

5 September 2018

Attn: Ronald Johnson, Zoning Officer
Township of Cranford
8 Springfield Avenue
Cranford, NJ 07016

S. Maurice Rached, P.E., PTOE
Senior Principal
Director of Transportation Services
Maser Consulting
400 Valley Road, Suite 304
Mount Arlington, NJ 07856

**Re: Response to Review Comments
750 Walnut Avenue – Block 541, Lot 2
Township of Cranford, Union County, New Jersey
Langan Project No.: 130102501**

Dear Mr. Johnson:

Langan Engineering and Environmental Services has received the review comments, dated May 14, 2018, prepared by Maser Consulting for the above referenced project. In response to the review comments we offer the following information:

REVIEW COMMENTS

General Comments

1. In general, the Traffic Impact Study was performed using acceptable traffic engineering principles, methodologies and analysis software at the time of submission.

Comment noted.

2. The proposed development has frontage along Walnut Avenue (CR 632), which is under jurisdiction of Union County. Union County Planning Board approval will be required.

Comment noted. At the time of Site Plan approval all applicable outside agency approvals will be applied for.

Traffic Comments

3. The Traffic Impact Study at the time of submission utilized the latest version of the ITE Trip Generation Manual, 9th Edition for trip generation purposes. The ITE Trip Generation Manual was updated in September 2017 to the 10th Edition. The Applicant's

Traffic Engineer should discuss any impacts to the capacity analysis and trip generation estimate for the proposed development scenario and as-of-right scenario.

The following tables show a comparison between ITE’s 9th and 10th edition trip generation estimates. We prepared trip generation estimates for the residential units using data compiled for Land Use Code 220 (Multifamily Housing) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition.

Table 1 – Future Trip Generation Estimates

Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
ITE’s Trip Generation, 9th Edition						
Phase 1 – 433 Apt Units	43	173	216	166	90	256
Full Buildout – 905 Apt Units*	89	358	447	335	180	515
ITE’s Trip Generation, 10th Edition						
Phase 1 – 433 Apt Units	44	148	192	137	81	218
Full Buildout – 905 Apt Units*	89	298	387	264	155	419
Difference						
Phase 1 – 433 Apt Units	+ 1	- 25	- 24	- 29	- 9	- 38
Full Buildout – 905 Apt Units*	0	- 60	- 60	- 71	- 25	- 96

*Includes both Phase 1 (433 units) and Phase 2 (472 units).

A review of Table 1 shows that the trip generation estimates used in the traffic impact study based on ITE’s 9th edition data are higher than the traffic generation as calculated utilizing the more current data published in the 10th edition.

We have also updated our analyses of the comparative traffic generation of the existing buildings occupied per existing zoning to the proposed redevelopment of the property with the residential community utilizing the ITE’s 10th edition data. The table below is an update of the existing use vs. proposed use comparison from the traffic impact study. As shown in Table 1 above the proposed residential trip generation was estimated based on Land Use Code 220 in the 10th edition. Additionally, the trip generation estimates for the reoccupancy of the existing vacant office space was generated based on Land Use Code 710 (General Office Building) from the 10th edition.

The first comparison is phase 1 of the residential (433 units) to the existing vacant use (190,497 sf), since phase 1 will replace the vacant building. The second comparison is the full buildout of the proposed residential development (905 units) to the entire existing property.

Table 2 – Trip Generation Comparison (Existing Use vs. Proposed Use)

Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
ITE's Trip Generation, 9th Edition						
Existing Vacant Use ¹ 190,497sf	282	38	320	50	242	292
Proposed 433 Apt Units	43	173	216	166	90	256
Difference (Phase 1)	- 239	+ 135	- 104	+ 116	- 152	- 36
Existing Occupied Use ³	106	28	134	26	100	126
Existing Vacant Use ¹	282	38	320	50	242	292
Total Existing Use	388	66	454	76	342	418
Proposed 905 Apt Units	89	358	447	335	180	515
Difference (Full Buildout)	- 299	+ 292	- 7	+ 259	- 162	+ 97
ITE's Trip Generation, 10th Edition						
Existing Vacant Use ² 190,497sf	258	35	293	50	225	275
Proposed 433 Apt Units	44	148	192	137	81	218
Difference (Phase 1)	- 214	+ 113	- 101	+ 87	- 144	- 57
Existing Occupied Use ³	106	28	134	26	100	126
Existing Vacant Use ²	258	35	293	50	225	275
Total Existing Use	364	63	427	76	325	401
Proposed 905 Apt Units	89	298	387	264	155	419
Difference (Full Buildout)	- 275	+ 235	- 40	+ 188	- 170	+ 18
Difference Between 9th & 10th Editions						
Phase 1 (433 units replacing existing vacant use)	+ 25	- 22	+ 3	- 29	+ 8	- 21
Full Buildout (905 units replacing all existing use)	+ 24	- 57	- 33	- 71	- 8	- 79

1 The existing vacant volumes are based on the square footage of the current unoccupied office space and data for Land Use Code 710 in the ITE publication *Trip Generation*, 9th edition.

2 The existing vacant volumes are based on the square footage of the current unoccupied office space and data for Land Use Code 710 in the ITE publication *Trip Generation*, 10th edition.

3 The existing occupied volumes are based on the total entering and exiting traffic that was manually counted at the existing north and south driveways. It is the development traffic that currently existing on the roadway network.

A review of Table 2 also shows that the trip generation estimates used in the traffic study based on ITE's 9th edition were generally higher and therefore more conservative than the 10th edition.

Additionally, we also prepared a traffic projection estimating re-occupancy of the existing vacant office space as a medical office space as permitted by zoning based on Land Use Code 720 (Medical-Dental Office Building) from ITE's *Trip Generation*, 10th edition. We prepared a comparison of the existing office building occupied by medical uses vs. the proposed residential community under both the phase 1 and full buildout conditions. Table 3 summarizes the comparisons with the 190,497 sf vacant space being reoccupied as a medical office building as opposed to general office space, which is shown in Table 2.

Table 3 – Trip Generation Comparison (Existing Use vs. Proposed Use)

Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
ITE's Trip Generation, 10th Edition						
Existing Vacant Use ¹ 190,497sf	309	87	396	181	467	648
Proposed 433 Apt Units	44	148	192	137	81	218
Difference (Phase 1)	- 265	+ 61	- 204	- 44	- 386	- 430
Existing Occupied Use ²	106	28	134	26	100	126
Existing Vacant Use ¹	309	87	396	181	467	648
Total Existing Use	415	115	530	207	567	774
Proposed 905 Apt Units	89	298	387	264	155	419
Difference (Full Buildout)	- 326	+ 183	- 143	+ 57	- 412	- 355

1 The existing vacant volumes are based on the square footage of the current unoccupied office space and data for Land Use Code 710 in the ITE publication *Trip Generation*, 10th edition.

2 The existing occupied volumes are based on the total entering and exiting traffic that was manually counted at the existing north and south driveways. It is the development traffic that currently existing on the roadway network.

As can be seen by a review of the above tables the existing zoning permits use of the existing buildings that result in similar and higher peak hour traffic generation from the proposed property as compared to the proposed residential community.

- The egress left-turns at the proposed northern driveway were omitted in the volume figures and capacity analysis. The egress left-turns at the northern driveway should be reflected in the capacity analysis to ensure acceptable operation.

The layout of the site plan and proposed traffic signal makes left-turns at the proposed central driveway signal more desirable for left-turn traffic onto Walnut Avenue north than an unsignalized left-turn at the northern driveway. Accordingly we projected that all left turns would occur at the signal. At the time of site plan approval, left-turn restrictions at the unsignalized driveways should be considered to direct left turning vehicles to the traffic signal.

- There is a concern regarding the location of the proposed traffic signal at the center site driveway / Behnert Place. Currently, the northern driveway is proposed to permit ingress left-turns without a left-turn lane against a heavy peak hour through volume. The northern site driveway is proposed opposite to Lexington Avenue, which is a collector roadway servicing a commuter pattern. The proposed traffic signal at the center site driveway is located at Behnert Place, a local residential street that does not carry significant traffic volumes. Constructing the traffic signal at the northern site driveway provides direct access to a large portion of the proposed residential development and is anticipated to benefit the motoring public more than a traffic signal at the center site driveway. The northern site driveway is anticipated to be able to support longer egress queue lengths than the center site driveway, reducing internal impacts. The additional traffic volumes at Lexington Avenue supported by a traffic signal will enhance the traffic signal warrant analysis.

