

Design Consultants, Inc.

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MEMORANDUM

DCI JOB NO. 2013-054

TO: Sam Wolff
Hathaway Partners, LLC

FROM: Amos Fernandes, P.E., P.T.O.E., AICP
Transportation Manager

SUBJECT: Trip Generation Supplemental to 15-33 Richdale Avenue TIS

DATE: March 11, 2014

Design Consultants, Inc. (DCI) has been retained by Hathaway Partners to prepare a Traffic Impact and Access Study (TIAS) for the proposed residential development at 15-33 Richdale Avenue in Cambridge, Massachusetts. The 15-33 Richdale Avenue TIAS report was prepared, signed, and stamped by a registered Professional Engineer on July 12, 2013. Since the report submission, and in response to comments from the Historic Commission, the proposed development intensity at 15-33 Richdale Avenue has been reduced from 54 residential units to 46 residential units. This memorandum serves as a supplemental to the *15-33 Richdale Avenue TIAS, dated July 12, 2013*, and describes the new trip generation and traffic impacts of the reduced proposed residential development.

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition (2012) serves as the basis for this trip generation analysis. Land Use 220, Apartment, was used in this analysis. Table 1 shows the trip generation summary for the newly proposed 46 residential units compared to the previously estimated trip generation for the 54 residential units. The detailed trip generation calculations for both residential developments are included in **Attachment A**.

As shown in Table 1, the proposed development project is expected to generate approximately 8 vehicles-trips during the weekday morning peak hour (2 entering, 6 exiting), and 10 vehicle-trips during the weekday afternoon peak hour (7 entering, and 3 exiting). Over the course of a typical weekday, the proposed project is expected to generate approximately 104 vehicle-trips.

Table 1: Trip Generation Reduction

| Old Proposal - 54 Residential Units | AM Peak | PM Peak | Weekday Daily |
|--|-----------|-----------|---------------|
| Total Person-Trips | 31 | 36 | 395 |
| Total Vehicle-Trips (drive alone + carpool + motorcycle) | 10 | 11 | 122 |
| Total Public Transit Trips | 13 | 16 | 171 |
| Total Bike Trips | 2 | 3 | 29 |
| Total Walking Trips | 4 | 4 | 44 |
| Total Work at Home | 2 | 2 | 29 |
| Total Vehicle-Trips | 10 | 11 | 122 |
| Entering Trips | 2 | 7 | 61 |
| Exiting Trips | 8 | 4 | 61 |
| New Proposal - 46 Residential Units | AM Peak | PM Peak | Weekday Daily |
| Total Person-Trips | 25 | 32 | 337 |
| Total Vehicle-Trips(drive alone + carpool + motorcycle) | 8 | 10 | 104 |
| Total Public Transit Trips | 11 | 14 | 146 |
| Total Bike Trips | 2 | 2 | 25 |
| Total Walking Trips | 3 | 4 | 38 |
| Total Work at Home | 2 | 2 | 24 |
| Total Vehicle-Trips | 8 | 10 | 104 |
| Entering Trips | 2 | 7 | 52 |
| Exiting Trips | 6 | 3 | 52 |

Conclusions

As expected and displayed in Table 1, the vehicle trips estimated for the newly proposed 46 residential units are fewer than calculated for the original 54 residential unit development. Given the lighter intensity of development proposed at 15-33 Richdale Avenue, the report conclusions for *15-33 Richdale Avenue Traffic Impact and Access Study, dated July 12, 2013* remain unchanged. Specifically, the intersection capacity analyses conducted at each study intersection indicate that the project-generated traffic is not expected to have any significant impacts on the intersection and roadway operations. The pedestrian analysis indicates that the proposed project is expected to result in negligible increases to pedestrian delays at all study intersections. This study indicates that the existing transportation infrastructure can accommodate the proposed residential development project, with minimal impacts on traffic operations.

Please don't hesitate to contact Amos Fernandes at (617) 776-3350 for any questions or clarifications regarding this matter.

ATTACHMENT A:
TRIP GENERATION DETAILED CALCULATIONS

Design Consultants, Inc.

