

*Technical Memorandum:*

**TRAFFIC IMPACT ASSESSMENT,  
RE-ZONING APPLICATION FOR  
DEANWOOD HEIGHTS PROPERTIES,  
NORTHEAST, WASHINGTON, D.C.**

*(Cases No. 08-03 and 08-03-1)*

*Prepared for:*

**BEULAH BAPTIST CHURCH OF DEANWOOD, INC.**

5820 Dix Street, NE

Washington, D.C. 20019

*and*

**DISTRICT OF COLUMBIA OFFICE OF PLANNING**

801 North Capitol Street, Suite 4000

Washington, D.C. 20002

*Land Use Counsel:*

**HOLLAND & KNIGHT, LLP**

2099 Pennsylvania Avenue, N.W., Suite 100

Washington, D.C. 20006

➤ Norman M. Glasgow, Jr., Esquire

➤ Leila M. Jackson Batties, Esquire

*Prepared by:*

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

Transportation Planning & Engineering Consultants

10210 Greenbelt Road, Suite 310

Greenbelt, MD 20706-2218

Tel: (301) 794-7700

**September 11, 2008**

**ZONING COMMISSION**  
District of Columbia  
CASE NO.08-03  
EXHIBIT NO.27

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

*Traffic Engineers – Transportation Planners*

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10210 Greenbelt Road, Suite 310 • Lanham, MD 20706-2218

Tel: (301) 794-7700 • Fax: (301) 794-4400

E-mail: [ogearge@orgengineering.com](mailto:ogearge@orgengineering.com)

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## **TECHNICAL MEMORANDUM**

**DATE:** September 11, 2008

**TO:** Rev. Dr. Marcus E. Turner, Senior Pastor  
Beulah Baptist Church of Deanwood Heights, Inc.

**FROM:** Osborne R. George, P.E./Terri J. Davis

**RE:** District of Columbia Zoning Commission Case No. 08-03 and  
Case No. 08-03 -1, Transportation Considerations for Re-Zoning  
of Properties of Beulah Baptist Church and Office of Planning

### **INTRODUCTION AND BACKGROUND**

The Beulah Baptist Church and the District of Columbia Office of Planning are applicants in the above referenced matters, which propose the re-zoning of certain properties situated within the Northeast Boundary community, of Northeast Washington, DC. The applicant information and Zoning Categories are summarized in the table following.

**Table 1**

#### **Ownership and Acreage Summaries - Proposed Property Re-Zoning**

| <b>Applicant</b>         | <b>Existing<br/>Zone Districts</b>  |                                    | <b>Proposed<br/>Zone District</b>   |
|--------------------------|-------------------------------------|------------------------------------|-------------------------------------|
|                          | <b>R-2</b>                          | <b>C-1</b>                         | <b>C-2-A</b>                        |
| 1) Office of Planning    | 71,466 SF<br>(1.641 Acres)          | 7,443<br>(0.170 Acres)             | 78,909 SF<br>(1.811 Acres)          |
| 2) Beulah Baptist Church | 115,866 SF<br>(2.660 Acres)         | 15,242 SF<br>(0.350 Acres)         | 131,108 SF<br>(3.01 Acres)          |
| <b>Totals</b>            | <b>187,332 SF<br/>(4.301 Acres)</b> | <b>22,685 SF<br/>(0.520 Acres)</b> | <b>210,017 SF<br/>(4.821 Acres)</b> |

The purpose of this memorandum is to provide a generalized assessment of the potential impact of the re-zoning on the public transportation system of the local area. Therefore, the land use definitions of the existing and proposed Zone Districts are summarized on page 2 following.

### **Existing and Proposed Zone Districts**

- Existing R-2 (One-Family Semi-Detached Dwelling): For the purpose of this assessment the generic semi-detached single-family residential dwelling unit is considered, with a minimum lot size of 3,000 Square Feet.
- Existing C-1 (Neighborhood Shopping): This Zone District provides for development of convenient retail and personal service establishments catering to the day-to-day needs of a small tributary area. While a wide variety of community servicing retail are permitted as a matter-of-right, the generic neighborhood retail is considered for purposes of this assessment. The maximum permitted Floor Area Ratio (FAR) is 1.0.
- Proposed C-2-A (Community Business District Center): This Zone District provides for a wide range of retail activity catering to the shopping, business and housing needs for larger segments of the City outside of the central core. This Zone District also allows for moderate to high density residential uses, including mid- and high-rise apartments. The maximum permitted FAR is 2.0 for residential use and 1.5 FAR for other permitted uses.

