

February 17, 2023

Mr. Joseph Cosenza  
Senior Advisor, Construction  
Ivy Realty  
102 Chestnut Ridge Road, Suite 204  
Montvale, NJ 07645

**Re: Preliminary Traffic Evaluation  
700 Scudders Mill Road, Proposed Mixed Use Development  
Plainsboro Township, Middlesex County, NJ  
Langan Project No.: 130156101**

Dear Mr. Cosenza:

Langan Engineering and Environmental Services has completed a preliminary evaluation of anticipated traffic generation, access and parking characteristics associated with development of 700 Scudders Mill Road as a mixed use development. The site lies within the PMUD, "Planned Unit Development" zone and is bordered by Scudders Mill Road on the north and Plainsboro Road on the south. Access opportunities exist from the existing signalized intersection of Plainsboro Road with Campus Road and opposite the existing un-signalized intersection of Scudders Mill Road with BMS East Driveway (Potential Signal). Additional access opportunities are available along Plainsboro Road.

The development site consists of 56-acres and under existing zoning regulations permits the by-right development of up to 723,879 square feet (sf) of office/research space as well as a mix of other uses. Ivy Realty proposes to develop the property as a "mixed-use" project. The mixed-use development as envisioned will provide a combination of office space, retail space, a brewpub, restaurants, an extended stay hotel, and multi-family and age-restricted residential units. The development program is proposed to consist of up to 42,000 sf of office space, 71,700 sf of retail space, a 28,000 sf brewpub, 12,000 sf of restaurant space, a 70-room extended stay hotel, 435 multi-family residential units, and 64 age-restricted multi-family residential units.

To evaluate the traffic generation characteristics of the proposed plan with relation to the traffic generation characteristics of prior approved office development within the PMUD zone, we have prepared preliminary peak hour traffic generation estimates. Vehicle trip generation for a proposed development are calculated based on empirical data published by the Institute of

Transportation Engineers’ (ITE) in the document Trip Generation, 11<sup>th</sup> Edition, which presents trip data based on actual studies relating trips to the type and size of a development.

Under the current PMUD zoning, this 56-acre site can be developed and was approved for up to 723,879 sf of office/research space with an included daycare center for office employees. Using the Trip Generation criteria for a General Office Building (Land Use Code 710) in a general urban/suburban setting, we estimate the peak hourly trip generation for such a development in Table 1.

**Table 1 – Trip Generation Estimate, As-of-Right Permitted Use**

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Office (723,879 sf)	817	111	928	147	720	867	210	178	388

Ivy Realty proposes a mixed-use development of a size and density similar to the by-right office development. To evaluate the difference between a mixed-use development and a permitted office development, Langan has estimated the peak hourly trip generation for the proposed development. The table includes calculations for anticipated internal interaction between the various components of the mixed-use development as well as provides an estimate of patron traffic that will be captured from existing traffic flow on the area roadways.

One of the advantages of a mixed-use development is the synergy between various uses that reduces the reliance on a vehicular trip. For example, people who already drove to the site for the office use, may make some trips to the restaurants and retail; or, some residents may keep a car on site but can walk to work, the restaurants and/or the retail. Person trips – i.e. from residential to office – that are made without an additional vehicle trip on public roadways, are accounted for in the ITE trip generation methodology using the concept of internal capture.

ITE provides a means to predict the total trip generation of a multi-use site, taking into account internal capture trips. In addition to internal capture trips, a portion of retail and restaurant patrons are known to be captured from the existing passing traffic flow. Therefore, using the methodology and data in the Trip Generation manual and companion Trip Generation Handbook, and the calculation spreadsheets made available by ITE, Langan has calculated the predicted mixed-use site trip generation, accounting for these internal capture trips and pass-by capture trips. Table 2 presents this data with comparison to the by-right office trip generation.

