

MEMORANDUM

DATE: October 17, 2014

TO: Mr. Marc Levin
Chestnut Hill Realty
300 Independence Drive
Chestnut Hill, MA 02467

FROM: Robert J. Michaud, P.E. – Managing Principal
Courtney E. Jones, P.E. – Senior Transportation Engineer *CJ*

RE: **Response to Peer Review Comments**
Kessler Woods Residential Development
Newton, Massachusetts

MDM Transportation Consultants, Inc. (MDM) has prepared the following response to transportation-related peer review comments for the above-referenced project, as issued in a letter by the City's peer review consultant, McMahon Associates, dated October 8, 2014. To facilitate review, specific comments are paraphrased with corresponding responses.

Study Area

Comment 1: "Although the Kessler Woods Residential Development alone may not significantly impact the traffic operations at the [Horace James Circle] rotary, it may have an effect on rotary operations in combination with other proposed projects in the area. Further consideration should be given to potential impacts of the rotary operations in the future."

Response: As documented in the July 2014 TIA, the proposed residential development is not expected to have any material impact on rotary operations, with one (1) additional vehicle trip or less generated every 2 minutes along the Lagrange Street approach to the rotary – a level of traffic increase that falls well within daily fluctuation in traffic at that location. Accordingly, there is no useful purpose to evaluating project impacts at this location, which MDM also notes is located within the Town of Brookline.

Roadways & Intersections

Comment 2: "Based on a review of the TIAS and site visit, McMahon finds the description of the existing roadways and intersections to be accurate."

Response: No response required.

Existing Traffic Data

Comment 3: *"...McMahon finds the analysis of the weekday morning and weekday afternoon peak periods to be satisfactory to measure the impacts of the proposed project..."*

Response: The July 2014 TIA quantifies project impacts which do not result in any notable change to traffic flow on Lagrange Street or study intersections relative to No Build conditions; ample capacity is available at study intersections to accommodate modest traffic increases. No further response required.

Comment 4: *"It would be preferred to have all traffic volume data collected on a typical Tuesday, Wednesday or Thursday."*

Response: Automatic traffic recorder (ATR) data were collected on a Wednesday and Thursday in May 2014 and provide the basis for ensuring that traffic volumes used for analysis on Lagrange Street represent typical weekday traffic flow conditions. Likewise, intersection count data were conducted on either a Tuesday or a Thursday, with limited exception. The only Friday data collected included weekday morning data for Rangeley Road and Broadlawn Park, which represent low volume residential side-streets which were confirmed to have volume data that is consistent with the prior (2004) Kessler Woods traffic study. Manually collected data (TMCs), including the limited data collected a Friday AM period, present volumes on Lagrange Street that are highly consistent with Wednesday/Thursday ATR data and accordingly are appropriate for analysis. These data are also representative to above-average traffic conditions and were not adjusted (reduced) to average season conditions as a conservative measure.

Applicant will provide a supplemental weekday AM period count at Lagrange Street/Broadlawn Park in October 2014 to further support the above finding. The supplemental count data will be collected and summarized via separate correspondence prior to the scheduled October 28 hearing.

Comment 5: *"A significant traffic volume imbalance is noted between the intersection of Lagrange Street and Vine Street/Corey Street and the intersection of Lagrange Street and Broadlawn Park in the westbound direction during the weekday morning peak hour."*

Response: The segment of Lagrange Street between the subject locations is intersected by the access to Chestnut Hill Village – a 323-unit residential condominium community which explains the imbalance in volumes during the weekday AM period.

Comment 6: “McMahon finds the collection of daily volume and speed data through the use of automatic traffic recorder (ATR) to be appropriate.”

Response: ATR data are highly consistent with manual TMCs conducted at study intersections in May and June 2014 and appropriately reflect typical weekday travel conditions along Lagrange Street. No further response required.

Comment 7: “The Proponent should review permanent count station data in closer proximity to the proposed project site to obtain a more locally representative data set.”

Response: MDM has identified two (2) permanent count stations located along I-95/Route 128 in Newton and Weston that have complete monthly data for 2012 and/or 2013. These count station data confirm that May and June are above-average travel months, consistent with the seasonal analysis presented in the TIA. The supplemental seasonal adjustment calculations are provided in the **Attachments**.