May 30, 2013

15-33 Richdale Ave, Cambridge

Trip Generation Calculations

Based on ITE's Trip Generation Manual, 9th Edition (2012)

and US Census Journey to Work data

Base trip generation calculations

Land Use: 220, Apartment

| | |
|-------------------------|-----------|
| number of units: | 54 |
|-------------------------|-----------|

| | AM Peak | PM Peak | Weekday Daily |
|---|----------------|----------------|----------------------|
| Average Rate (per num. of dwelling units) | 0.51 | 0.62 | 6.65 |
| Percent Entering | 20% | 65% | 50% |
| Percent Exiting | 80% | 35% | 50% |
| Total Trips | 28 | 33 | 359 |
| Entering Trips | 6 | 21 | 180 |
| Exiting Trips | 22 | 12 | 179 |

Census Tract 3547 Mode Split (from the 2007-2011 ACS 5-Year Estimates)

| | |
|----------------------------|-------|
| Drive Alone + Motorcycle = | 30.3% |
| Carpool = | 0.5% |
| Public Transit - | 43.2% |
| Bike = | 7.3% |
| Walk = | 11.3% |
| Other Modes = | 0.0% |
| Work at home = | 7.4% |

| | |
|-----------------------------------|-----|
| Average Vehicle Occupancy (AVO) = | 1.1 |
|-----------------------------------|-----|

| | AM Peak | PM Peak | Weekday Daily |
|---|----------------|----------------|----------------------|
| Total Person-Trips | 31 | 36 | 395 |
| Total Vehicle-Trips (drive alone + carpool + motorcycle) | 10 | 11 | 122 |
| Total Public Transit Trips | 13 | 16 | 171 |
| Total Bike Trips | 2 | 3 | 29 |
| Total Walking Trips | 4 | 4 | 44 |
| Total Work at Home | 2 | 2 | 29 |

| | | | |
|----------------------------|-----------|-----------|------------|
| Total Vehicle-Trips | 10 | 11 | 122 |
| Entering Trips | 2 | 7 | 61 |
| Exiting Trips | 8 | 4 | 61 |

Design Consultants, Inc.

March 11, 2014

15-33 Richdale Ave, Cambridge

Trip Generation Calculations

Based on ITE's Trip Generation Manual, 9th Edition (2012)

and US Census Journey to Work data

Base trip generation calculations

Land Use: 220, Apartment

| | |
|-------------------------|-----------|
| number of units: | 46 |
|-------------------------|-----------|

| | AM Peak | PM Peak | Weekday Daily |
|---|----------------|----------------|----------------------|
| Average Rate (per num. of dwelling units) | 0.51 | 0.62 | 6.65 |
| Percent Entering | 20% | 65% | 50% |
| Percent Exiting | 80% | 35% | 50% |
| Total Trips | 23 | 29 | 306 |
| Entering Trips | 5 | 19 | 153 |
| Exiting Trips | 18 | 10 | 153 |

Census Tract 3547 Mode Split (from the 2007-2011 ACS 5-Year Estimates)

Drive Alone + Motorcycle = 30.3%
 Carpool = 0.5%
 Public Transit - 43.2%
 Bike = 7.3%
 Walk = 11.3%
 Other Modes = 0.0%
 Work at home = 7.4%

| | |
|-----------------------------------|-----|
| Average Vehicle Occupancy (AVO) = | 1.1 |
|-----------------------------------|-----|

| | AM Peak | PM Peak | Weekday Daily |
|---|----------------|----------------|----------------------|
| Total Person-Trips | 25 | 32 | 337 |
| Total Vehicle-Trips (drive alone + carpool + motorcycle) | 8 | 10 | 104 |
| Total Public Transit Trips | 11 | 14 | 146 |
| Total Bike Trips | 2 | 2 | 25 |
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| | | | |
|----------------------------|----------|-----------|------------|
| Total Vehicle-Trips | 8 | 10 | 104 |
| Entering Trips | 2 | 7 | 52 |
| Exiting Trips | 6 | 3 | 52 |