

TO: Planning Board, Plainsboro Township

FROM: Karl A. Pehnke, P.E.

INFO: Project Team

DATE: July 17, 2024

RE: **Parking Analyses
Princeton Nurseries
Plainsboro, NJ
Langan Project No.: 130091505**

The principals of smart growth serve to balance growth in communities by promoting development that provides a clustered mix of land uses in a compact environment. The proposed integrated mixed-use development envisioned for the Princeton Nurseries site incorporates these principals of smart growth to create a walkable, mixed-use development. Following the principals of smart growth, the integrated mixed-use neighborhood development proposed for the site includes a commercial-residential environment with the ability to leverage the benefits of shared parking. Shared parking as defined by the Urban Land Institute (ULI) is "the use of a parking space to serve two or more individual land uses without conflict or encroachment." Further, ULI identifies that the ability to share parking results from several conditions as follows:

- "Variations in the accumulation of vehicles by hour, by day, or by season at the individual land uses, and
- Relationships among the land uses that result in visiting multiple land uses on the same auto trip."

Shared parking design is applicable to those elements of a mixed-use project that are designed and managed as walkable environment that is supported by a general parking lot or strategically placed parking structures. Office, retail, restaurants, hotel and residential provide an optimum opportunity for shared parking design as the peak activity associated with use types differ significantly with retail typically requiring its peak parking supply on weekends and weekday evenings, office requiring a peak parking supply mid-morning and afternoon on weekdays and residential generally peaking during evening and overnight hours. The number of spaces required in a shared parking environment can be calculated utilizing the procedures documented in the Urban Land Institute (ULI) publication Shared Parking, 3rd Edition. Any part of the parking supply that is restricted or protected, such as a designated number of reserved

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spaces for residents, is not included in the shared parking pool and must be accounted for in the parking supply.

Design of the mixed-use development parking supply based upon PMUD zoning ordinance calculations for each individual land uses would result in excessive parking for the mixed-use development resulting in an inefficient design of the parking and circulation elements of the project. The Princeton Nurseries plan provides several areas where shared parking will be successful. Those areas include Block A mixed use area of residential and retail space supported by a parking deck and adjoining surface lot and street parking; Block B with building B providing a mixed use building of residential and retail space supported by a parking deck and adjoining surface lot and street parking; and, Block D with buildings D1, D2 and D3 containing a mix of retail and office space which share a surface parking lot and adjoining on-street parking.

Block C with the Hotel and restaurant are designed to meet the parking requirements as defined in the ordinance, but certainly will benefit from interaction with the adjoining residential communities and mixed-use office/ commercial areas.

The Eastern and Western residential areas are designed to provide parking in accordance with the Residential Site Improvement Standards. These residential areas are supported by a system of sidewalks that link the residents to the commercial areas and will further reduce the parking demand in the commercial areas due to walkability of patrons of the commercial establishments by residents of Princeton Nurseries.

The following analyses has been prepared of the commercial mixed-use areas utilizing the methodology Shared Parking, Third Edition, published by The Urban Land Institute, International Council of Shopping Centers, and National Parking Association. We note that in preparing the analyses, we have not included the added benefit of the immediately adjoining residential communities within Princeton Nurseries which have the option to walk to the commercial establishments in lieu of using a vehicle.

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BLOCK A

Blocks A is proposed to be developed with a total of 22,135 n.s.f. of commercial retail space and 136 residential units. Building A will contain 136 residential units divided into 62 single bedroom/ studio apartments, 64 two-bedroom apartments and 10 three-bedroom apartments. Parking provided for this area includes approximately 211 garage parking spaces 102 surface lot and 69 adjoining on-street parking spaces for a total of 382 parking spaces supporting building A. The 211 parking spaces within the parking garage will be controlled and will be accessible for residents of the building and employees of the commercial tenants.

