

# **TRAFFIC IMPACT ANALYSIS – THE RHODE ISLAND AVENUE CONSOLIDATED PLANNED UNIT DEVELOPMENT, NORTHEAST, WASHINGTON, DC**

*(Case No. \_\_\_\_)*

*Prepared for:*

**H STREET COMMUNITY DEVELOPMENT CORPORATION**

501 H Street, N.E.

Washington, D.C. 20002

➤ William J. Barrow, Executive Director

*Land Use Counsel:*

**HOLLAND & KNIGHT, LLP**

2099 Pennsylvania Avenue, NW, Suite 100

Washington, D.C. 20006

➤ Norman M. Glasgow, Jr., Esquire

*Prepared by:*

**O. R. GEORGE & ASSOCIATES, INC.**

Transportation Planning & Engineering Consultants

10210 Greenbelt Road, Suite 310

Lanham, MD 20706-2218

Tel: (301) 794-7700

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## **1.0 INTRODUCTION**

### **1.1 Project Background**

The H Street Community Development Corporation (“The Applicant”) plans to redevelop a 0.9-acre site situated along the east side of 4<sup>th</sup> Street, between Adams Street and Bryant Street, in the northeast section of Washington, D.C. The property is zoned C-3-A (Medium Bulk Major Business and Employment). The Applicant plans to develop approximately one hundred seventy (170) apartment units and 3,000 Gross Square Feet (GSF) community-serving retail uses on the site, in accordance with that zoning category and the City’s Consolidated Planned Unit Development (PUD) process. The proposed development would be served by one hundred twenty-eight (128) underground parking spaces. Vehicular access would be provided via an entrance off 4<sup>th</sup> Street. Exhibit 1 (see page following) shows the location of the subject site.

A number of factors make the proposed development attractive from the perspective of transportation access and internal circulation. These are as follows:

- a) The subject site would be accessed via major roadways such as Rhode Island Avenue and 4<sup>th</sup> Street, which are part of the roadway network providing access to Downtown, Washington, D.C., and to the broader metropolitan region;
- b) The proposed site is situated in proximity to the Rhode Island Avenue Metrorail Station, on the Washington Metropolitan Area Transit Authority (WMATA) Red Line; and
- c) The site is in proximity to significant existing retail uses including the Rhode Island and Brentwood Shopping Centers, and the planned Rhode Island Metro Development, which would consist of residential and retail uses.

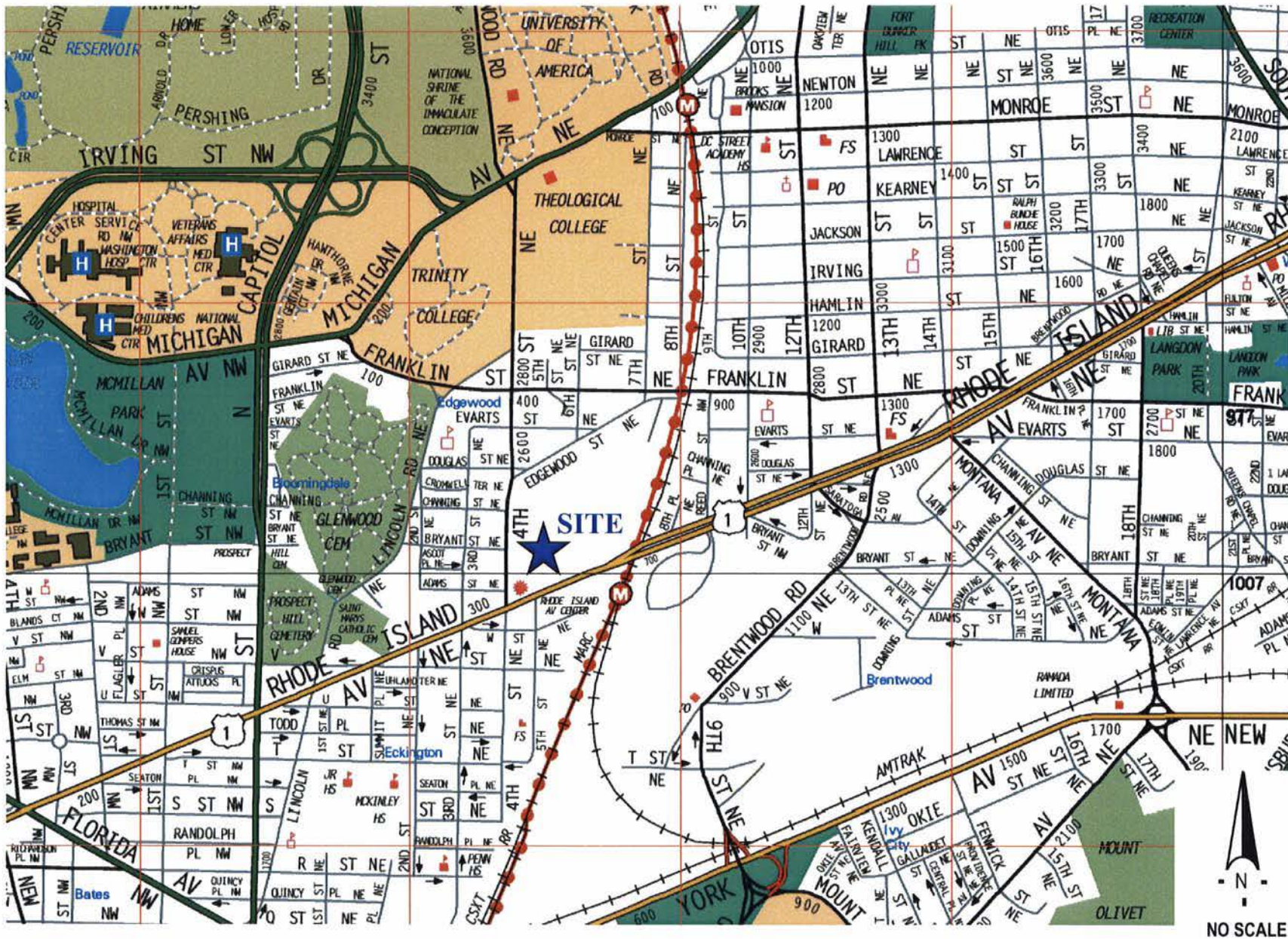
The above factors would significantly reduce the trip generation and related impacts of the proposed development, particularly during the morning and afternoon peak periods. These factors are further considered in the relevant sections of this report.