MDM has revised TIA **Table 2** to reflect seasonal adjustment factors from the more local permanent count stations. As shown in **Revised Table 2**, application of the revised seasonal adjustment factors results in no material change to the finding originally presented in the TIA that average daily and peak hour traffic volumes along Lagrange Street in the study area observed in 2014 are consistent with the average traffic volumes observed in 2004 resulting in a less than 1 percent per year growth rate over the last 10 years. A decrease in daily and peak hour traffic in the study area occurred during the 2006 and 2008 count years, but returned back to 2004 traffic levels by 2014.

**TIA TABLE 2 (Revised)
HISTORICAL TRAFFIC VOLUME COMPARISON¹**

Time Period	Traffic Volume			
	2004 ²	2006 ³	2008 ⁴	2014
Lagrange Street (near Brookline Town Line)				
Daily (24-Hour)	12,721	11,713	n/a ⁵	12,379
Lagrange Street at Corey Street/Vine Street				
Weekday Morning Peak Hour	1,253	n/a	872	1,286
Weekday Evening Peak Hour	1,273	n/a	1,173	1,372

¹Seasonal corrections applied to observed (raw) data to represent average monthly conditions. See **Attachments** for calculations.

²Source: *Kessler Woods-Phase II, Proposed 62-Unit Condominium Development, Newton, Massachusetts*, prepared by Conley Associates, dated November 30, 2004.

³Source: *Kessler Woods Outstanding Issues*, prepared by Conley Associates, dated June 2, 2006.

⁴Source: *Kessler Woods Condominium Updated*, prepared by Conley Associates, dated June 23, 2008.

⁵n/a = not available

Intersection Crash History

Comment 8: *"The calculated crash rates at each of the study area intersections are below the statewide and District 6 average crash rates, indicating that no significant safety deficiencies appear to be presented...McMahon finds this safety analysis to be acceptable."*

Response: No response required.

Measured Travel Speeds

Comment 9: *"Travel speeds along Lagrange Street were measured using an automatic traffic recorder. The data presented in the TIAS appears to be representative of conditions observed in the field."*

Response: No response required.

Sight Line Evaluation

Comment: *"McMahon's field visit verified the available sight distance measurements reported in Table 5."*

Response: No response required.

Comment 10: *"The available sight distance measurements noted in the TIAS are approximately 290 feet and 300 feet, which does not meet the minimum required sight distance for the vehicles traveling faster than 40 miles per hour."*

Response: The location of the proposed driveway is identical to that approved by the City for Kessler Woods in 2008 and in accordance with industry practice provides sight lines that exceed minimum recommended SSD and ISD criteria for the recorded 85th percentile travel speeds on Lagrange Street. In fact, the available SSD and ISD satisfy minimum AASHTO criteria for the recorded 95th percentile travel speeds along Lagrange Street. This issue was discussed during a site visit with the City's Director of Transportation and City planning staff on October 16, 2014. While some vehicles may travel at speeds greater than 40 mph, the sight line analysis was properly evaluated using the posted speed limit and 85th percentile travel speeds.

Comment 11: *"Table 6 should be updated to reflect minimum ISD values for left-turning and right-turning vehicles for the proposed site driveway as determined by AASHTO."*

Response: Table 6 of the July 2014 TIA correctly presents the *minimum* ISD values which are defined by AASHTO as “at least equal to the appropriate stopping sight distance (SSD) for the major road”. Accordingly, the *minimum* ISD criteria are met for the driveway. As a point of reference, *ideal* ISD for an 85th percentile travel is 410 feet.

Comment 12: “Sight triangles should be depicted on the proposed site plan in order to accurately identify the appropriate grading and landscaping required to achieve the minimum ISD recommended by AASHTO.”

Response: The Applicant will revise the site plan as necessary to achieve ISD sight triangles that are clear of any grading, vegetation or on-site obstructions (i.e., signage) that exists at an elevation greater than 3.5 feet above roadway grade.

Comment 13: “...existing and proposed signage and utility poles should be placed to maximize available sight distance. Under the current site plan, the proposed Kessler Woods entry sign may limit available visibility to the west.”

Response: The Applicant will revise the site plan to achieve ISD sight triangles that are clear of any grading, vegetation or on-site obstructions (i.e., signage) that exists at an elevation greater than 3.5 feet above roadway grade.