Use	Parking Required by Ordinance 101-143	Parking Required
Retail 22,135 n.s.f. (Up to 30% restaurant)	5.5 per 1,000 sf of gross floor area	122
62 one- bedroom units, 64 two-bedroom units, 10 three- bedroom units	1.8 per one-bedroom; 2.0 per two-bedroom; 2.1 per three-bedroom	261
Total Required Per Ordinance		383
Required Per Shared Parking per 101-143 D. (4)		344 (211 reserved; 133 shared)
Provided	211 In Building A Garage 102 In Building A Surface Lot 69 On-Street	382(211 reserved; 171 shared)

The total parking provided (not including a credit for EV spaces) is slightly less than the sum of the parking spaces required by ordinance for the individual uses. However, per 101-143 D. (4) the applicant can provide alternative parking supply subject to demonstrating to the satisfaction of the Planning Board using a shared parking analyses that an adequate amount of parking will be provided on the site for all proposed uses. The methodology used by the applicant to calculate the reduced number of parking spaces may consider the methods recommended in "Shared Parking," published by the Urban Land Institute, or other recognized standards acceptable to the Planning Board.

Accordingly, Langan has calculated the number of spaces required in a shared parking environment utilizing the procedures documented in the Urban Land Institute (ULI) publication Shared Parking, 3rd Edition. Based on Shared Parking the mix of residential, retail, and restaurant space will require 344 parking spaces to accommodate peak demands projected during weekend periods in December while 382 are provided (211 residential/ employee spaces in the Building A Parking Garage, 171 surface lot/ on-street parking spaces shared).

Based on the shared parking analyses, more than adequate parking spaces will be available to support the residential and commercial uses located within Block A.

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BLOCK B

Blocks B is proposed to be developed with a total of 26,485 n.s.f. of commercial retail space and 196 residential units. Building B contains 199 residential units divided into 88 single bedroom/ studio apartments, 94 two-bedroom apartments and 17 three- bedroom apartments. Parking provided for this area includes 272 garage spaces, 101 surface lot for building B, and adjoining 106 on-street parking spaces for a total of 479 parking spaces supporting Building B. The 272 parking spaces within the parking garage will be controlled and will be accessible for residents of the building and employees of the commercial tenants.

Use	Parking Required by Ordinance 101-143	Parking Required
Retail 26,485 n.s.f. (Up to 30% restaurant)	5.5 per 1,000 sf of gross floor area	146
88 one- bedroom units, 94 two- bedroom units, 17 three- bedroom units	1.8 per one-bedroom; 2.0 per two- bedroom; 2.1 per three-bedroom	383
Total Required		529
<i>Required Per Shared Parking per 101-143 D. (4)</i>		<i>451 (272 reserved; 179 shared)</i>
Provided	272 In Building B Garage 101 In B Surface Lot 106 On Street	479 (272 reserved; 207 shared)

The total parking provided (not including a credit for EV spaces) is less than the sum of the parking spaces required by ordinance for the individual uses. However, per 101-143 D. (4) the applicant can provide alternative parking supply subject to demonstrating to the satisfaction of the Planning Board using a shared parking analyses that an adequate amount of parking will be provided on the site for all proposed uses. The methodology used by the applicant to calculate the reduced number of parking spaces may take into account the methods recommended in "Shared Parking," published by the Urban Land Institute, or other recognized standards acceptable to the Planning Board.

Accordingly, Langan has calculated the number of spaces required in a shared parking environment utilizing the procedures documented in the Urban Land Institute (ULI) publication Shared Parking, 3rd Edition. Based on Shared Parking, 3rd Edition methodology and recommended parking the mix of residential, retail and restaurant uses will require 451 parking spaces to accommodate peak demands projected during weekend periods in December while 479 are provided (272 residential and employee in Building B garage, 101 Building B parking lot, 106 On-Street)

Based on the shared parking analyses, more than adequate parking spaces will be available to support the residential and commercial uses located within Block B.

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BLOCK C

Block C provides a defined area of parking and adjoining hotel and restaurant space that share into the parking field and adjoining street parking. Block C is supported by 190 parking spaces in the parking field and 23 parking spaces on the adjacent street. Block C will be developed with a 125-room hotel with a 500-seat maximum meeting/banquet space and a 264 seat restaurant.