### **1.2 Study Purpose and Scope**

This study was prepared as supporting documentation to the subject Consolidated PUD Application. The purpose and key elements of the study are to evaluate and document the following:

- (a) Existing roadway and traffic conditions within the immediate area of the subject site;
- (b) Future “background” traffic conditions, based on a generalized examination of planned developments within the study area, and potential annual growth in through traffic along the key study area roadways;
- (c) The traffic impact of the development proposal, considering existing and planned transportation facilities, site trip generation, access and on-site circulation; and
- (d) Any capacity, safety or operational constraints to the proposed development, as well as potential measures to mitigate such constraints, where appropriate.

The methodology used in this analysis is in accordance with the current guidelines stipulated by the District of Columbia Department of Transportation (DDOT) for the assessment of the transportation impacts and access requirements associated with planned unit developments. The study area and other key parameters considered were also discussed with the responsible DDOT staff. Correspondence outlining the scope of the study is presented in Appendix A.



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EXHIBIT 1  
SITE LOCATION MAP  
The Rhode Island Avenue Consolidated PUD Application

### **1.3 Report Organization and Summary**

This report is organized into five (5) sections. The current Section presents the background and context for the study. Section 2 evaluates existing roadway and traffic conditions. Section 3 addresses projected growth in traffic due to the impact of approved (and other potential) developments within the general study area, as well as potential growth in through traffic along the key study area roadways. Section 4 analyzes the traffic impact of the Applicant's development proposal, and assesses related site access, circulation and parking provisions. Section 5 summarizes the study findings and makes recommendations, where appropriate, to mitigate any potential transportation impacts identified.

The Applicant projects that the development would be built-out by the year 2008. The study has concluded that the existing study area road network can accommodate the Applicant's development proposal. The future traffic conditions included the application of a 2.0% growth factor to through traffic along Rhode Island Avenue, 4<sup>th</sup> Street and Franklin Street, as well as the projected traffic assignment for the proposed Rhode Island Avenue Metro PUD and the subject PUD. The projected total traffic situation would also reflect the proximity of those developments to the Rhode Island Avenue Metrorail Station.

The study shows that the subject development would generate an average of fifty (50) peak hour trips. This trip generation is quite low and would be well distributed, resulting in quite minimal traffic impacts. The projected 2008 total traffic situation, including the proposed development, would be accommodated by the existing roadway network, within the acceptable Level-of-Service standards of the City. The subject PUD would be provided with one hundred twenty-eight (128) off-street parking, in accordance with the City's requirements. The subject PUD would also provide adequate loading/delivery facilities. The proposed development would therefore satisfy the City's transportation adequacy requirements; and would not be "objectionable" either to the adjacent properties or the general public from the perspective of traffic and parking.

## **2.0 EXISTING ROADWAY AND TRAFFIC CONDITIONS**

### **2.1 Land Use and Zoning**

As noted earlier, the site is located in Lot 808 of Square 3629; and is zoned C-3-A (Medium Bulk Major Business and Employment). The site is currently unimproved. The remaining area within Square 3629 is zoned C-M-2 (Medium Bulk Commercial - Light Manufacturing) and C-3-A; and is developed with retail and commercial uses including the Rhode Island Avenue Shopping Center. The immediate areas further to the east and south of Rhode Island Avenue are zoned and developed with C-M-2 and C-2-A (Community Business Center – Medium Density) land uses. The areas situated immediately to the north of Square 3629 are zoned and developed with R-5-D (Medium High Density Apartment Houses) and R-4 (Row Dwellings and Flats) uses. The Rhode Island Avenue Metrorail Station is situated approximately four (4) blocks to the southeast of the subject site.

