FUSS & O'NEILL

M E M O R A N D U M

TO: Joshua Berry, AICP
Senior Planner, City of Cranston

FROM: Matthew W. Skelly, PE, PTOE
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DATE: November 20, 2020

RE: Centre at Garden Hill Peer Review – Traffic Services
Fuss & O'Neill Reference No. 20200078.T10

BETA Group has submitted a traffic impact study outlining the traffic impacts and mitigation strategies in support of a land use application for a proposed mixed-use development on the easterly side of New London Avenue (Route 2) between Howard Avenue and Hilltop Drive in Cranston, Rhode Island. The project will include razing the existing Mulligan's Island golf and recreation facility and the construction of 165,000 square feet of Costco discount club and associated fueling station, 20,000 square feet retail space, 1,000 square feet bank with a drive-through, two 2,100 square foot fast-food restaurants with drive a through, as well as 40 single family homes.

Fuss & O'Neill has been retained to review the traffic impact study submitted to the City of Cranston in October 2020 in order to confirm the impact of the proposed development on traffic conditions and assess the appropriateness of proposed mitigation efforts throughout the adjacent roadway network. The following comments are presented for review:

General:

1. Throughout the study, we have assumed that the Access Road is the internal roadway that traverses the site parallel to New London Avenue (Route 2) and the Service Road is the perpendicular connector road between the Access Road and New London Avenue (Route 2). This naming convention seems to be inconsistent through the study, appendices, and figures. Please review and revise for clarity.

3.0 Existing Conditions

3.1 – Traffic Data

2. The capacity analysis is based on data available from RIDOT and from previous traffic studies in the vicinity of the project from 2007 and supplemented with data from 2019. The methodology should be clarified to explain how these two data sets were compiled into the turning movement counts used at each of the study area intersections.

3. The turning movement count data specifies that New London Avenue (Route 2), south of Howard Avenue, services 1900 vehicles during the morning peak hour, and 2,600 during the afternoon peak hour. Please specify the number of vehicles serviced for the Saturday peak hour.

4. The Saturday midday peak hour is identified as 12:00 pm to 1:00 pm where 2,455 vehicles travel along New London Avenue (Route 2). However, the study states that during this peak hour 1,260 vehicles travel northbound and 1,155 vehicles travel southbound, which sums to 2,415 vehicles.

4.0 Safety Analysis

5. The study remarks on sight distance throughout the study area, but does not clearly specify which intersection is being assessed, nor whether intersection sight distance (ISD) or stopping sight distance (SSD) is being evaluated. ISD and SSD should be assessed at each of the site driveways and included in this study.

6. The study indicates that a total of 67 vehicle crashes occurred in the project area over the three-year study period, with eleven involving injuries. It is not clear whether any of these crashes involved injuries to pedestrians or fatalities of any involved parties. Please clarify.

7. In paragraph two, please revise sentence two to read "…the available sight distance at the access road intersection is greater than 300 feet through the signalized junction with Route 2 to the west…"

8. In paragraph six, please correct the "rear-end" typo in the last sentence.

5.0 Impact Analysis

5.1 – Trip Generation

9. As mentioned throughout the study, trip generation rates for the Costco discount club and associated gas station have been taken from a study conducted by Kittelson & Associates (Kittelson), dated October 15, 2020.

    a. The study conducted by Kittelson analyzes data gathered during the early weeks of March 2020. During this time, the effects of the COVID-19 global pandemic were taking shape in New England and throughout the country and, as mentioned in the study, customers at discount clubs like Costco were reaching record highs. It is mentioned in this study that the March 2020 data was compared to data gathered in March 2018 and March 2019 and several adjustment factors were applied to the 2020 data to account for the abnormality. Please elaborate on the decision to utilize the

heavily adjusted 2020 data, rather than using the 2018 and/or 2019 data.

b. The trip generation rates for this development have been provided by the Kittelson study based on traffic counts taken at three similar Costco discount clubs in Connecticut. The trip generation rates were applied to the proposed 165,000 square feet of the proposed development; however, Kittelson also recommends that the trip generation should be reduced to account for pass-by and diverted trips, totaling a 64.8 percent and 50 percent reduction during the weekday afternoon peak hour and Saturday peak hour, respectively. However, these reduction factors are not included in the trip generation analyzed for this study, citing a conservative nature of the study. Please further clarify the methodology behind implementing only part of the data strategy used by Kittelson.

c. With the exception of the Costco discount club and associated gas station, the expected site generated traffic for the morning, afternoon, and Saturday peak hours were calculated using empirical data from the Institute of Transportation Engineers (ITE) publication *Trip Generation*, 10th edition, 2017. This publication is an industry accepted resource for determining trip generation. Please provide the expected trip generation for the Costco discount club and associated gas station according to the ITE Trip Generation Manual as a means of comparison to the trip generation calculated using the trip generation rates provided by Kittelson.

d. The trip generation rates calculated by Kittelson for the afternoon and Saturday peak hours are verifiable based on the tabulated data provided in their study. The trip generation rate provided for the morning peak hour, accounting for only the gas station, is more ambiguous. Please provide the methodology used to determine this rate.

5.2 – Signal Warrant Analysis

10. Warrant 2 – Four-Hour Vehicle Volume and Warrant 3 – Peak Hour, are satisfied using the Kittelson volumes that do not take into account pass-by and internal capture rates. Please confirm that signal warrants would be met if those volume reduction factors were to be applied.

5.3 – Future Traffic Conditions

11. The trip distribution percentages applied in this study are provided as a narrative in the second paragraph of this section. Please provide a traffic volume figure with this information for each of the proposed land uses, including the distribution at the internal signalized intersection.

12. It seems unreasonable that no new left turns will be experienced at the intersection of New London Avenue and Garden Hills Parkway/Howard Avenue. Please clarify.

5.4 – Operation Analysis

13. The capacity analysis provided for the intersection of Howard Avenue and Slate Hill Drive using HCS7 does not appear to match the geometry and traffic volumes provided elsewhere in the study. Please clarify this methodology and/or revise the analysis, as needed.

14. Traffic volume figures are provided for each intersection for each of the Existing, No-Build, and Build conditions.

    a. The northbound left turn volume at the intersection of New London Avenue (Route 2) and Howard Avenue/Garden Hills Parkway did not grow at the specified one percent between the Existing and No Build conditions. Please revise.

    b. The westbound left turn volume at the intersection of New London Avenue (Route 2) and Howard Avenue/Garden Hills Parkway is lower in the Saturday Build condition than it is in the Existing condition. Please revise.

    c. Traffic volume balancing along Howard Avenue between the Existing, No-Build, and Build conditions appears to vary during the Saturday analysis period. Please clarify.

15. The trip distribution figure depicting the morning peak hour is incorrect along New London Avenue (Route 2). Please clarify.

16. On each of the trip distribution figures, the study intersection of Howard Avenue at Slate Hill Drive is not depicted. Please revise to include.

17. The capacity analysis for the Build condition during the morning, afternoon, and Saturday peak hours indicate that the separation between the two proposed signalized intersections is 85 feet. In this case, the anticipated queue lengths exceed the available storage capacity and have the potential to queue onto New London Avenue (Route 2). Upon further review, the geometric layout provided in Appendix F does not match the site plans submitted for this development. Please update the capacity analysis as needed.