**Table 2 – Trip Generation Estimate – Proposed Mixed Use Development**

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
<b>Total Site-Generated Trips</b>									
Office (42,000 sf)	70	9	79	14	67	81	12	10	22
Retail (71,700 sf)	77	47	124	182	190	372	232	214	446
Restaurants/Brewpub (40,000 sf)	80	54	134	228	156	384	428	349	777
All Suites Hotel (70 rooms)	13	11	24	10	10	20	8	7	15
Multifamily Housing (435 units)	42	132	174	140	82	222	89	89	178
Senior Housing Attached (64 units)	4	9	13	9	7	16	11	10	21
<b>Total Site-Generated Trips</b>	<b>286</b>	<b>262</b>	<b>548</b>	<b>583</b>	<b>512</b>	<b>1095</b>	<b>780</b>	<b>679</b>	<b>1459</b>
<b>Internal Capture Reduction</b>									
Office	- 17	- 9	- 26	- 12	- 17	- 29	- 12	- 2	- 14
Retail	- 12	- 10	- 22	- 97	- 110	- 207	- 131	- 82	- 213
Restaurants/Brewpub	- 29	- 19	- 48	- 84	- 99	- 183	- 88	- 142	- 230
All Suites Hotel	- 1	- 5	- 6	- 10	- 9	- 19	- 8	- 6	- 14
Residential	- 3	- 19	- 22	- 74	- 42	- 116	- 31	- 38	- 69
<b>Total Internal Capture Trips</b>	<b>- 62</b>	<b>- 62</b>	<b>- 124</b>	<b>- 277</b>	<b>- 277</b>	<b>- 554</b>	<b>- 270</b>	<b>- 270</b>	<b>- 540</b>
<b>Total Driveway Trips</b>	<b>224</b>	<b>200</b>	<b>424</b>	<b>306</b>	<b>235</b>	<b>541</b>	<b>510</b>	<b>409</b>	<b>919</b>
<b>Pass-By Reduction</b>									
Retail*	0	0	0	- 34	- 32	- 66	- 31	- 41	- 72
Restaurants / Brewpub**	0	0	0	- 62	- 25	- 87	- 146	- 89	- 235
<b>Total Pass-By Trips</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>- 96</b>	<b>- 57</b>	<b>- 153</b>	<b>- 177</b>	<b>- 130</b>	<b>- 307</b>
<b>Total New Trips to Adjacent Roadways</b>									
Office	53	0	53	2	50	52	0	8	8
Retail	65	37	102	51	48	99	70	91	161
Restaurants/Brewpub	51	35	86	82	32	114	194	118	312
All Suites Hotel	12	6	18	0	1	1	0	1	1
Residential	43	122	165	75	47	122	69	61	130
<b>Total New Site-Generated Trips</b>	<b>224</b>	<b>200</b>	<b>424</b>	<b>210</b>	<b>178</b>	<b>388</b>	<b>333</b>	<b>279</b>	<b>612</b>
<b>Comparison to Current Zoning As-of-Right</b>									
As-of-Right Trips, Office (723,879sf)	<b>817</b>	<b>111</b>	<b>928</b>	<b>147</b>	<b>720</b>	<b>867</b>	<b>210</b>	<b>178</b>	<b>388</b>
<b>Difference</b>	<b>- 593</b>	<b>89</b>	<b>- 504</b>	<b>63</b>	<b>- 542</b>	<b>- 479</b>	<b>123</b>	<b>101</b>	<b>224</b>

\* Retail Pass-By Credit: 40% of weekday evening peak hour and 31% of Saturday peak hour

\*\* Restaurants/Brewpub Pass-By Credit: 43% of weekday evening peak hour and 43% of Saturday peak hour (no data, assumed same as evening)

In summary, with regard to site trip generation, the peak hourly weekday site trip generation for the proposed mixed-use development is lower than that for the prior approved office development permitted in the PMUD zone. The mixed-use approach to development could result in up to 504 less vehicles during the morning peak hour and 479 less vehicles during the PM Peak Hour. In addition, the inbound/ outbound movements are more evenly split as compared to the high directional peaking associated with office related trip making. On a Saturday, while increased peak hour traffic flow would occur, the traffic flow on the roadway system is generally lower and the roadway system has the capacity to accommodate the increased demand.

The mixed-use approach also has the potential to provide for reduced parking supply based upon shared parking between the various uses. 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.”

It is noted that the Plainsboro Zoning ordinances recognize a form of shared parking between retail and office uses per its Parking Requirements in Section §85-44. Specifically, the parking requirements note that for shopping centers, a “Maximum of 20% of GFA can be office use without additional parking for the office use.” This provision generally recognizes that office space generates its peak demands on weekdays while shopping centers generate their peak demands on a Saturday or during weeknights and accordingly can share the same space as a result of the variation in peak accumulation by day and or by hour. The zoning ordinances also recognize and encourage a shared parking approach for mixed-use developments as discussed in Sections §101-50 and §101-63 for the General Business Zone and in Section §101-195 for the Village Center Zone. In both those zones, a shared parking approach to providing the needed parking supply is encouraged.

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, 3<sup>rd</sup> 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. As the development program moves to site plan approval, parking analyses per the methodologies of shared parking will provide for an appropriate supply of parking to support the development and reduce the impacts associated with an oversupply of parking.

The property has potential access to two signalized intersections, one existing, and one future, on two separate roadways. The access will allow traffic to disperse regionally to the roadway system in a logical and efficient manner. The property has excellent access to the regional roadway system via Scudders Mill Road and Plainsboro Road.

Based on our preliminary analyses, Langan finds that the proposed mixed-use development would provide for reduced peak hour traffic impacts and more balanced traffic flow as compared to other uses permitted in the PMUD Zone. 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. Further, the property has excellent access opportunities that can be designed to accommodate the projected traffic demands.

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., PTOE  
Vice President

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NJ Certificate of Authorization No. 24GA27996400

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