Alternative Modes of Transportation

Comment 14: “The majority of the Census Tract identified for comparison in the TIAS included in the study is located much more conveniently to public transportation than the project site. In order to obtain a more accurate representation of alternative mode use, adjacent tracts would need to be investigated. However, since no credit was taken for the number of trips taken by public transit, this is not necessary.”

Response: No credit for use of public and/or Applicant-sponsored transit modes is taken in the analysis, which presents a conservative analysis scenario. No further response required.

Comment 15: “The proponent should provide additional information regarding the specific programming of the CHR Shuttle Service at Kessler Woods.”

Response: Shuttle service to Hancock Village is currently provided between 6AM and 9AM and 4:30PM to 7:30PM approximately every 20 minutes on weekdays. The Proponent is willing to expand this service to Kessler Woods residents, which may modify the headways to 30 minutes for existing service or an additional shuttle which will be evaluated based on actual demands for the service. The determination of need for an additional shuttle or modification of the headways for existing service will be evaluated following building occupancy and actual resident demand.

Comment 16: *“The location of the crosswalk [just east of the project site driveway] should be considered carefully due to the limited visibility created by the horizontal and vertical curves within the study area. Additional information should be provided including pedestrian visibility and required modifications to existing infrastructure necessary to ensure the safe and efficient pedestrian access.”*

Response: The proposed crosswalk design will be designed to comply with applicable ADA standards and in accordance with industry standards for sight lines to ensure sufficient sight lines for oncoming vehicles. The proposed crosswalk design includes MUTCD-compliant signage at the crosswalk (W11-2, W16-7P) and advanced warning signs (W11-2, W16-9P) to enhance driver awareness of potential pedestrian activity.

Background Growth

Comment 17: *“Traffic volumes were projected to the future year of 2019 to reflect a five-year planning horizon. McMahon finds this acceptable. As noted previously, there are a number of permanent count stations located in closer proximity to the proposed project site reflecting local conditions that should be reviewed [to validate growth rates].”*

Response: The July 2014 TIA uses a 1 percent per year growth rate which exceeds localized growth trends along Lagrange Street (as per available data from 2004 to 2014 for study intersections) and rates used in other area studies which reflect a 0.5 percent per year growth. Available MassDOT permanent count stations with at least 5 years of data (the appropriate basis for determining regional growth trends) are also considered in the July 2014 TIA which also confirm that the 1 percent annualized growth trend is appropriate and conservative.

Comment 18: *“Due to their close proximity to the Kessler Woods Residential Development, specific trip generation/distribution information from the original traffic impact studies for the Chestnut Hill Shopping Center, Chestnut Hill Square Residential Development and Residences of South Brookline projects should be provided to verify the potential impacts on Lagrange Street.”*

Response: As requested, additional supporting materials from their respective traffic studies that were used as the basis for the trip tracings through the Kessler Woods study area roadway networks are included in the **Attachments**.

Traffic associated with the remaining build-out of Chestnut Hill Shopping Center (“The Street”) was assumed to be reasonably accounted for in the conservative 1 percent per year background growth rate used in the July 2014 TIA as described in more detail in the following response.

Comment 19: *“The proponent should identify the amount of unoccupied space [at the Chestnut Hill Shopping Center] at the time of the counts and quantify the remaining number of trips expected to travel along Lagrange Street. ”*

Response: Based on prior discussions with the City around the time the counts were conducted, the remaining approved build-out of Chestnut Hill Shopping Center included a 64,000± sf commercial building with first floor retail, second floor restaurant/office space and third floor offices. Based on discussion with City planning staff, an unknown amount of the commercial space was occupied at the time the counts were conducted. It was assumed in the July 2014 TIA that any infill of vacant space in the commercial building would be reasonably accounted for in the conservative background growth rate of 1 percent per year.

At the request of McMahon, MDM has since received response from the Chestnut Hill Shopping Center Proponent indicating that the majority of the building was occupied at the time the counts were conducted. Based on industry-standard trip rates published by ITE and the trip distribution patterns for Chestnut Hill Square (a similar, adjacent approved use), the infill of vacant space in the 64,000 sf Chestnut Hill Shopping Center commercial building is estimated to generate less than 5 vehicle trips during the weekday morning and weekday evening peak hours through the study area – an amount that is imperceptible to the average motorist and falls well within the 1 percent per year background growth rate. Therefore, the background growth assumptions and analysis results as presented in the July 2014 TIA remain valid.