Use	Parking Required by Ordinance 101-143	Parking Required
Hotel, 125 Rooms	1 per guest unit	125
Hotel Banquet 500 seats	1 per 4 seats	
Restaurant, 264 seats	1 per 3 seats	88
Total Required per 101-143		213
Provided	190 In Parking Lot 23 On Street	213

The total parking provided (not including a credit for EV spaces) is 213 parking spaces.

Adequate parking is provided within Block C. The parking for Block C meets the township ordinance requirement. We also note that many of the patrons of the restaurant are likely to be drawn from the surrounding residents that have the ability to walk to the restaurant, further reducing the actual parking demand that will be experienced.

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BLOCK D

Block D provides a defined area of parking and adjoining commercial uses that can share into the supporting parking fields and street parking. Buildings D 1 thru D3 are supported by 593 parking spaces and will be developed with three buildings providing 69,240 s.f. of retail space (inclusive of a 30,000 s.f. Grocer) and 80,080 s.f of office space.

Use	Parking Required by Ordinance 101-143	Parking Required
Office 80,080 s.f.	1 per 400 sf of gross floor area	201
Retail 39,240 s.f.	5.5 per 1,000 sf of gross floor area	216
Grocer 30,000 s.f.	5.5 per 1,000 sf of gross floor area	165
Total Required		582
<i>Required Per Shared Parking per 101-143 D. (4)</i>		545
Provided	567 In Parking Lot 26 On Street	593

Block D is supported by 567 parking spaces (not including a credit for EV spaces) in the parking field. In addition, along Nursery Road and Road D there are an additional 26 on-street parking spaces providing a total supply of 593 parking spaces for Block D.

Langan has calculated the number of spaces required in a shared parking environment utilizing the procedures documented in the Urban Land Institute (ULI) publication Shared Parking, 3rd Edition. Based on Shared Parking the mix of office, retail and grocer will require 545 parking spaces to accommodate peak demands projected during weekday periods in December. See attached Shared Parking Demand Summary for Block D.

The parking for Block D meets and exceeds the township ordinance requirement and the actual peak supply calculated required by shared parking analyses.

Project: Princeton Nurseries
Description: Block A, 136 Residential Units; 15,494nsf retail; 6,641 nsf restaurant

Shared Parking Demand Summary																	
Peak Month: DECEMBER -- Peak Period: 1 PM, WEEKEND																	
Land Use	Project Data		Weekday				Weekend				Weekend						
			Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 1 PM	Peak Mo Adj December	Estimated Parking Demand		
	Quantity	Unit															
Retail (<400 ksf) Employee	15,494	sf GLA	2.90 0.70	100% 100%	99% 98%	2.87 0.69	ksf GLA 0.80	3.20 100%	100% 100%	99% 98%	3.15 0.78	ksf GLA	100% 100%	100% 100%	44 11	100% 100%	49 13
Food and Beverage																	
Fast Casual/Fast Food Employee	6,641	sf GLA	12.40 2.00	100% 100%	87% 98%	10.82 1.97	ksf GLA 2.00	12.70 100%	100% 100%	84% 98%	10.62 1.95	ksf GLA	100% 100%	96% 100%	70 14	100% 100%	68 14
Entertainment and Institutions																	
Hotel and Residential																	
Residential, Suburban Studio Efficiency		units	-0.11	100%	100%	(0.11)	unit	(0.11)	100%	100%	(0.11)	unit	40%	100%	0%	100%	-
1 Bedroom	62	units	-0.12	100%	100%	(0.12)	unit	(0.12)	100%	100%	(0.12)	unit	40%	100%	(3)	65%	(5)
2 Bedrooms	64	units	-0.21	100%	100%	(0.21)	unit	(0.21)	100%	100%	(0.21)	unit	40%	100%	(5)	65%	(8)
3+ Bedrooms	10	units	-0.33	100%	100%	(0.33)	unit	(0.33)	100%	100%	(0.33)	unit	40%	100%	(1)	65%	(2)
Reserved	113%	res spaces	1.55	100%	100%	1.55	unit	1.55	100%	100%	1.55	unit	100%	100%	211	100%	211
Visitor	136	units	0.10	100%	100%	0.10	unit	0.15	100%	100%	0.15	unit	20%	100%	3	20%	4
Office																	
Additional Land Uses																	
													Customer/Visitor Employee/Resident		117	Customer Employee/Resident	122
													Employee/Resident		15	Employee/Resident	11
													Reserved		211	Reserved	211
													Total		343	Total	344