The Applicant should review the operations at the northern site driveway with a traffic signal as well as unsignalized operates at the center driveway. The construction of

ingress turning lanes along Walnut Avenue (CR 632) should be reviewed at both the center site driveway and the northern site driveway. The egress left-turn operations should also be reviewed. A Walnut Avenue (CR 632) northbound protected/permitted left-turn lead phase and coordination with the traffic signal of Walnut Avenue (CR 632) & Raritan Road should be reviewed to improve safety and operations in the study area.

Comment noted. At the time of site plan application, we are willing to work with the municipality and county to determine the optimal location of the signal. The location should benefit both vehicular and pedestrian traffic flow along the corridor and we agree that signalizing Lexington Avenue may have additional benefits for existing traffic flow. The final lane geometry and signal operation would also be further evaluated at the time of site plan approval. We agree that the provision of left-turn lanes at driveways permitting entering left-turn movements is appropriate to separate left turning vehicles from through traveling vehicles. Lastly, we anticipate that traffic signal coordination would be accomplished by the installation of GPS clocks in the new signal and in the existing signal at Walnut Avenue and Raritan Road.

6. Based upon the trip generation estimates in the Traffic Impact Study, there are over 100 trips generated by the project site south of the intersection of Walnut Avenue & Raritan Road and north of the intersection of Walnut Avenue & Lexington Avenue. Testimony or an evaluation should be provided to confirm the study area is adequate to assess the traffic impact of the proposed development.

The projected net change of new trips based on redevelopment of the property with the residential community as compared to the traffic that would exist with full re-occupancy of the existing office/industrial buildings is generally below 100 trips in both directions along the roadway sections north and south of the project site with the exception of the PM Peak Highway Hour where just over 100 two way trips are calculated north of the site. While the roadways are not under state jurisdiction, the NJDOT generally sets the need for a road section or intersection to be studied if it is significantly impacted, which is defined as a change of use that generates the addition of 100 or more peak hour trips. The net change is shown in the table below which is the difference between the full occupancy of the existing development with re-occupancy by an office tenant and full buildout of the proposed development. It is noted that the difference would be significantly less if the existing building were re-occupied by permitted medical office uses. Figure 1 shows the net change by direction.

Table 4 – Net Change of Site-Generated Trips

Direction (To/From)	AM	PM
Walnut Avenue (North)	+ 68	+ 101
Walnut Avenue (South)	- 156	- 106
Raritan Road (East)	+ 89	+ 17
Raritan Road (West)	- 8	+ 85

We believe that for the purpose of the zoning analyses, the study locations included are appropriate and provide sufficient information for purposes of understanding the relevant impacts of traffic generated by development of the property under existing zoning versus with the proposed residential uses. At the time of site plan approval, further study would be conducted to identify specific access geometry, traffic control and traffic mitigation.

7. Testimony should be provided regarding any failing conditions at Mitchell Place, Behnart Place and Lexington Avenue.

Comment noted. As shown by the analyses, all signalized intersections along Walnut Avenue generally experience delays for left turning vehicles from the side street to Walnut Avenue. The proposed traffic signal would assist the existing neighborhood by providing signal control to assist in this movement. The final location of the proposed traffic signal can be determined at the time of site plan approval.

8. The trip distribution is practical and was estimated based upon typical engineering practices. However, the driveway assignments should be revisited based upon the site layout and the arrival / departure patterns. It is anticipated that a larger split of Walnut Avenue SB right-turn trips will utilize the northern site driveway rather than the southern site driveway.

Comment noted. The distributions in the study were based on the location of the different on-site parking areas and we believe are appropriate based upon the concept layout. However, we would note that at the time of site plan approval, the specific assignments may be revisited and refined, particularly, if the location of the traffic signal is modified.