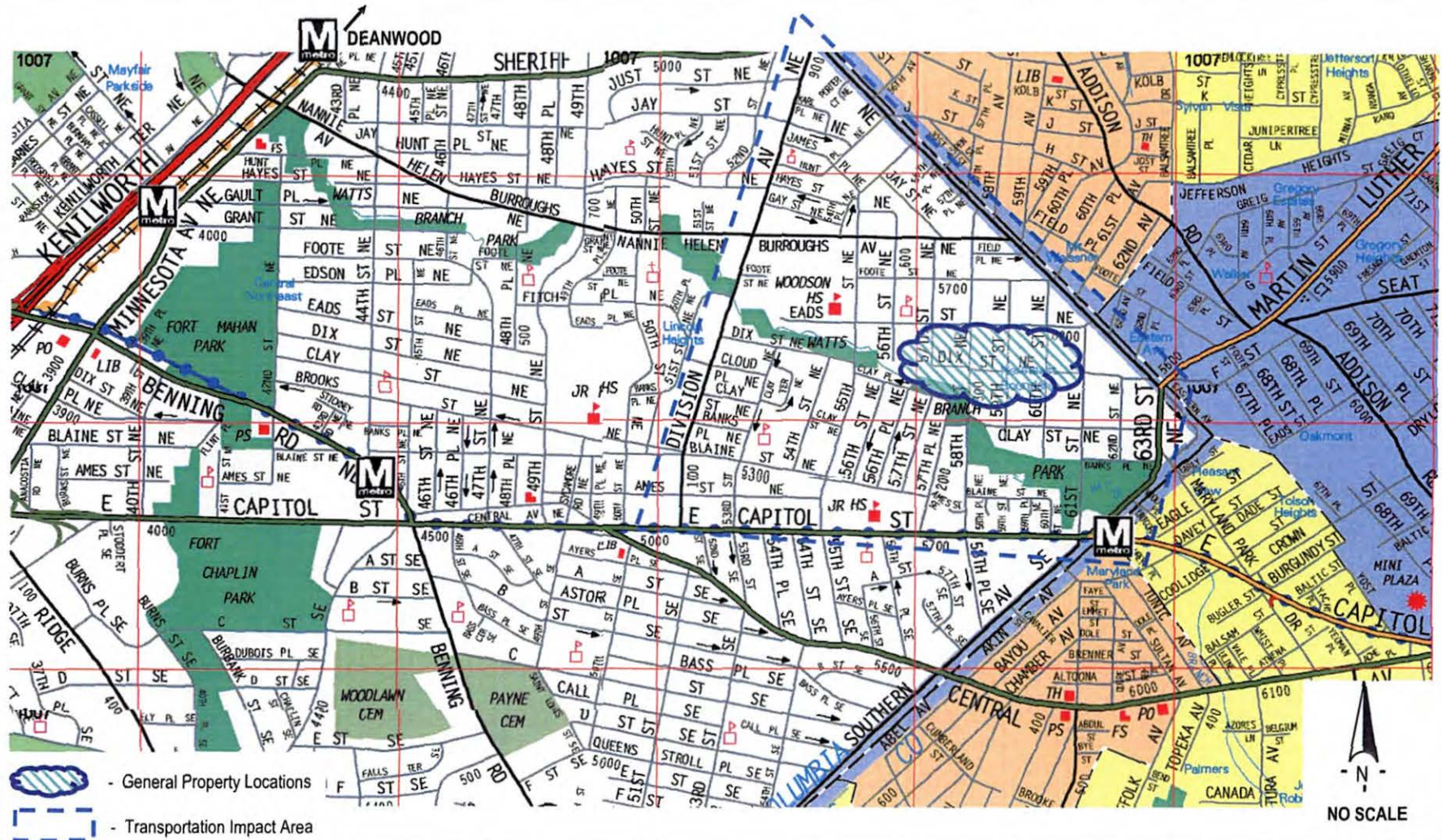
With respect to the proposed C-2-A Zone District, it is noted that Section 720.3 of the Zoning Regulations specifies as follows:

*"The C-2-A District shall be located in low and medium density residential areas with access to main highways or rapid transit stops, and shall include office employment centers, shopping centers, and medium-bulk mixed use centers."*

With this background and specificity noting the locational context prescribed in Section 720.3 of the Zoning Regulations, the remaining sections of this memorandum discusses the transportation system serving the area, develops generalized estimates of trip generation under existing and proposed Zone Districts, and makes a generalized assessment with respect to the potential transportation impacts of the proposed re-zoning. In order to facilitate data and discussion which follows, Exhibit 1 shows the site location and accessibility context. Exhibit 2 shows the classification of the sub-area roadway network based on the City's Functional Classification Map.