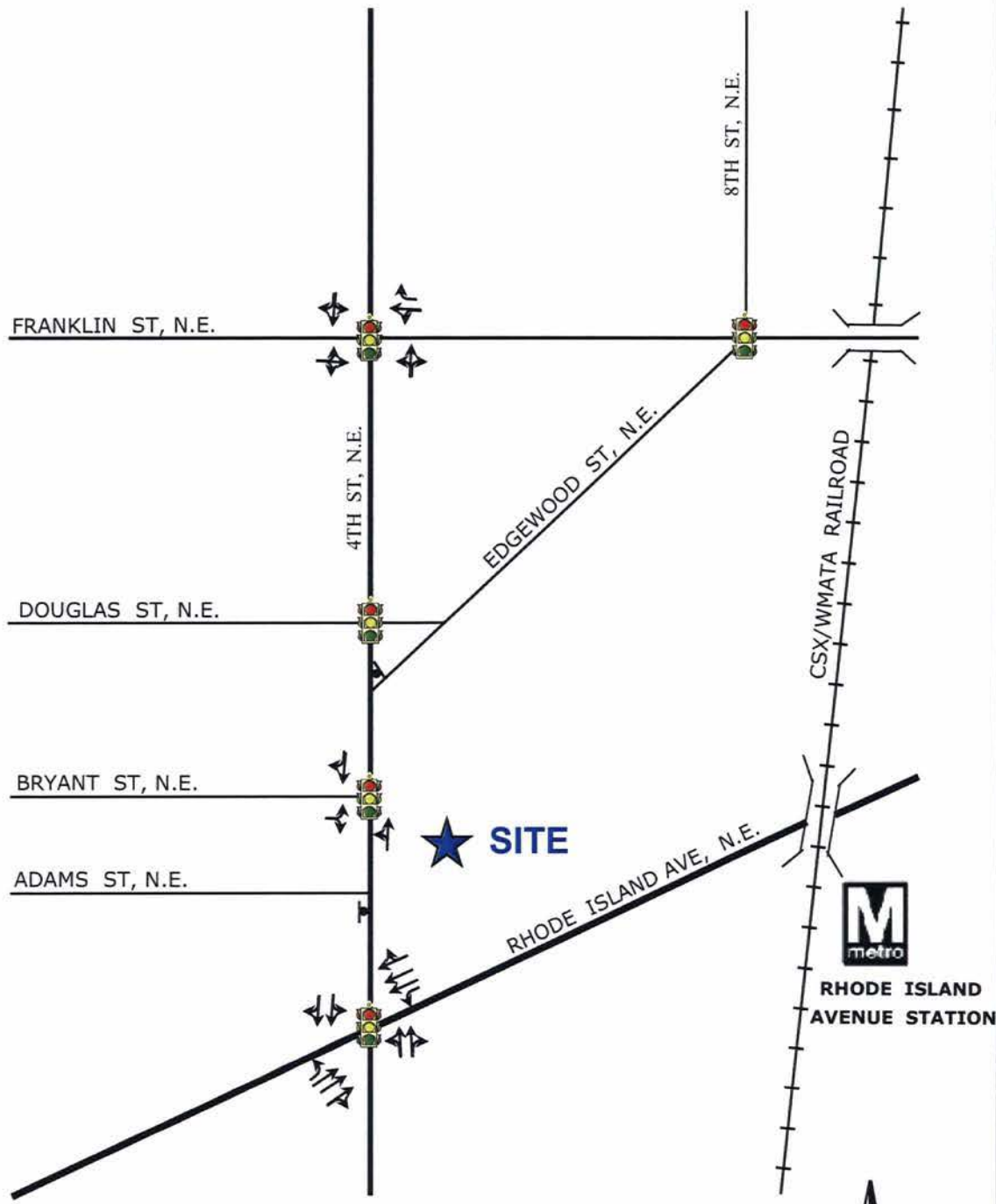
### **2.2 Study Area Road Network**

Regional access to the subject site is well served by Rhode Island and New York Avenues (to the south), North Capitol Street (to the west) and Michigan Avenue (to the north). Immediate access to the site is provided primarily by 4<sup>th</sup> Street. Based on discussions with the DDOT Transportation Policy and Planning Administration staff, a study area roadway network consisting of three (3) intersections was identified for evaluation. These intersections are as follows:

- 1) Rhode Island Avenue @ 4<sup>th</sup> Street, N.E. (Signalized);
- 2) Franklin Street @ 4<sup>th</sup> Street, N.E. (Signalized); and
- 3) Bryant Street @ 4<sup>th</sup> Street, N.E. (Signalized).

Field observations were also made at the intervening intersections along 4<sup>th</sup> Street, N.E. (i.e., Adams Street, Edgewood Street and Douglas Street). The general physical characteristics and service functions of the key study area roadways are summarized below:

- **Fourth Street, N.E.:** This is designated a Minor Arterial (north of Rhode Island Avenue) and a Collector (south of Rhode Island Avenue), on the City's Highway System. This four-lane undivided facility runs north-south and connects the site with Michigan Avenue (to the north) and Rhode Island Avenue (to the south). Parking is provided along both sides, with one-hour and two-hour restrictions. The roadway serves Average Daily Traffic (ADT) volumes in the range of 10,800 vehicles (in the vicinity of the site), and has a posted speed of 25 MPH.
- **Rhode Island Avenue, N.E.:** This is classified as a Principal Arterial on the City's Highway System. It runs northeast to southwest; and connects the study area to Downtown Washington D.C. (to the southwest) and the Maryland suburbs (to the northeast). Traffic flows along Rhode Island Avenue are quite directional, i.e., southbound during the morning peak period and northbound during the afternoon peak period. The peak directional flows are served by three (3) travel lanes. The roadway serves significant commuter through traffic and is also a major bus route. On-street parking is prohibited along this roadway, east of 4<sup>th</sup> Street to the Metro Station Entrance. West of 4<sup>th</sup> Street, on-street parking is allowed during the off-peak directional periods, with peak-period restrictions. The ADT served is approximately 69,300 vehicles; and the posted speed is 30 MPH.



**LEGEND**

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**EXHIBIT 2**

**EXISTING ROADWAY LANE CONFIGURATION**  
The Rhode Island Avenue Consolidated PUD Application

The other study area roadways are all classified as local streets. The posted speed limit along these roadways is 25 MPH. The layout of the study area roadway network and the lane configuration provided at the key study area intersections, are illustrated in Exhibit 2.

### **2.3 Existing Traffic Situation**

In order to assess current traffic operating conditions, field observations were made of the weekday traffic flow conditions, within the defined study area, during the morning and afternoon peak periods. In addition, peak period turning movement counts were undertaken at the study area intersections. Exhibit 3 shows the morning and afternoon peak hour volumes. The count summaries are included as Appendix B.

The peak hour traffic volumes were analyzed using the Highway Capacity Manual (HCM) capacity analysis procedures, in accordance with the DDOT requirements. The results show that the study area intersections currently operate at acceptable Levels of Service<sup>1</sup>, during the morning and afternoon peak hours. It is noted that the Rhode Island Avenue/4<sup>th</sup> Street intersection results are consistent with the findings of the recently-completed *DDOT Eckington North-Rhode Island Avenue Parking and Transportation Study (2005)*. The Level-of-Service results are based on the average control delay computed by the HCM procedures for all vehicles utilizing the intersections during the peak hours. Table 1 presents the summary of the capacity analysis results for the existing traffic situation. Detailed capacity analysis worksheets are presented in Appendix C.

