operating center using the higher of the parking ratios for each studied day applied to the currently unoccupied space. Based upon these data, we calculate the peak parking usage on a Friday to be 479 spaces and on a Saturday 471 spaces without the proposed bank.

The construction and occupancy of the proposed 3,478 square foot bank with a single drive-up ATM lane will generate an additional parking demand of 13 spaces on a Friday and 11 spaces on a Saturday based upon ITE parking data. We note that the peak Saturday demand for the bank would not coincide with the peak of the shopping center as the bank would likely be closed or soon to close at the peak shopping hour on Saturday (1:00 PM). Regardless, we have added this bank parking demand to the calculated peak of the shopping center.

We have distributed the overall parking demand increase as a result of the full occupancy of the center to the appropriate parking sectors we have defined on site. This distribution of parking assumes that there will be an increase in usage of the rear parking area by employees of the currently vacant spaces, as currently occurs within the center. As noted, the construction of the bank pad will result in the net loss of 63 parking spaces in Area 2 and the loss of an additional eight (8) land banked spaces.

Based upon this analysis, the construction of the bank will not have a negative impact on the overall parking demand or utilization at the shopping center based on its calculated displacement of parking spaces, its calculated average peak parking demand and the abundance of parking at the existing center. With the proposed bank and full occupancy of the existing shopping center there will still be 429 parking spaces available, at a peak parking utilization of 53.4 percent, during the Friday peak period.

On a Saturday with the proposed bank and full occupancy of the shopping center there will be 439 spaces available, at a peak parking utilization of 52.3 percent for the Saturday peak hour. **There will continue to be more than sufficient available parking on-site at full occupancy of the shopping center and with the proposed bank.**

To provide a further sensitivity analysis, we have also examined the calculated parking demands using the 85th percentile parking data from the ITE Parking Generation Manual, 5th Edition. For a fully occupied shopping center plus the bank, the 85th percentile parking demand is at 91 to 92 percent of the capacity of the existing parking supply including the 38 landbanked parking spaces. The 85th percentile parking demand results in values double of what was observed during our November 2022 parking counts. Further, given the mix of tenants in this center including the day care, office/medical space and restaurants, there will be less peaking of the parking demand and in our professional opinion, the 85th percentile parking demands far exceed what is likely to occur.

In our professional opinion, the calculated parking demand at full occupancy with the proposed bank will continue to be more than adequately served by the existing parking supply within the center without the landbanked parking spaces. We conclude that the proposed bank is an appropriate use of the property from a parking perspective and will not negatively impact available parking at this center.

The foregoing is a true representation of my findings.



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