### **PROPERTY LOCATION AND ACCESSIBILITY**

As shown on Exhibits 1 and 2, the subject properties are situated within an area that is served by a number of collector and arterial routes. From the context of "neighborhood" and "large segments" as defined in the Zoning Regulations, the area considered is bounded by Eastern Avenue/Southern Avenue on the east, Division Avenue on the west, and East Capitol Street on the south. The map showing the locations of the subject properties is included as Attachment 1. The physical and operational characteristics of the roadways serving this area are defined on page 5.

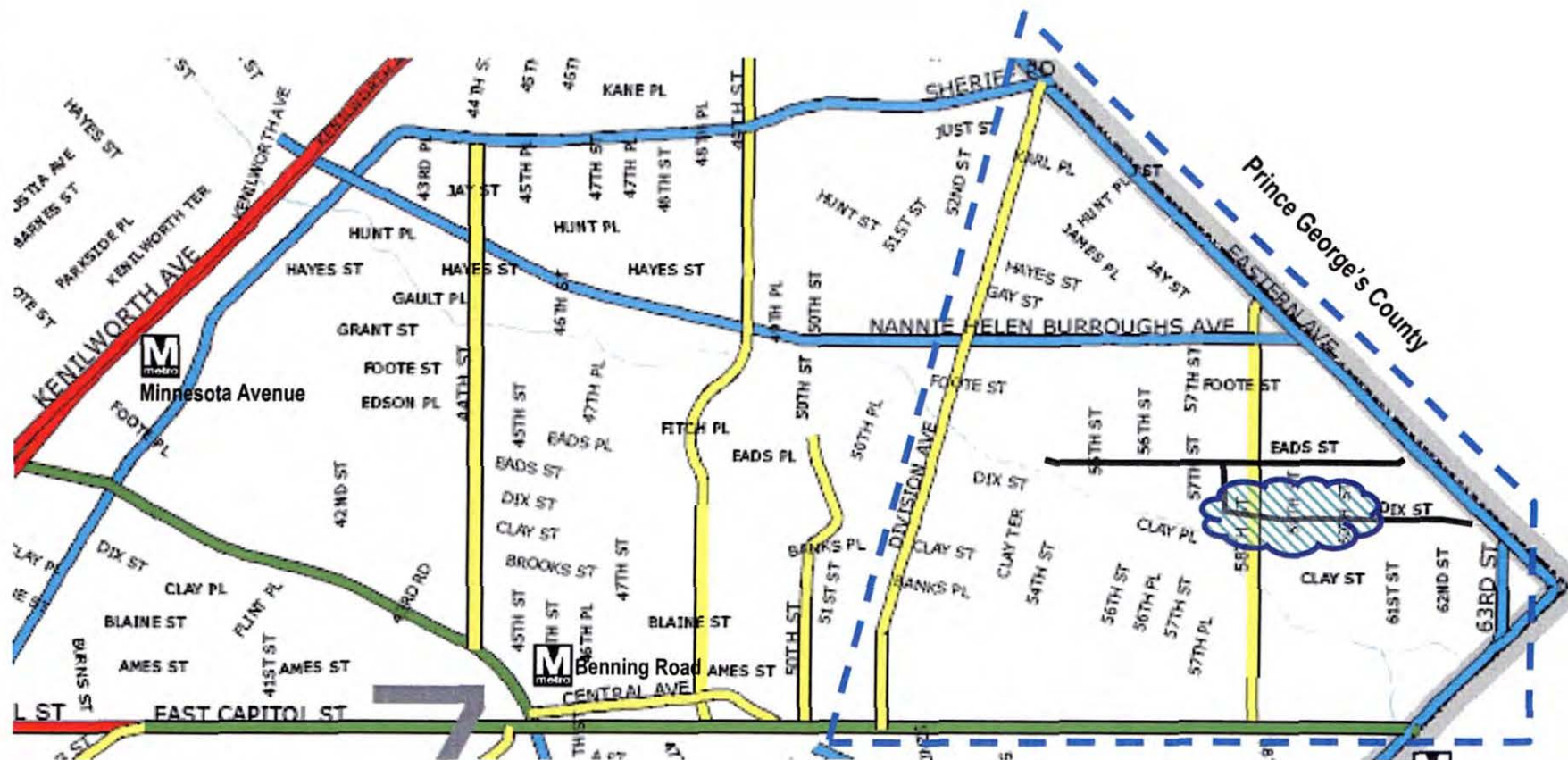


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### **Exhibit 1: Site Location Map**

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
 Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning



Source: District Department of Transportation

Capitol Heights



- Property Re-Zonings



- Transportation Impact Area



N  
NO  
SCALE

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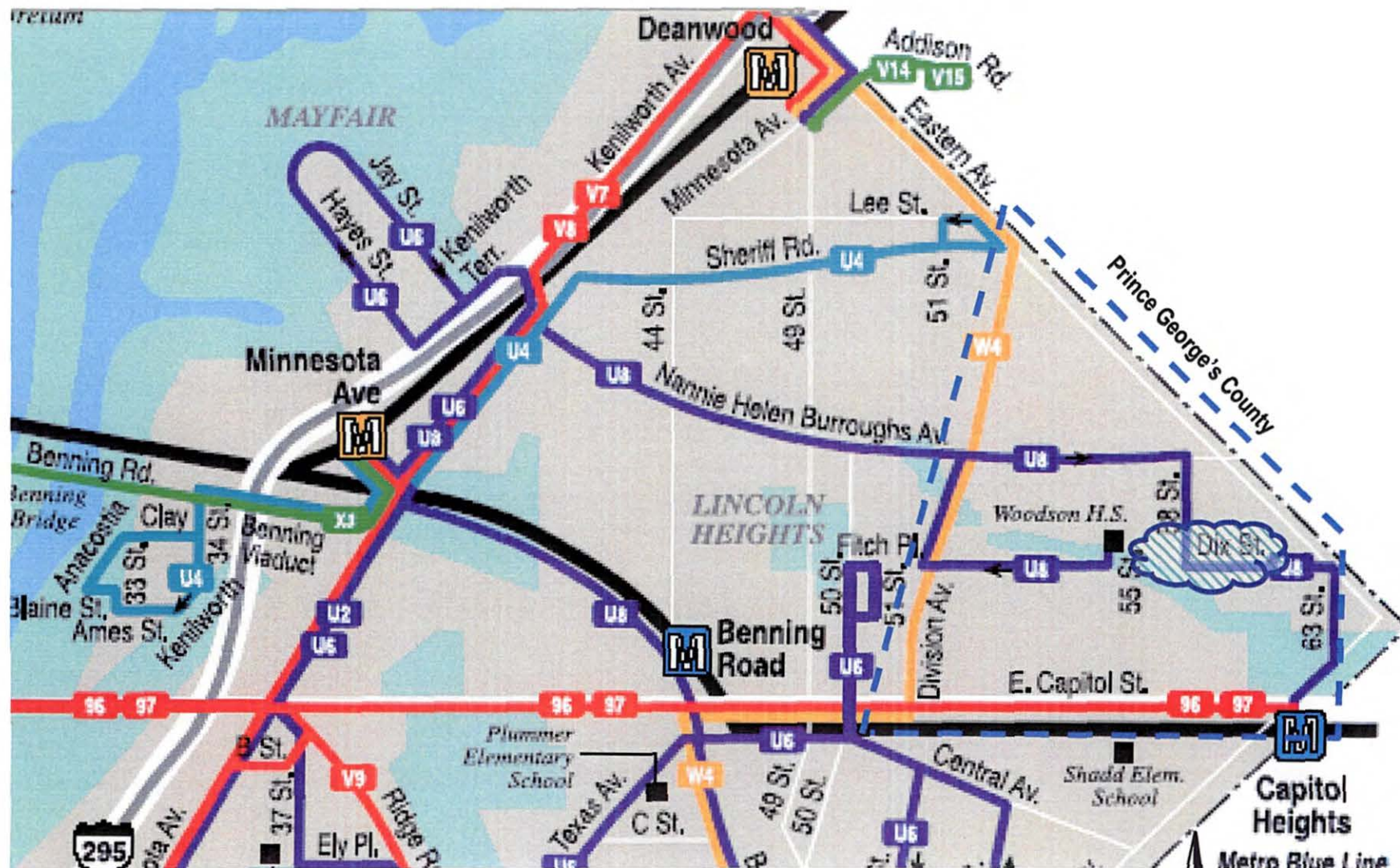
### Exhibit 2: Classification for the Study Area Roadway Network