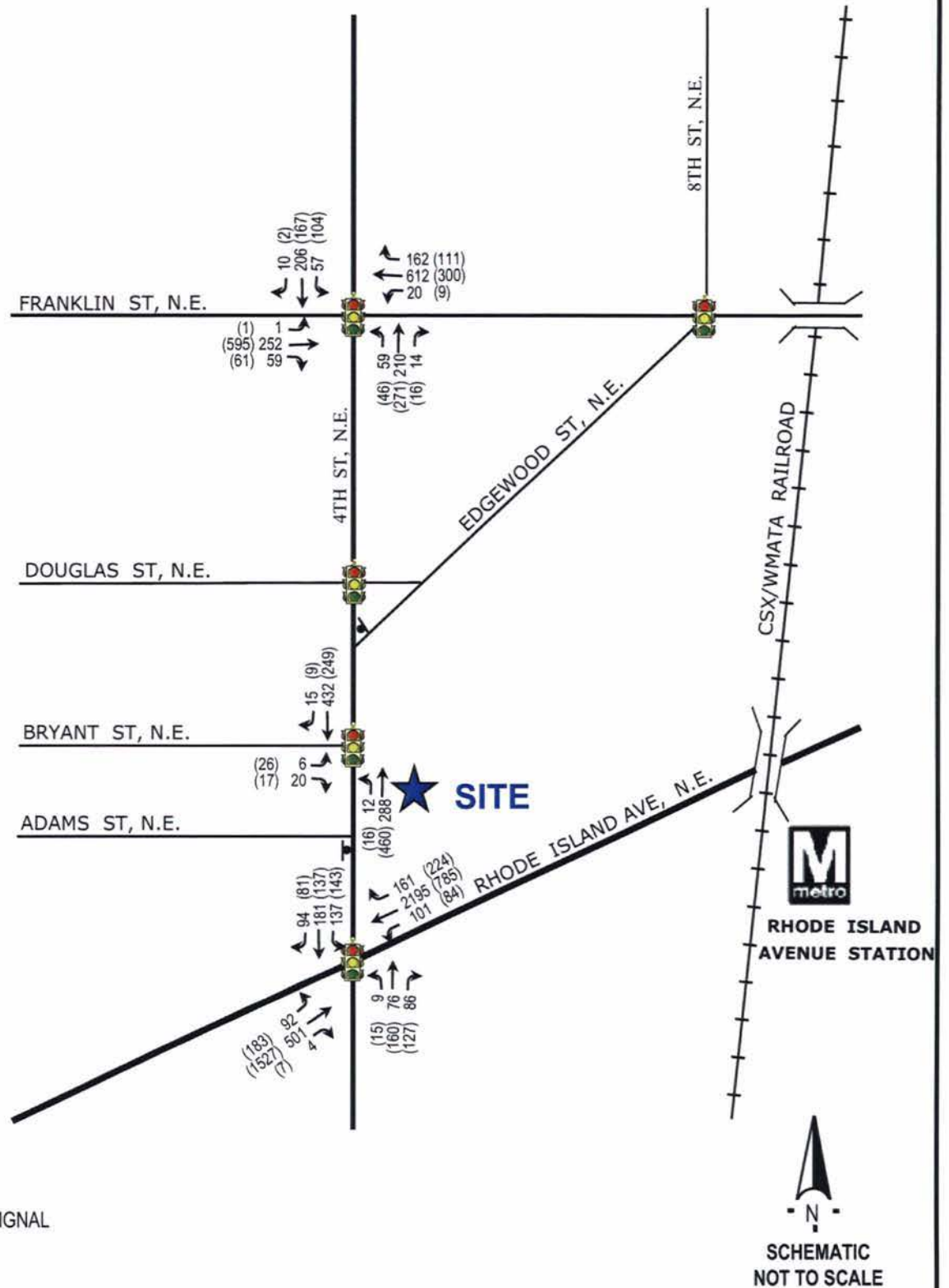
**TABLE 1**  
**SUMMARY OF CAPACITY ANALYSIS RESULTS -**  
**EXISTING TRAFFIC SITUATION**

| Intersection                                    | AM Peak Hour     |                       | PM Peak Hour     |                       |
|-------------------------------------------------|------------------|-----------------------|------------------|-----------------------|
|                                                 | Level of Service | Avg. Delay (Sec/Veh)* | Level of Service | Avg. Delay (Sec/Veh)* |
| 1) Rhode Island Ave @ 4 <sup>th</sup> St., N.E. | C                | 33.7                  | C                | 26.0                  |
| 2) Franklin St. @ 4 <sup>th</sup> St., N.E.     | C                | 23.0                  | C                | 24.2                  |
| 3) Bryant St. @ 4 <sup>th</sup> St., N.E.       | A                | 10.0                  | B                | 10.4                  |

**Source:** O. R. George & Associates.

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<sup>1</sup> Level of Service is a qualitative measure describing operational conditions within a traffic stream or at an intersection, and reflects their perception by drivers and other roadway users. Principal considerations are factors such as speed and travel time, delay, and freedom of maneuver, traffic interruptions, comfort, convenience and safety. Current engineering practice defines six (6) Levels of Service (A-F), with "A" representing best operating conditions, and Level of Service "F" representing the worst conditions. Level-of-Service D is generally considered by the District of Columbia as the minimum acceptable conditions for planning and design purposes.



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## **2.4 Traffic Safety Situation**

In order to assess the traffic safety situation within the study area, accident data for the key intersections was obtained from the DDOT Traffic Services Administration. This data was obtained for the most recent three (3) year period, i.e., 2002 - 2004. Copies of the accident data summaries are include as Appendix D. The data indicates that there are no significant safety deficiencies within the study area roadway network, except at the Rhode Island Avenue/4<sup>th</sup> Street intersection. The safety conditions at that location will be improved by the DDOT, pursuant to the recommendations of this agency's Eckington North/Rhode Island Avenue Parking and Transportation Study (2005). In addition, the projected low trip generation of the proposed development would not have significant adverse impacts on the existing safety situation at that intersection and the entire study area roadway network.

### **3.0 BACKGROUND TRAFFIC SITUATION**

#### **3.1 Projected Year 2008 Background Traffic Situation**

The current development plans indicate that the proposed land uses would be built-out by the year 2008. Therefore, for the purposes of this study, the year 2008 was considered the “design year”. Considering the City’s guidelines and procedures, the projected design year traffic conditions would consist of the following key elements:

- a) Potential increase in through traffic based on historical growth trends; and
- b) Projected trip generation for other planned developments, within the immediate site area, which are likely to be built-out by year 2008.