Trip Generation

Comment 20: "Trip generation estimates for the proposed Kessler Woods Residential Development were calculated for the weekday morning and weekday afternoon peak hours utilizing ITE's Trip Generation Manual, 9th Edition. Land Use Code 220 (Apartments) was utilized for the trip generation calculations based on the peak hour of adjacent street traffic. This methodology is considered to be acceptable by industry standards."

Response: No response required.

Trip Distribution

Comment 21: "The US Census Bureau provides more recent journey to work data, collected through the American Community Survey that should be utilized for the trip distribution calculations."

Response: MDM has reviewed the journey to work data provided in the TIA and notes that the analysis was in fact based on the more recent 2006-2013 American Community Survey (ACS) data and that the note indicating use of 2000 US Census data was a typographical error. Therefore, the trip distribution patterns presented in the TIA and based on US Census journey to work data for Newton remain valid.

Comment 22: *“Trip distribution calculations provided in the attachments note the “Residence Town Name” as Middleton, MA. This table should be updated to reflect Newton as the town of residence. Additionally, the Town of Brookline should be included in the calculation for a better representation of potential trip distribution.”*

Response: MDM has reviewed the journey to work data provided in the TIA and notes that the analysis was in fact conducted for a residence city of Newton and that the “Middleton, MA” residence name was a typographical error. Therefore, the trip distribution patterns presented in the TIA and based on US Census journey to work data for Newton remain valid.

As requested, MDM has also estimated trip distribution patterns based on journey to work data for Brookline residents since the site borders the Town of Brookline. The resulting trip distribution patterns indicate a slight shift (10%) in traffic volumes from the west to the east of the site which results in a potential shift of up to 4 entering trips and 3 exiting trips – an amount that will not have any material impact on intersection operations all of which have been demonstrated to operate below capacity at LOS D or better operations.

Operations Analysis

Comment 23: *“...the capacity analysis model [for the Lagrange Street and Vine Street/Corey Street intersection] should be calibrated to match traffic operations observed as part of the delay study and carried through the future conditions.”*

Response: The Proponent’s traffic impact at this intersection is less than 1 percent of intersection volume and as such falls well within daily traffic fluctuations that occur. Despite this modest traffic volume which will not materially change operations relative to No-Build conditions, the Proponent has discussed potential operational and safety improvements with the City and has prepared a conceptual improvement plans as documented in a technical memorandum dated September 2014. Accordingly, there is no useful purpose served by calibrating the model in this instance as the Proponent is proposing improvements at this location that shows enhanced (LOS D or better) operations once improved. For reference, a copy of MDM’s conceptual intersection improvements memorandum and a preliminary review letter issued by the City of Newton’s Director of Transportation supporting the proposed improvements are provided in the **Attachments**.

Comment 24: *“The level-of-service summary for the proposed site driveway indicates that the exiting movement from the site driveway is expected to operate at LOS C with 25 seconds of delay during the weekday afternoon peak hour. The capacity analysis worksheets show a LOS D for this movement. The results of the capacity analysis should be clarified so that the worksheets match the summary.”*

Response: The capacity analysis software (Synchro®) calculates intersection delay to the nearest tenth of a second and assigns the Highway Capacity Manual (HCM) level of service designation (LOS) for that specific delay (25.1 seconds) which is technically reported as a LOS D. When summarizing the capacity analysis results reported in the July 2014, MDM rounded the Synchro-calculated delay to the nearest whole second (25.0 seconds) and reported the HCM level of service designation for the rounded delay which is LOS C. Regardless of this minor discrepancy, the site driveway is expected to have ample capacity to support the proposed project.

Comment 25: *“Capacity analysis should be conducted and summarized for the proposed improvements at the intersection of Lagrange Street and Vine Street/Corey Street under the future year conditions.”*

Response: The Proponent has opted to advance safety and operational improvements at Corey Street/Vine Street despite the finding that its modest traffic volumes do not independently warranted action. The Proponent submitted a technical memorandum documenting the proposed conceptual intersection improvements to the City in September 2014 which has been preliminarily reviewed by the City’s Director of Transportation. The technical memorandum includes a discussion of intersection capacity under improved conditions which indicates ample capacity to support project-related traffic increases at this location. For reference, a copy of MDM’s conceptual intersection improvements memorandum and a preliminary review letter issued by the City of Newton’s Director of Transportation supporting the proposed improvements are provided in the **Attachments**.