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning

**Study Area Roadway Descriptions**

- **East Capitol Street:** This is a 4- to 6-lane divided principal arterial linking the locality of the properties with the Central area of the City to the west, and to central Prince George's County to the east.
- **Nannie Helen Burroughs Avenue, N.E.:** This is a minor east-west arterial connecting the local area with adjacent communities to the east and west.
- **Division Avenue, N.E.:** This roadway is designated as a Collector and is approximately 40-Ft. wide and serves as a connector roadway between East Capitol Street and Eastern Avenue. Its major intersections with Nannie Helen Burroughs Avenue and Eastern Avenue are signalized.
- **Eastern Avenue, N.E.:** This is a minor arterial connecting the local area with the adjacent Capitol Heights community, including access to the Capitol Heights Metrorail Station area.
- **58<sup>th</sup> Street, N.E.:** This roadway is designated as a Collector and is approximately 40-Ft. wide and serves as a connector roadway between East Capitol Street and Eastern Avenue. Its major intersections with Nannie Helen Burroughs Avenue and Eastern Avenue are signalized.
- **Dix Street, N.E.:** This is a two-lane local roadway, with a 42-Ft. cross-section, providing for 2-way travel, with parking along both sides of the roadways. As discussed later, it is also noted that Metrobus service is provided along Dix Street. Dix Street also provides a connection to Eastern Avenue, and indirectly to the East Capitol Street and Martin Luther King, Jr. Avenue corridors, which connect to Central Washington, D.C. and the Maryland/Prince George's County suburban area.

From the perspective of more general accessibility, Exhibit 1 shows that the area roadways provide for access to the Capitol Heights Metrorail Station located to the southeast. The area is also served by number of public transportations routes along roadways such as Dix Street, 58<sup>th</sup> Street, Division Avenue and Nannie Helen Burroughs Avenue. These bus routes also provide connections to the three (3) other Metrorail Stations within the northeast sector (i.e., Benning Road, Minnesota Avenue, and Deanwood Stations). For ease of reference Exhibit 3 shows the Metrobus bus routes serving the sub area of the subject properties. Based on the discussion above, the transportation facilities appear to satisfy the criteria stipulated in the Zoning Regulation regarding "access to main highways and rapid transit stops."



- Property Re-Zonings

- Transportation Impact Area

Source: Washington Metropolitan Area Transit Authority

N  
NO  
SCALE

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### Exhibit 3: Metrorail and Bus Routes Serving the Subject Properties

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning

## **TRIP GENERATION CONSIDERATIONS**

Development activity within the City is typically quite specific as to the particular site and the local area in which the property is located. Furthermore, all development proposals are subject to review by the City's planning agencies. These reviews range from the Preliminary Development Review Meeting (PDRM) process that is performed for matter-of-right developments, to the more rigorous assessments under the Planned Unit Development (PUD) and the Board of Zoning Adjustments (BZA) review processes. All of such reviews take into consideration development density, trip generation, transportation mode splits, and impacts on the surrounding area.

In order to provide some sense of the generalized impact of the proposed re-zoning, Table 2 on page 9 presents comparative trip generation estimates for the subject properties under the current and proposed Zone Districts. The trip generation estimates in Table 2 present assumed land use types and potential development density yields, taking into consideration the primary intent of the Zoning Regulations with respect to particular Districts. The trip generation rates applied to the development yields are based on trip rates recommended in the Institute of Transportation Engineers (ITE) "Trip Generation Manual," (Seventh Edition), and considers the following local factors:

- i) The location of the properties and the dominant residential and institutional land use characteristics of the local area;
- ii) General demographic characteristics based on auto ownership, commuter patterns and modal splits as reported in the year 2000 Census Data;
- iii) The configuration of the area roadway network, particularly the lack of "exposure" to major commuter corridors, with no such corridor in proximity to the subject properties; and
- iv) Available transit service, particularly the coverage of Metrobus routes through the area and linkage to adjacent Metrorail Stations.