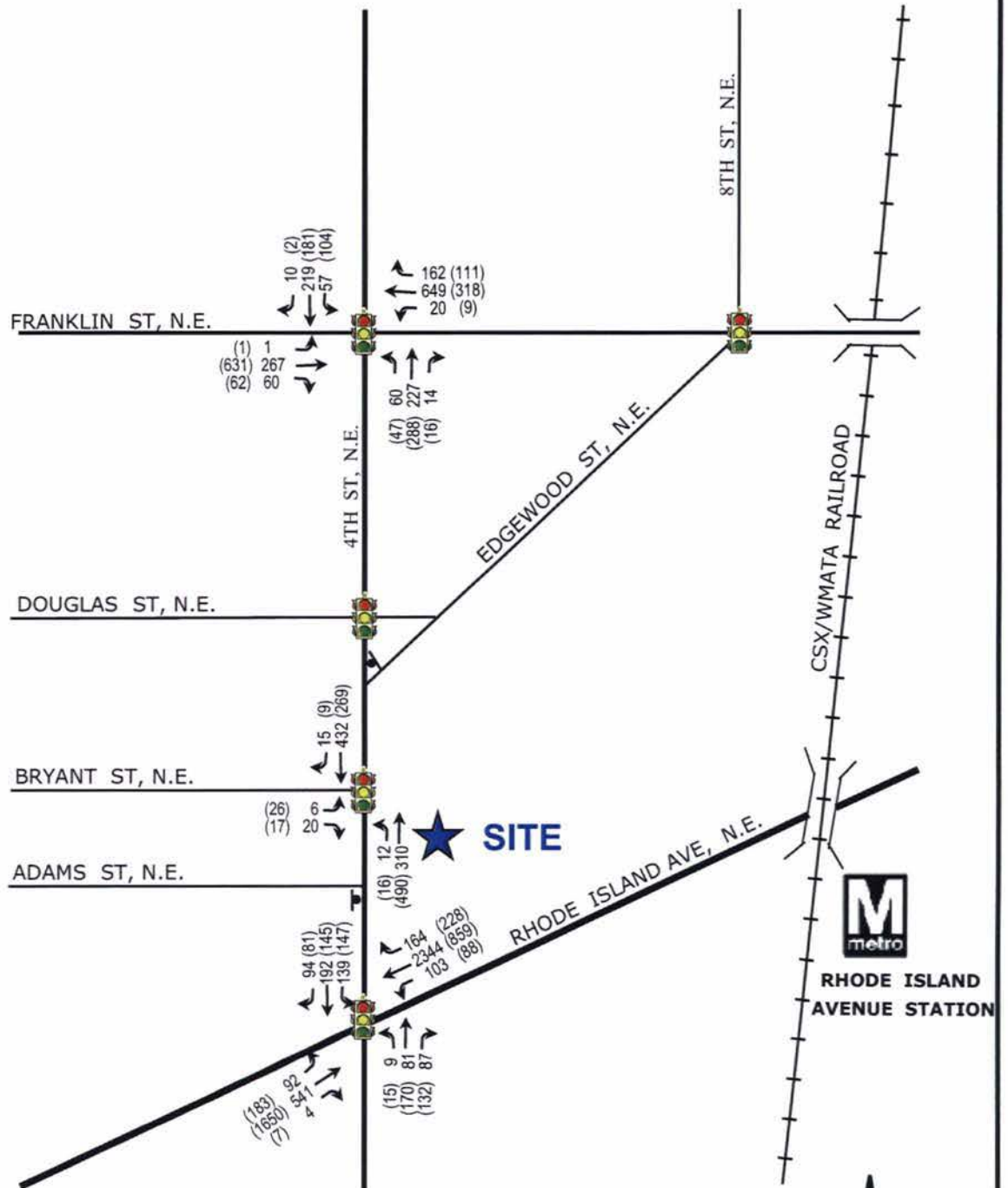
Review of historical Average Daily Traffic (ADT) provided by DDOT, indicates that traffic volumes on the study area roadways have remained relatively stable over the last five (5) years. It is therefore projected that an increase in traffic within the study area over the next three (3) years, i.e., by year 2008, would be marginal. However, to comply with DDOT’s growth assumptions for roadways serving significant through traffic volumes, and in consideration of the background developments planned for the immediate study area, an annual growth factor of two percent (2.0%) was applied to the existing traffic volumes unto the year 2008. The 2008 base year traffic volumes, reflecting that annual growth, are presented as Appendix E-1.

Based on information provided by the Office of Planning, only one (1) planned development was identified for consideration in this study. This development, the Rhode Island Avenue Metrorail Station Planned Unit Development, is currently under review by the Zoning Commission. It would consist of 271 apartment units and 82,300 Gross Square Feet of retail space. The projected trip generation and traffic assignment of this development is included as Appendices E-2 and E-3 respectively.

#### **3.2 Traffic Analysis - Year 2008 Background Traffic Situation**

The projected year 2008 background traffic situation was derived by combining the year 2008 “base” traffic situation (Appendix E-1) with the trip assignment for the Rhode Island Avenue Metro PUD (Appendix E-3). The projected year 2008 background traffic situation is presented in Exhibit 4. These volumes were analyzed using the HCM analysis procedures, as was done for the existing traffic situation.

Table 2 (on page 11) summarizes the capacity analysis results for the projected year 2008 background traffic situation. The results show that the study area road network would continue to operate within the City’s acceptable planning standards, during the morning and afternoon peak hours. Appendix F presents the capacity analysis worksheets for the background traffic situation.