Project: Princeton Nurseries
Description: Block B,199 Residential Units; 18,539nsf retail; 7,946 nsf restaurant

Shared Parking Demand Summary														
Peak Month: DECEMBER -- Peak Period: 12 PM, WEEKEND														
Land Use	Project Data		Weekday			Weekend			Weekday			Weekend		
			Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 1 PM	Peak Mo Adj December
	Quantity	Unit											Estimated Parking Demand	Estimated Parking Demand
Retail (<400 ksf) Employee	18,539	sf GLA	2.90	100%	99%	2.86	ksf GLA	3.20	100%	98%	3.14	ksf GLA	100%	53
			0.70	100%	98%	0.69		0.80	100%	97%	0.78		100%	13
Fast Casual/Fast Food Employee	7,946	sf GLA	12.40	100%	86%	10.68	ksf GLA	12.70	100%	82%	10.39	ksf GLA	100%	82
			2.00	100%	98%	1.96		2.00	100%	97%	1.94		100%	16
Entertainment and Institutions														
Hotel and Residential														
Residential, Suburban Studio Efficiency 1 Bedroom 2 Bedrooms 3+ Bedrooms Reserved Visitor		units	0.02	100%	100%	0.02	unit	0.02	100%	100%	0.02	unit	40%	-
	88	units	0.02	100%	100%	0.02	unit	0.02	100%	100%	0.02	unit	40%	1
	94	units	0.03	100%	100%	0.03	unit	0.03	100%	100%	0.03	unit	40%	2
	17	units	0.05	100%	100%	0.05	unit	0.05	100%	100%	0.05	unit	40%	-
	98%	res spaces	1.36	100%	100%	1.36	unit	1.36	100%	100%	1.36	unit	100%	272
	199	units	0.10	100%	100%	0.10	unit	0.15	100%	100%	0.15	unit	20%	4
Office														
Additional Land Uses														
													Customer/Visitor Employee/Resident Reserved Total	Customer Employee/Resident Reserved Total
													139 31 272 442	144 35 272 451

Shared Parking Demand Summary																			
Peak Month: DECEMBER -- Peak Period: 2 PM, WEEKDAY																			
Land Use	Project Data		Weekday						Weekend				Weekday		Weekend				
			Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr /Adj	Estimated Parking Demand	Peak Mo Adj	December Demand			
	Quantity	Unit																	
	Retail (<400 ksf)	39,240	sf GLA	2.90	100%	99%	2.88	ksf GLA	3.20	100%	100%	100%	3.20	ksf GLA	100%	100%	113	100%	100%
Employee			0.70	100%	100%	0.70		0.80	100%	100%	100%	0.80		100%	100%	28	100%	100%	32
Supermarket/Grocery	30,000	sf GLA	4.00	100%	99%	3.97	ksf GLA	4.00	100%	100%	100%	3.99	ksf GLA	95%	100%	113	100%	100%	120
Employee			0.75	100%	100%	0.75		0.75	100%	100%	100%	0.75		100%	100%	23	100%	100%	23
Food and Beverage																			
Entertainment and Institutions																			
Hotel and Residential																			
Office																			
Office 25 to 100 ksf	80,080	sf GFA	0.26	100%	100%	0.26	ksf GFA	0.03	100%	100%	100%	0.03	ksf GFA	95%	100%	21	100%	100%	3
Reserved		emp	0.00	100%	100%	0.00		0.00	100%	100%	100%	0.00		100%	100%	-	100%	100%	-
Employee			3.24	100%	100%	3.24		0.32	100%	100%	100%	0.32		95%	100%	247	100%	100%	23
Additional Land Uses																			
																Customer Employee/Resident Reserved Total	247	248	248
																298	78	78	78
																-	-	-	-
																545	545	545	327