In addition to the above factors, the assessment also considers the fact that the subject properties would likely support local/community serving types of retail and commercial uses. It is also quite apparent that such uses would attract considerable "internal" vehicular and pedestrian traffic, as opposed to the dominant vehicular traffic generation patterns of more "exposed" property locations. [Note: The term "internal" refers to trips having origins and destinations within the communities immediate adjacent.] This study developed the trip generation estimates under the following three (3) land use scenarios:

- a) Existing Zoning (C-1 and R-2 Districts with matter-of-right development): Under this scenario applicable Floor Area Ratios were applied to the respective property areas.
- b) Proposed Zoning (C-2-A District/Potential/Likely Development Scenario): The following mix of commercial and residential uses was assumed for the 210,017 Square Feet land area of the subject properties.
  - Residential: 175,000 SF @ 2.0 FAR, and 1,200 SF/moderate density residential apartment units. [This yields 292 units, of which 100 units were assumed as senior housing.]
  - Community Retail: 35,000 SF @ 1.5 FAR, equating to 52,500 GSF.

- c) Proposed Zoning (C-2-A District/Maximum Development Scenario): This development scenario assumes the maximum FAR allowed for this Zone, with a 1.0 FAR as ground level community retail use, and 1.5 FAR for upper level moderate density residential use.

The trip estimates developed through this process are shown in Table 2. The estimates are based upon Institute of Transportation Engineers Trip Generation Manual (7<sup>th</sup> Edition). Trip adjustment factors were applied to reflect the estimated levels of “internal” and “passer-by” trips typically allowed by the DDOT Transportation Policy & Planning Administration staff. These factors include potential transit usage, walk and bicycle usage, etc. (for residential uses), and considered the location of the properties in relation to the road network serving the local area. Notes reflecting these assumptions are included with Table 2.

**Table 2**  
**Comparative Vehicle Trip Generation Estimates**  
**Development Scenarios Under Existing vs Proposed Zoning**

| Zoning and Development Scenario                              | Land Use Assumptions                      | No. of Res. Units/Comm. Square Footage | AM Peak Hour |           |            | PM Peak Hour |            |            |
|--------------------------------------------------------------|-------------------------------------------|----------------------------------------|--------------|-----------|------------|--------------|------------|------------|
|                                                              |                                           |                                        | In           | Out       | Total      | In           | Out        | Total      |
| A) <u>Existing Zoning (With Matter-of-Right Development)</u> |                                           |                                        |              |           |            |              |            |            |
| - R-2 District (4.301 Acres)                                 | i) Semi-Detached Row Dwellings @ 3,000 SF | i) 62 Single Family Units              | 11           | 33        | 44         | 32           | 19         | 51         |
| - C-1 District (0.521 Acres)                                 | ii) Retail @ 1.0 FAR                      | ii) 22,694 SF                          | 8            | 6         | 14         | 24           | 27         | 51         |
| <b>Total [A]</b>                                             | <b>N/A</b>                                | <b>N/A</b>                             | <b>19</b>    | <b>39</b> | <b>58</b>  | <b>56</b>    | <b>46</b>  | <b>102</b> |
| B) <u>Proposed Zoning (C-2-A)</u>                            |                                           |                                        |              |           |            |              |            |            |
| - Potential (i.e., likely) Development Scenario*             | i) Community Retail                       | i) 52,500 GSF                          | 20           | 13        | 33         | 57           | 61         | 118        |
|                                                              | ii) Moderate Density Res.                 | ii) 192 Apt. Units                     | 12           | 29        | 41         | 31           | 21         | 52         |
|                                                              | iii) Senior Housing                       | iii) 100 Units                         | 4            | 4         | 8          | 7            | 4          | 11         |
| <b>Total [B]</b>                                             | <b>N/A</b>                                | <b>N/A</b>                             | <b>36</b>    | <b>46</b> | <b>82</b>  | <b>95</b>    | <b>86</b>  | <b>181</b> |
| C) <u>Proposed Zoning (C-2-A)</u>                            |                                           |                                        |              |           |            |              |            |            |
| - Development Scenario Yielding Maximum Trip Generation**    | i) Community Retail                       | i) 210,0017 GSF                        | 80           | 50        | 130        | 227          | 246        | 473        |
|                                                              | ii) Moderate Density Res.                 | ii) 263 Apt. Unit                      | 16           | 39        | 55         | 42           | 29         | 71         |
| <b>Total [C]</b>                                             | <b>N/A</b>                                | <b>N/A</b>                             | <b>96</b>    | <b>89</b> | <b>185</b> | <b>269</b>   | <b>275</b> | <b>544</b> |

\* See land use assumptions and computations in Item (b) on page 7.