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**EXHIBIT 4**  
**PROJECTED YEAR 2008 TOTAL BACKGROUND**  
**TRAFFIC SITUATION**  
The Rhode Island Avenue Consolidated PUD Application

**TABLE 2**  
**SUMMARY OF CAPACITY ANALYSIS RESULTS -**  
**PROJECTED YEAR 2008 BACKGROUND TRAFFIC SITUATION**

| Intersection                                    | AM Peak Hour     |                       | PM Peak Hour     |                       |
|-------------------------------------------------|------------------|-----------------------|------------------|-----------------------|
|                                                 | Level of Service | Avg. Delay (Sec/Veh)* | Level of Service | Avg. Delay (Sec/Veh)* |
| 1) Rhode Island Ave @ 4 <sup>th</sup> St., N.E. | D                | 44.3                  | C                | 27.3                  |
| 2) Franklin St. @ 4 <sup>th</sup> St., N.E.     | C                | 28.2                  | C                | 26.2                  |
| 3) Bryant St. @ 4 <sup>th</sup> St., N.E.       | B                | 10.3                  | B                | 10.6                  |

**Source:** O. R. George & Associates.

## **4.0 FUTURE TRAFFIC SITUATION**

### **4.1 Proposed Development Plan**

As noted earlier, this analysis is in support of the Consolidated Planned Unit Development application for the development of mixed residential and retail uses on the subject property. The specific land use and supporting development elements are as follows:

- a) ***Land uses:***
  - 170 Apartment Units
  - 3,000 GSF Retail Space
- b) ***Parking:***
  - Approximately one hundred twenty-eight (128) off-street parking spaces within a two (2) level, below-grade parking garage.
- c) ***Loading/Delivery Space***
  - One (1) loading berth and platform, and two (2) delivery spaces, all consistent with the applicable zoning category.

Immediate vehicular and pedestrian access to the site will be provided from 4<sup>th</sup> Street, N.E.

### **4.2 Trip Generation**

DDOT typically requires that the trip rates recommended by the Institute of Transportation Engineers (ITE) be utilized in conducting traffic impact assessments. As such, the trip estimates for the proposed development were based on the current ITE Trip Generation Manual (7<sup>th</sup> Ed., 2003). The trip rates were adjusted to reflect the following factors:

- a) Proximity of the site to the Rhode Island Avenue Metrorail Station and regional bus routes along this roadway, in accordance with WMATA's 1989 Development Ridership Survey Report; and
- b) Proximity to major retail uses (i.e., Rhode Island Avenue and Brentwood Road Shopping Centers), and the mixed-use nature of the subject development.

Based upon the above factors, the trip generation rates were developed and applied to the proposed development, as detailed in Table 3.

**TABLE 3**  
**PROJECTED PEAK HOUR TRIP GENERATION –**  
**RHODE ISLAND AVENUE PUD**

| <b><u>Trip Rates</u></b>             | <b><u>AM Peak Hour</u></b> |                   |                     | <b><u>PM Peak Hour</u></b> |                   |                     |
|--------------------------------------|----------------------------|-------------------|---------------------|----------------------------|-------------------|---------------------|
|                                      | <b><u>In</u></b>           | <b><u>Out</u></b> | <b><u>Total</u></b> | <b><u>In</u></b>           | <b><u>Out</u></b> | <b><u>Total</u></b> |
| • Trips/Apartment Unit               | 0.10                       | 0.41              | 0.51                | 0.40                       | 0.22              | 0.62                |
| --With 50% Transit, Walk, etc. Trips | 0.05                       | 0.21              | 0.26                | 0.20                       | 0.11              | 0.31                |
| • Trips/1,000 GSF Retail Space       | 0.63                       | 0.40              | 1.03                | 1.80                       | 1.95              | 3.75                |
| --With 90% Walk Trips                | 0.06                       | 0.04              | 0.10                | 0.18                       | 0.20              | 0.38                |
| <b><u>Trip Generation</u></b>        |                            |                   |                     |                            |                   |                     |
| • Trips/170 Apartment Units          | 9                          | 36                | 45                  | 34                         | 19                | 53                  |
| • Trips/3,000 GSF Retail Space       | 1                          | 0                 | 1                   | 0                          | 1                 | 1                   |
| <b>TOTAL</b>                         | <b>10</b>                  | <b>36</b>         | <b>46</b>           | <b>34</b>                  | <b>20</b>         | <b>54</b>           |

**Source:** WMATA 1989 Development Ridership Survey Report, ITE Trip Generation Manual (2003), and O. R. George & Associates.

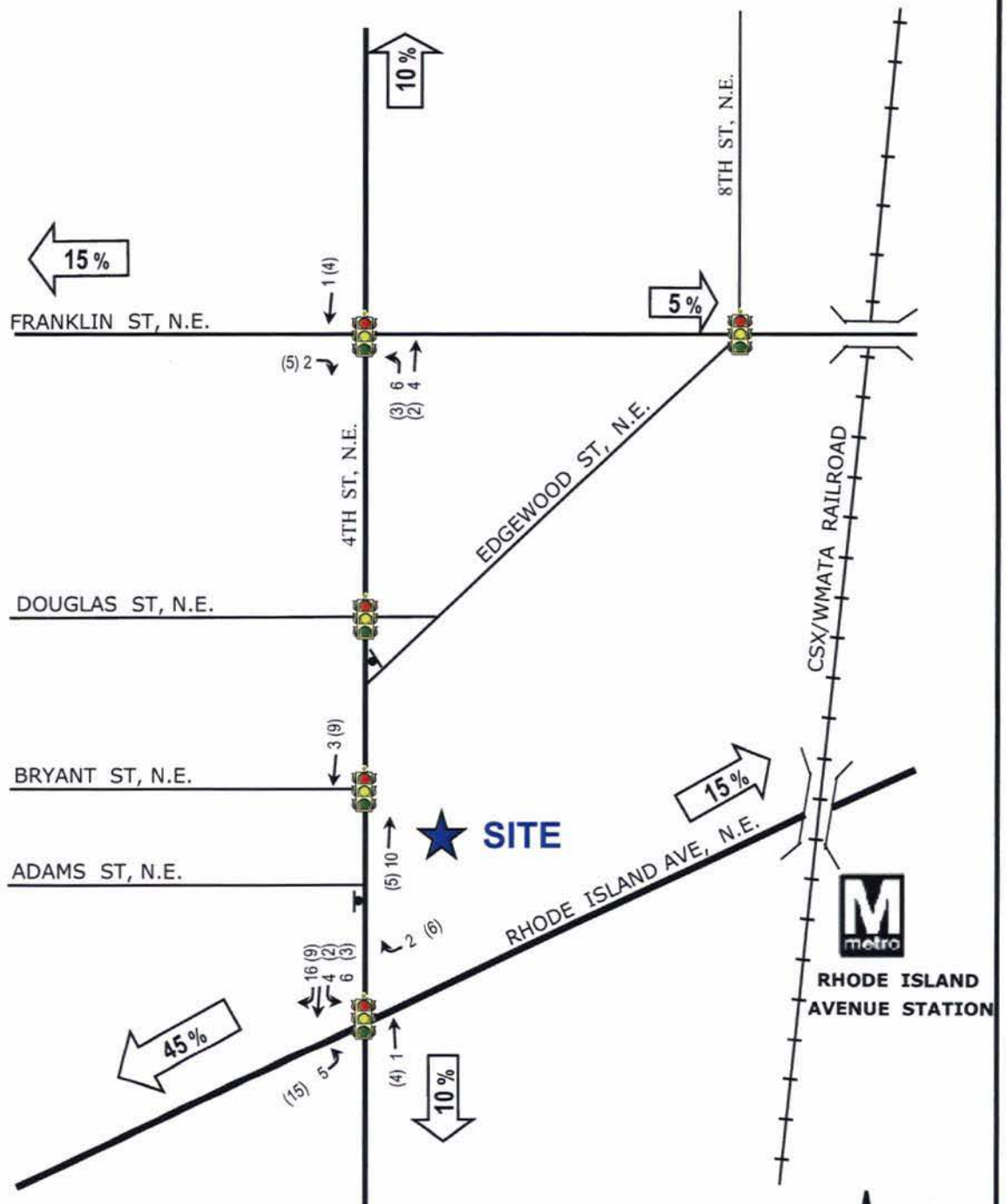
#### **4.3 Trip Distribution and Traffic Assignment**

