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October 17, 2024

Mr. Joseph Cosenza
Senior Advisor, Construction
IWRV Scudders Road, LLC
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. IWRV Scudders Road, LLC 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, experiential food and beverage, restaurants, a hotel, and multi-family residential units. The development program is proposed to consist of up to 38,400 sf of office space, 43,648 sf of retail, restaurant, and commercial space, 20,300 sf of experiential food and beverage space, a 100-room hotel, and 525 attached, multi-family, and townhome 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](#), 11th 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) | 808 | 111 | 919 | 146 | 713 | 859 | 207 | 177 | 384 |

IWRV Scudders Road, LLC proposes a mixed-use development of a size and density like 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 internal capture trips into account. 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 |
| Total Site-Generated Trips | | | | | | | | | |
| Office (38,400 sf) | 65 | 9 | 74 | 13 | 62 | 75 | 11 | 9 | 20 |
| Retail (15,106 sf) | 16 | 10 | 26 | 38 | 40 | 78 | 49 | 45 | 94 |
| Restaurants (24,542 sf) | 129 | 106 | 235 | 135 | 87 | 222 | 140 | 135 | 275 |
| Food & Beverage Hall (20,300 sf) | 12 | 2 | 14 | 118 | 82 | 200 | 261 | 205 | 466 |
| All Suites Hotel (100 rooms) | 24 | 19 | 43 | 24 | 22 | 46 | 42 | 33 | 75 |
| Multifamily Housing (525 units) | 50 | 160 | 210 | 169 | 99 | 268 | 107 | 108 | 215 |
| Total Site-Generated Trips | 296 | 306 | 602 | 497 | 392 | 889 | 610 | 535 | 1,145 |
| Internal Capture Reduction | | | | | | | | | |
| Office | - 16 | - 8 | - 24 | - 8 | - 6 | - 14 | - 8 | - 2 | - 10 |
| Retail | - 6 | - 5 | - 11 | - 27 | - 25 | - 52 | - 30 | - 19 | - 49 |
| Restaurants | - 35 | - 14 | - 49 | - 40 | - 44 | - 84 | - 39 | - 54 | - 93 |
| Experiential Food & Beverage Hall | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| All Suites Hotel | - 1 | - 5 | - 6 | - 11 | - 8 | - 19 | - 14 | - 8 | - 22 |
| Residential (525 units) | - 4 | - 30 | - 34 | - 27 | - 30 | - 57 | - 20 | - 28 | - 48 |
| Total Internal Capture Trips | - 62 | - 62 | - 124 | - 113 | - 113 | - 226 | - 111 | - 111 | - 222 |
| Total Driveway Trips | 234 | 244 | 478 | 384 | 279 | 663 | 499 | 424 | 923 |
| Pass-By Reduction | | | | | | | | | |
| Retail* | 0 | 0 | 0 | - 4 | - 4 | - 8 | - 6 | - 6 | - 12 |
| Restaurants** | 0 | 0 | 0 | - 30 | - 30 | - 60 | 0 | 0 | 0 |
| Total Pass-By Trips | 0 | 0 | 0 | - 34 | - 34 | - 68 | - 6 | - 6 | - 12 |
| Total New Trips to Adjacent Roadways | | | | | | | | | |
| Office | 49 | 1 | 50 | 5 | 56 | 61 | 3 | 7 | 10 |
| Retail | 10 | 5 | 15 | 7 | 11 | 18 | 13 | 20 | 33 |
| Restaurants | 94 | 92 | 186 | 65 | 13 | 78 | 101 | 81 | 182 |
| Experiential Food & Beverage Hall | 12 | 2 | 14 | 118 | 82 | 200 | 261 | 205 | 466 |
| All Suites Hotel | 23 | 14 | 37 | 13 | 14 | 27 | 28 | 25 | 53 |
| Residential | 46 | 130 | 176 | 142 | 69 | 211 | 87 | 80 | 167 |
| Total New Site-Generated Trips | 234 | 244 | 478 | 350 | 245 | 595 | 493 | 418 | 911 |
| Comparison to Current Zoning As-of-Right | | | | | | | | | |
| As-of-Right Trips, Office (723,879sf) | 808 | 111 | 919 | 146 | 713 | 859 | 207 | 177 | 384 |
| Difference | - 574 | 133 | - 441 | 204 | - 468 | - 264 | 286 | 241 | 527 |

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

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

In summary, regarding 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 448 less vehicles during the morning peak hour and 275 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 principles 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 principles of smart growth to create a walkable, mixed-use development. Following the principles 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, 3rd Edition. Any part of the parking supply

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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.
Vice President

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NJ Certificate of Authorization No. 24GA27996400
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