9. The Traffic Impact Study utilized HCM standards for the unsignalized intersections. However, the Synchro Timing, Lane and Volume Reports were used for the signalized intersections. HCM standards should be used for the signalized intersections.

We used Synchro to model the Walnut Avenue corridor which is generally the preferred analyses tool for traffic signalization. Synchro is used as a tool to analyze signalized intersections and is a great tool for signal optimization, which was utilized for the proposed Walnut Avenue signal. Synchro is based upon the HCM methodologies with enhancements to better analyze lane configurations and both analyses models generally provide comparatively similar results. Synchro printouts were provided for the signalized intersection as it models the effect of signals on a corridor. The HCM printouts were used for the unsignalized intersections because Synchro analyzes unsignalized intersections based on HCM methodologies only and does not provide a separate Synchro printout.

10. The Applicant should provide documentation and/or testimony regarding the 190,497 SF vacancy of the existing building. Additionally, testimony should be provided regarding the As-of-Right analysis for 523,264 SF of office space and 281,758 SF of medical-office space. The feasibility of constructing 523,264 SF of office space and 281,758 SF of

medical-office space on-site with parking facilities and any environmental constrains should be considered in the As-of-Right analysis.

The 190,497 sf is based on the office square footage located in the front buildings that are to be demolished as part of phase 1. Comment response 3 provides a detailed summary of permitted uses of the existing office building and comparative traffic generation impacts to the proposed residential community. It is noted, as discussed in the traffic study, that the existing zoning also provides for FAR “bonus” provisions that would permit additional development on the property with office and medical office uses. Those bonus provisions would permit development that would increase permitted traffic levels as compared to re-occupancy of the existing buildings.

11. The Applicant should confirm that all infrastructure improvements will be in place for the Phase 1 build-out.

Comment noted. As recommended in the traffic study the signal is proposed to be implemented as part of the phase 1 plan. The specific driveway geometry and improvements to be constructed would be a condition of future Township and County Site Plan approval.

12. The Traffic Impact Study should reflect any adjacent approved developments in the No-Build and Build conditions, if applicable.

We updated our research with the Township of Clark and the Township of Cranford for approved/under construction developments from the past 3 years. A review of the documents received by the townships show no developments in the immediate vicinity of the site property that would add a significant amount of traffic to the study intersections. Any traffic associated with the adjacent developments that would utilize the study intersections would be covered by the 1.5 percent compounded annual growth rate applied to the existing traffic volumes. The growth rate was established by the New Jersey Department of Transportation (NJDOT) for Union County.

The adjacent developments received from the Township of Clark was the Clark Commercial Center, LLC (August 17, 2016) and the CVS Pharmacy (April 2, 2017). The adjacent developments received from the Township of Cranford was the Proposed Residential Development, 225 apartment units, (January 24, 2018) and 517 Centennial Avenue, proposed office building, (January 8, 2018).

13. The proposed traffic signal must meet current Americans’ with Disabilities Act (ADA) PROWAG and MUTCD standards. Crosswalks and curb ramps should be provided on all approaches.

Comment noted. Agreed, the signal will be designed to meet current standards.

Langan trusts that the above information is responsive to the comments provided on the traffic impact study. Should you have any additional comments or questions on the material herein, or enclosed, please do not hesitate to contact our Lawrenceville, New Jersey office.

Sincerely,
Langan Engineering and Environmental Services, Inc.