As noted earlier, the proposed development would consist of residential and retail land uses. The peak hour trip generation and distribution patterns for the residential component would be related primarily to the location of the site relative to regional employment opportunities, available transportation modal splits and associated travel patterns. Accordingly, the projected trip generation for the residential component of the proposed development would be oriented towards areas such as the Washington, D.C. central employment core to the southeast, and the suburban Maryland areas to the north and east. The proposed retail use would be primarily community-serving. Based on the above, the assumed distribution pattern and the projected traffic assignment for the proposed development are shown in Exhibit 5.

#### **4.4 Capacity Analysis - Year 2008 Total Traffic Situation**

The year 2008 total traffic situation was derived by combining the traffic assignment for the proposed development (Exhibit 5) with the year 2008 total background traffic situation (Exhibit 4). The year 2008 total traffic situation is illustrated in Exhibit 6 (on page 15). These volumes were analyzed using the Highway Capacity Manual (HCM), as was done for the existing and background traffic conditions. The level of service results are presented in Table 4 on page 16.

The capacity analysis results indicate that, upon build-out of the proposed development, the study area intersections would continue to operate acceptably, during the morning and afternoon peak periods. The capacity analysis worksheets for this situation are presented in Appendix G.



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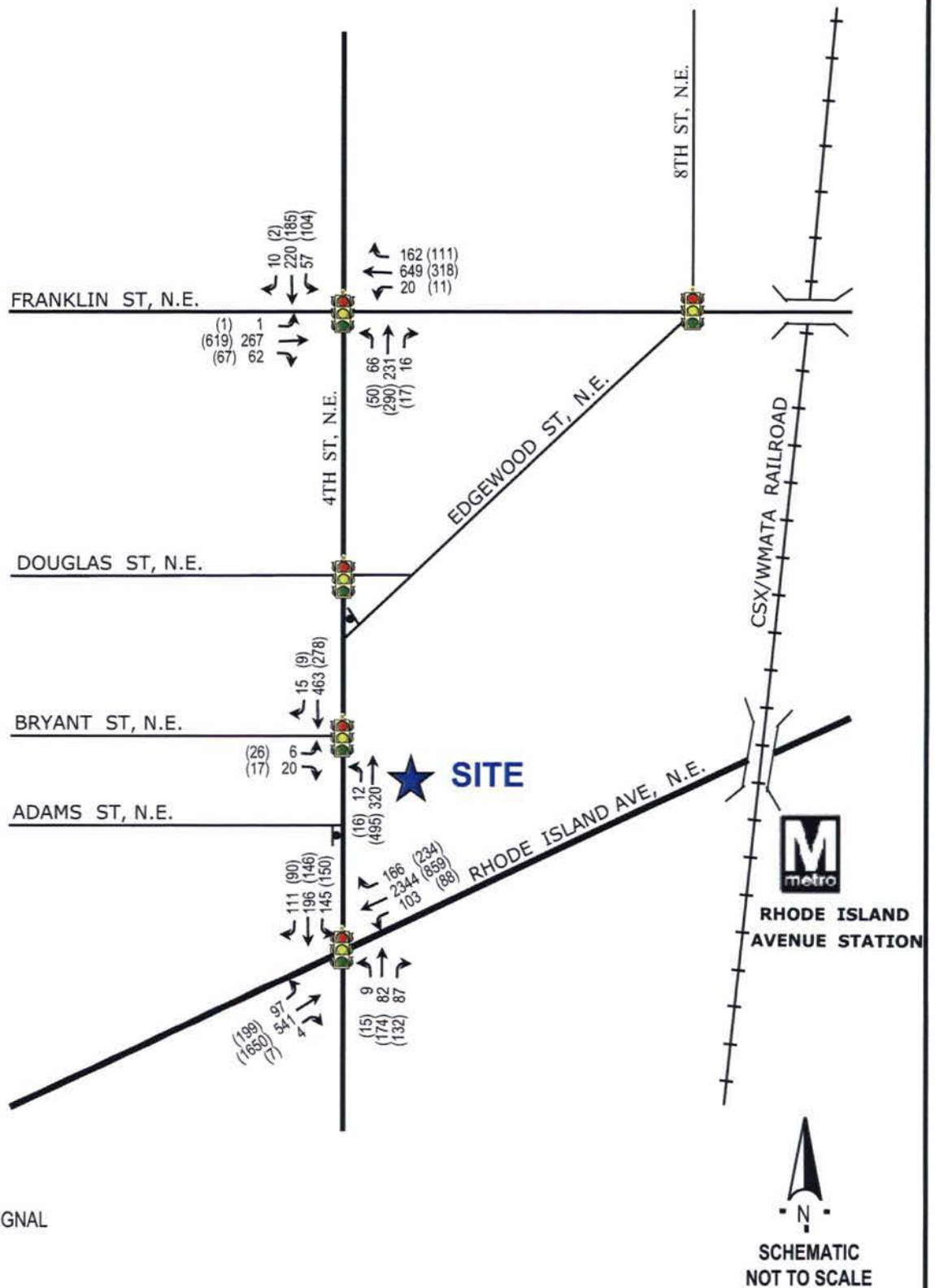
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*Traffic Engineers – Transportation Planners*