Site Access and Circulation

Comment 26: *“The design vehicle is shown to extend beyond the edge of the circulatory road around the rear of the building. The materials used for the roadway and edging should be mountable or the roadway should be reconfigured in order to ensure full access to the rear of the building.”*

Response: The Proponent’s site civil engineer, Stantec, has met with Newton Fire Department to discuss emergency access at the site including a detailed AutoTurn® analysis. The Newton Fire Department has approved of the AutoTurn® analysis. The Fire Department-approved plan is provided in the **Attachment** for reference.

Comment 27: *“The AutoTurn exhibit should be shared with the Newton Fire Department to ensure that an appropriate design vehicle was used in the analysis and that they approve of the proposed circulation. The design vehicle used in the AutoTurn analysis is shown to cross over into the opposite direction of travel upon entrance to and egress from the proposed project site.”*

Response: The Proponent's site civil engineer, Stantec, has met with Newton Fire Department to discuss emergency access at the site including a detailed AutoTurn® analysis. The Newton Fire Department has approved of the AutoTurn® analysis. The Fire Department-approved plan is provided in the **Attachment** for reference.

Comment 28: *"If school buses are to circulate within the project site, a detailed description of the proposed access as well as on-site AutoTurn analysis should be provided."*

Response: As shown in the AutoTurn® analysis approved by the Newton Fire Department included in the **Attachments**, a school bus will be able to adequately maneuver in and around the site should the City decide to provide a school bus stop on-site.

Intersection of Lagrange Street and Vine Street/Corey Street

Comment 29: *"Upon preliminary review, the improvements should provide more organized traffic control at this location."*

Response: No response required.

Comment 30: *"Additional information regarding traffic operations and capacity analysis should be provided for the identified improvements."*

Response: Refer to response to Comment No. 25.

Conclusions and Recommendations

Comment 31: *"A Transportation Demand Management (TDM) plan should be implemented as part of the development to encourage carpooling, bicycle use and pedestrian activity."*

Response: As discussed in the July 2014 TIA, the Proponent plans to implement multiple TDM elements at the site including the following:

- Implement pedestrian and crosswalk connections to the on-site building and existing sidewalk along Lagrange Street.
- Implement intersection improvements at the Lagrange Street/Corey Street/Vine Street intersection including completion of the pedestrian connection between the site and the existing Massachusetts Bay Transportation Authority (MBTA) bus stop along Corey Street at the Boston City line.

- The Proponent plans to include, based on demand, the proposed Kessler Woods residential development in their existing shuttle service that transports Hancock Village residents between Independence Drive and Reservoir Station (Cleveland Circle) during the weekday morning and weekday evening commuter periods. The inclusion of Kessler Woods in this shuttle service would provide the added benefit of Kessler Woods resident access to two Zipcar vehicles provided at Hancock Village.

Comment 32: *“The City of Newton should require that all plantings, grading and structures be constructed to maximize the available sight distance at the proposed site driveway and not just to meet the stopping sight distance minimums.”*

Response: The Applicant will revise the site plan to achieve ISD sight triangles that are clear of any grading, vegetation or on-site obstructions (i.e., signage) that exists at an elevation greater than 3.5 feet above roadway grade to maximize sight lines to the extent feasible to ensure minimum criteria are met or exceeded.

Comment 33: *“The proponent should review and implement the construction of sidewalks along Lagrange Street from the proposed project driveway to the existing Town of Brookline sidewalks in the east and to the intersection of Lagrange Street and Corey Street/Vine Street to the west. All sidewalks and ramps should be ADA compliant.”*

Response: The Proponent will extend the sidewalk on the north side of Lagrange Street that currently terminates near the Brookline municipal boundary to the Site and will provide an ADA compliant pedestrian crossing from the site driveway to the existing sidewalk on the south side of Lagrange Street. No further sidewalk improvements are proposed or warranted.

Comment 34: *“The improvements at the intersection of Lagrange Street and Vine Street/Corey Street should be included in the Kessler Woods Residential Development as proposed by the proponent. Additional information including capacity analysis, preliminary design plans, and proposed pedestrian access should be provided for review.”*

Response: Refer to response to Comment No. 25; requested information is provided in the **Attachments**.