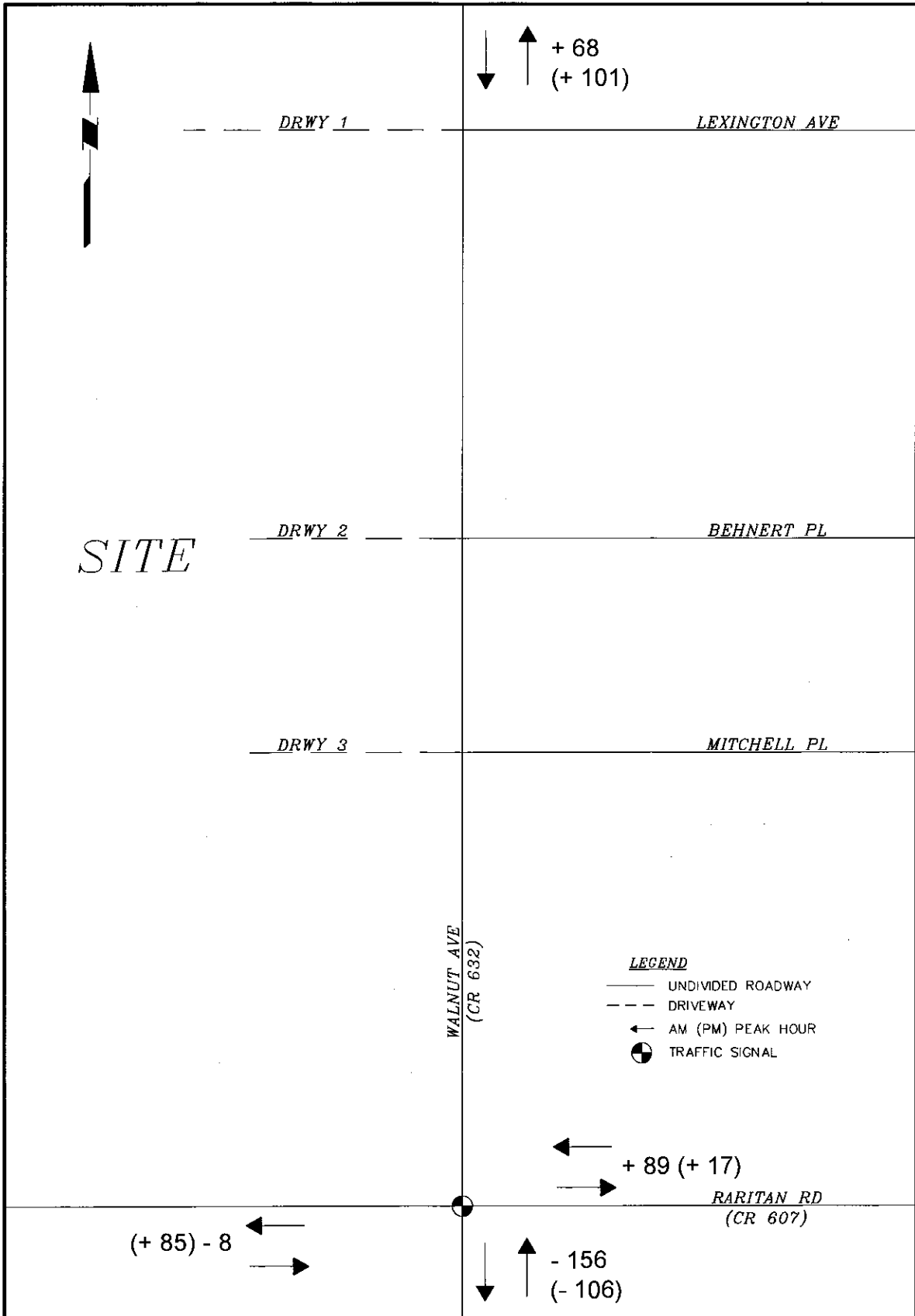


Karl A. Pehnke, PE, PTOE
Vice President

KAP:kap

Enclosure(s): As noted

cc: James Rhatican
Jeffrey Martell, P.E.
Keenan Hughes



LEGEND
 ——— UNDIVIDED ROADWAY
 - - - DRIVEWAY
 ← AM (PM) PEAK HOUR
 ● TRAFFIC SIGNAL

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 Langan International LLC
 Collectively known as Langan
 NJ CERTIFICATE OF AUTHORIZATION No. 24E007866400

Project
750 WALNUT AVENUE
 BLOCK No. 541, LOT No. 2
 TOWNSHIP OF CRANFORD
 UNION COUNTY NEW JERSEY

Drawing Title
SITE-GENERATED TRIPS NET CHANGE

Project No.
 13D1D25D1
 Date
 09/05/2018
 Scale
 N.T.S.
 Drawn By
 KAMP
 Checked By
 Submission Date
 SEPTEMBER 2018

Drawing No.
FIGURE 1
 Sheet 1 of 1