#### EXHIBIT 5

**PEAK HOUR SITE TRIP DISTRIBUTION &  
TRAFFIC ASSIGNMENT**  
The Rhode Island Avenue Consolidated PUD Application



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**EXHIBIT 6**  
**PROJECTED YEAR 2008 TOTAL TRAFFIC SITUATION**  
The Rhode Island Avenue Consolidated PUD Application

**TABLE 4**  
**SUMMARY OF CAPACITY ANALYSIS RESULTS -**  
**PROJECTED 2008 TOTAL TRAFFIC SITUATION**  
**(INCLUDING SUBJECT PUD)**

| Intersection                                    | AM Peak Hour     |                       | PM Peak Hour     |                       |
|-------------------------------------------------|------------------|-----------------------|------------------|-----------------------|
|                                                 | Level of Service | Avg. Delay (Sec/Veh)* | Level of Service | Avg. Delay (Sec/Veh)* |
| 1) Rhode Island Ave @ 4 <sup>th</sup> St., N.E. | D                | 44.6                  | C                | 27.6                  |
| 2) Franklin St. @ 4 <sup>th</sup> St., N.E.     | C                | 29.3                  | C                | 26.9                  |
| 3) Bryant St. @ 4 <sup>th</sup> St., N.E.       | B                | 10.4                  | B                | 10.7                  |

**Source:** O. R. George & Associates.

#### **4.5 Parking Analysis**

The proposed development site is zoned C-3-A. The City's parking requirements, based on the current zoning and the proposed land uses, are compared with the off-street parking proposed for the subject development in Table 5 below.

**TABLE 5**  
**REQUIRED VS PROPOSED OFF-STREET PARKING**

| Land Use                                    | Required Ratio (Parking) | Required Parking | Proposed Off-Street Parking |
|---------------------------------------------|--------------------------|------------------|-----------------------------|
| • Apartments (170 Units)<br>(1 per 2 units) | 0.5                      | 85               | 128                         |
| • Retail (3,000 GSF)<br>(Per 1,000 GSF)*    | N/A                      | 0                | 0                           |
| <b>TOTAL</b>                                |                          | 85               | 128                         |

\* The parking requirement is 1 parking space for each additional 300 square feet of gross floor area and cellar floor area, in excess of 3,000 square feet.

**Source:** DCMR Title 11 – Zoning and O. R. George & Associates.

Table 5 clearly shows that the proposed off-street parking will exceed the required parking by a factor of 1.5. It is noted that minimal on-street parking would be available on the adjacent roadways. The proposed off-street parking supply is therefore planned to adequately accommodate the projected needs of the prospective residential and retail users.

## **5.0 SUMMARY OF FINDINGS AND CONCLUSION**

### **5.1 Summary of Findings**

This study has examined the potential impacts of the Rhode Island Avenue Consolidated Planned Unit Development. The study was performed in accordance with the general guidelines stipulated by the District of Columbia Department of Transportation (DDOT) Policy and Planning Administration, regarding the evaluation of the transportation impacts of development proposals. The principal findings of the study are as follows:

- a) The defined study area roadway network currently operates at acceptable Levels of Service, during both the morning and afternoon peak periods.
- b) The study area roadway network operates without significant safety deficiencies, except at the Rhode Island Avenue/4<sup>th</sup> Street intersection. The later situation will be addressed by the DDOT, pursuant to the recommendation of their Eckington North – Rhode Island Avenue Parking and Transportation Study (2005). The proposed development would also not have significant adverse safety impacts on the study area roadway network, due to its projected low vehicular trip generation.
- c) The design year (2008) background traffic conditions considered potential growth in through traffic along the key study area roadways. Based on information provided by the Office of Planning, consideration was also made of the pending Rhode Island Avenue Metro Planned Unit Development.
- d) The proposed development would generate an average of fifty (50) incremental vehicle trips unto the study area road network during the morning and afternoon peak hours. These trips would be well distributed resulting in minimal impacts on the study area intersections.
- e) The study area roadway network would continue to operate at acceptable Levels of Service, during the morning and afternoon peak periods, under the projected (2008) traffic conditions including the proposed development.

The proposed development would be provided with one hundred twenty-eight (128) off-street parking spaces. This supply would significantly exceed the number of spaces required by the City's Zoning Regulations, and would adequately satisfy the needs of the prospective uses. Adequate loading/berthing facilities would also be provided in accordance with the requirements of the City's Municipal Regulations.

### **5.2 Conclusion**

Based on the foregoing data, discussions and analysis, this study has determined that the Rhode Island Avenue Planned Unit Development can be accommodated without any appreciable adverse traffic impacts on the local area. The study area roadway network currently operates within the City's acceptable planning standards, during the morning and afternoon peak hours. This situation would remain the same under the projected future (2008) total traffic conditions, including the proposed development. The subject proposal would therefore satisfy the City's requirements for adequate public facilities; and would not be "objectionable" either from the perspective of potential traffic and parking impacts, or the health, safety and general welfare of the adjacent communities.

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