26 October 2023

Chairman and Members of the Planning Board
Planning Board, Township of Plainsboro
641 Plainsboro Road
Plainsboro, NJ 08536

Re: Traffic Evaluation – Proposed Mixed use at Princeton Nurseries
Princeton Nurseries - Plainsboro
Plainsboro and South Brunswick, Middlesex County, NJ
Langan Project No.: 130091505

Dear Chairman and Board Members:

Langan Engineering and Environmental Services has completed an evaluation of the Princeton Nurseries Proposed Mixed Use Development, dated September 28, 2023. The project is located in Plainsboro Township, Middlesex County, New Jersey. The approved General Development Plan (GDP) for the Princeton Nurseries was evaluated as part of a May 2020 traffic impact study prepared by Langan Engineering and Environmental Services.

The Traffic Impact Study prepared for the approved GPD is based on the following contemplated development program:

- Plainsboro
    - 310,000 square feet (sf) of retail space
    - 220,000 sf of office space
    - 125 room hotel
    - 200 senior adult housing (multi-family) units
    - 31 single-family detached housing units
    - 719 multifamily housing (low-rise) units

To evaluate the traffic generation characteristics of the Proposed Mixed use Development program as shown on the September 28, 2023 plan with relation to the traffic generation characteristics of the approved GDP, we have prepared preliminary peak hour traffic generation estimates. The current plan contemplates the following development program:

- Plainsboro
    - 246,148 square feet (sf) of retail space (inclusive of a grocer use)
    - 73,008 sf of office space
    - 125 room hotel

- 200 senior adult housing (multi-family) units
- 20 single-family detached housing units
- 730 multifamily housing (low-rise) units

We prepared trip generation estimates based on data compiled for Land Use Code 820 (Shopping Center (>150k)), Land Use Code 710 (General Office Building), Land Use Code 310 (Hotel), Land Use Code 252 (Senior Adult Housing – Multifamily), Land Use Code 210 (Single-Family Detached Housing), and Land Use Code 220 (Multifamily Housing (Low-Rise)) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 11th edition. A summary of the trip generation for the Plainsboro tract only is summarized in Table 1.

Table 1 – Future Trip Generation (Plainsboro Only)

LUC	Use 11th edition	Size		AM Peak Hour			PM Peak Hour			Saturday Midday Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
820	Shopping Plaza (>150k)	246,148	sf	173	106	279	518	562	1080	686	633	1319
710	General Office Building	73,008	sf	113	15	128	22	106	128	21	18	39
310	Hotel	125	keys	31	24	55	33	32	65	52	40	92
252	Senior Adult Housing - Multifamily	200	units	13	26	39	28	22	50	33	28	61
210	Single-Family Detached Housing	20	units	4	13	17	14	8	22	15	12	27
220	Multifamily Housing (LowRise)	730	units	60	189	249	210	124	334	150	149	299
varies	***Total Residential***	**950**	**units**	**77**	**228**	**305**	**252**	**154**	**406**	**198**	**189**	**387**
Total Non-Residential				**317**	**145**	**462**	**573**	**700**	**1273**	**759**	**691**	**1450**
Total Overall				**394**	**373**	**767**	**825**	**854**	**1679**	**957**	**880**	**1837**
Internal Capture												
820	Shopping Plaza (>150k)	246,148	sf	- 9	- 7	- 16	- 78	- 129	- 207	- 38	- 52	- 90
710	General Office Building	73,008	sf	- 11	- 4	- 15	- 13	- 23	- 36	- 8	- 4	- 12
310	Hotel	125	keys	0	- 6	- 6	- 10	- 5	- 15	0	0	0
varies	Residential	950	units	- 2	- 5	- 7	- 118	- 62	- 180	- 44	- 34	- 78
Total Internal Trips				**- 22**	**- 22**	**- 44**	**- 219**	**- 219**	**- 438**	**- 90**	**- 90**	**- 180**
Total Trips with Internal Capture Reduction												
820	Shopping Plaza (>150k)	246,148	sf	164	99	263	440	433	873	648	581	1229
710	General Office Building	73,008	sf	102	11	113	9	83	92	13	14	27
310	Hotel	125	keys	31	18	49	23	27	50	52	40	92
varies	Residential	950	units	75	223	298	134	92	226	154	155	309
Total				**372**	**351**	**723**	**606**	**635**	**1241**	**867**	**790**	**1657**
Pass-By (0% AM; 29% PM; 31%* SAT)												
820	Retail	246,148	sf	0	0	0	- 128	- 126	- 254	- 200	- 181	- 381
New Trips												
820	Retail	246,148	sf	164	99	263	312	307	619	448	400	848
710	Office	73,008	sf	102	11	113	9	83	92	13	14	27
310	Hotel	125	keys	31	18	49	23	27	50	52	40	92
varies	Residential	950	units	75	223	298	134	92	226	154	155	309
Total				**372**	**351**	**723**	**478**	**509**	**987**	**667**	**609**	**1276**
Comparison to Current Approval – From 8/2020 TIS												
From 12 May 2020 Princeton Nurseries (Plainsboro Tract) – GDP Study				563	419	982	521	657	1178	848	739	1587
Revised Plainsboro Development Program				372	351	723	478	509	987	667	609	1276
Total New Trip Comparison				**- 191**	**- 68**	**- 259**	**- 43**	**- 148**	**- 191**	**- 181**	**- 130**	**- 311**
				-	**-**	**-26.4%**	**-**	**-**	**-16.2%**	**-**	**-**	**-19.6%**

*No pass-by data available for LUC 820 for Saturday midday peak hour; therefore, we utilized the data from LUC 821

In summary, with regard to site trip generation, the peak hourly weekday and Saturday site trip generation for the September 28, 2023 proposed development program is less than what is analyzed in the traffic study supporting the approved General Development Plan. The proposed current development program could result in up to 259 less vehicles during the morning peak

hour, 191 less vehicles during the PM Peak Hour, and 311 less vehicles during the Saturday midday peak hour.

The mixed-use approach also has the potential to provide for reduced parking supply based upon the decrease in office square footage and retail space. 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 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 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 September 28, 2023 plan provides several areas where shared parking will be successful. Those areas include Buildings D1, D2 and D3 containing a mix of retail and office space which share a surface parking lot and adjoining on-street parking; Building A mixed use area of residential and retail space supported by a parking deck and on-street parking; and,

Building B, again a mixed use building of residential and retail space supported by a parking deck and adjoining street parking.

Based on our preliminary analyses, Langan finds that the proposed current development program would provide for reduced peak hour traffic impacts than what was approved in the May 2020 GDP Traffic Impact Study. The mixed-use approach to development also provides the ability to create efficient parking infrastructure and circulation roadways balanced to the demand needs of the various uses proposed without creating excessive pavement areas. Langan trusts that the above information will be useful in the current planning for the project.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Karl A. Pehnke, P.E.
Vice President

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NJ Certificate of Authorization No. 24GA27996400
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