\*\* See land use assumptions and computations in Item (c) on page 8.

Note: Trip rates reflect adjustment factors of 20.0 - 30.0% for residential, and 40.0% internal/non vehicular trips for commercial retail.

## GENERALIZED IMPACT ASSESSMENT AND SUMMARY

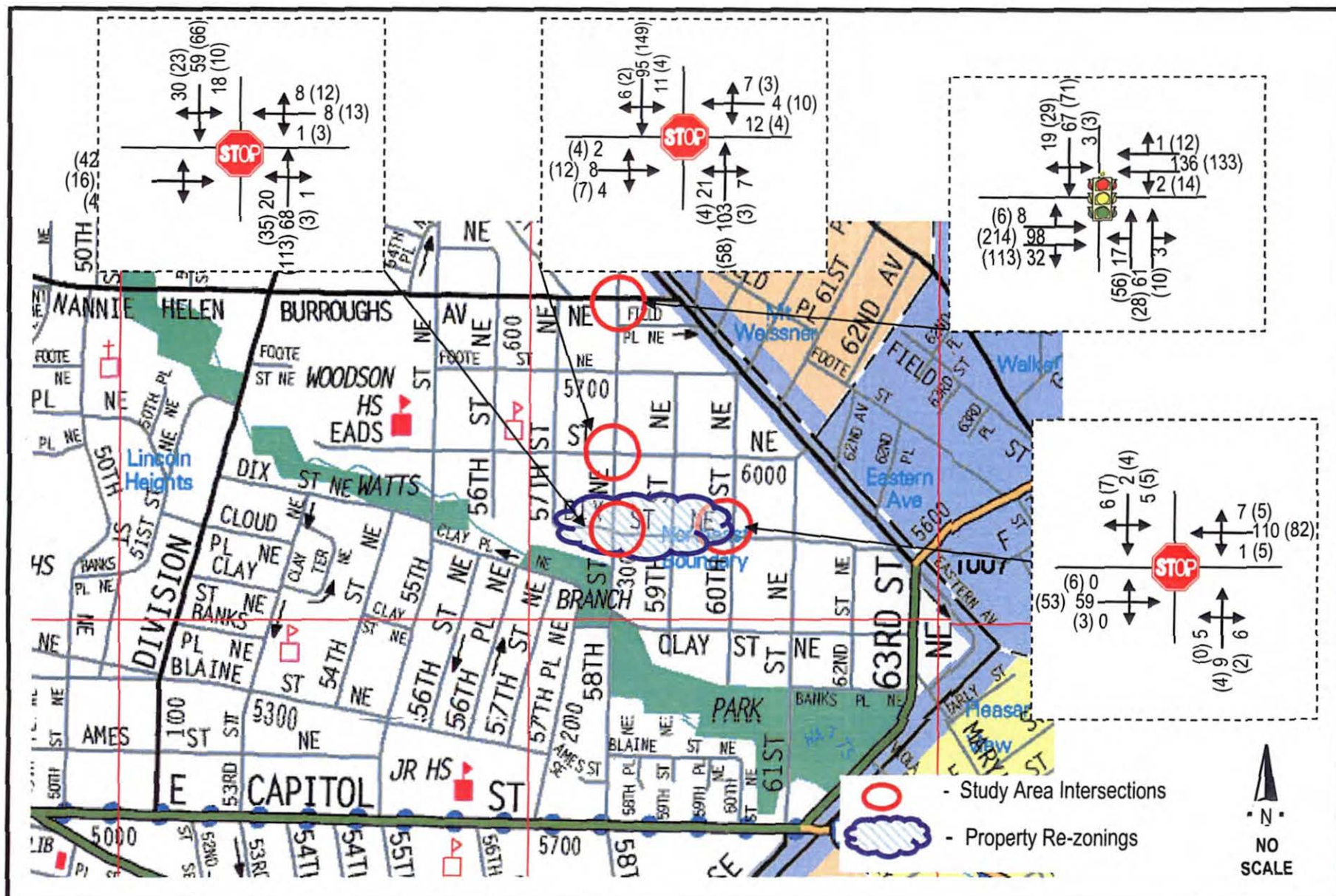
A detailed assessment of the traffic impacts associated with the proposed property re-zoning is not a requirement of the current application. This is the case because a detailed operational assessment can only be performed based on a particular land use that would consider proposed site access and circulation in relation to the local area roadway network. However, the following generalized assessment is provided as background information for the application process. In order to assess the potential impact of the proposed rezoning, the following four (4) representative intersections were selected for evaluation:

- a) Nannie Helen Burroughs Avenue, NE at 58<sup>th</sup> Street, NE (Signalized);
- b) Dix Street, NE at 60<sup>th</sup> Street, NE (Unsignalized);
- c) Dix Street, NE at 58<sup>th</sup> Street, NE (Unsignalized); and
- d) Eads Street, NE at 58<sup>th</sup> Street, NE (Unsignalized).

This study undertook weekday peak period turning movement counts and level of service<sup>1</sup> computations for the above. The intersections are shown in Exhibit 4, along with the lane configuration and existing peak hour volumes. The projected total traffic volumes under the potential and maximum density scenarios are included in Attachment 2. The results of the level of service analysis are summarized in Table 3 (on page 12).

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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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**Exhibit 4: Study Area Intersections, Lane Configuration and Existing Peak Hour Traffic**

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning

**Table 3**  
**Summary of Capacity Analysis Results**  
**Existing and Future Traffic Conditions**

| Intersection                                                                    | AM Peak Hour     |                       | PM Peak Hour     |                       |
|---------------------------------------------------------------------------------|------------------|-----------------------|------------------|-----------------------|
|                                                                                 | Level of Service | Avg. Delay (Sec/Veh)* | Level of Service | Avg. Delay (Sec/Veh)* |
| 1) Nannie Helen Burroughs Avenue, NE @ 58 <sup>th</sup> Street, NE (Signalized) |                  |                       |                  |                       |
| - Existing Conditions                                                           | B                | 15.0                  | B                | 14.7                  |
| - Proposed Zoning (Potential/Likely Density)                                    | B                | 16.5                  | B                | 17.3                  |
| - Proposed Zoning (Maximum Density)                                             | B                | 18.9                  | B                | 19.1                  |
| 2) Dix Street, NE @ 60 <sup>th</sup> Street, NE (Unsignalized)                  |                  |                       |                  |                       |
| - Existing Conditions                                                           | B                | 10.2                  | A                | 9.7                   |
| - Proposed Zoning (Potential/Likely Density)                                    | B                | 12.5                  | B                | 11.3                  |
| - Proposed Zoning (Maximum Density)                                             | B                | 14.3                  | B                | 13.2                  |
| 3) Dix Street, NE @ 58 <sup>th</sup> Street, NE (Unsignalized)                  |                  |                       |                  |                       |
| - Existing Conditions                                                           | A                | 8.32                  | A                | 8.51                  |
| - Proposed Zoning (Potential/Likely Density)                                    | A                | 8.77                  | A                | 9.68                  |
| - Proposed Zoning (Maximum Density)                                             | B                | 10.80                 | B                | 14.04                 |
| 4) Eads Street, NE @ 58 <sup>th</sup> Street, NE (Unsignalized)                 |                  |                       |                  |                       |
| - Existing Conditions                                                           | B                | 10.6                  | B                | 10.3                  |
| - Proposed Zoning (Potential/Likely Density)                                    | B                | 11.8                  | B                | 12.3                  |
| - Proposed Zoning (Maximum Density)                                             | B                | 13.6                  | B                | 13.8                  |

\* Sec/Veh = Seconds per Vehicle

Source: O. R. George & Associates.

This table shows the existing levels of services and the potential levels of services under the two (2) re-zoning and development scenarios described in the previous section (Trip Generation Considerations pages 7 and 8). The results show the existing and future levels of service as well as the "control delay" for each of the four (4) locations. There are significant changes in the delay experienced at three (3) locations under the total traffic situation that would occur, particularly if the maximum development scenario were to be implemented. However, the future levels of service would fall well within the City's minimum standard, which is Level of Service D. As such the assessment shows that the transportation system would be adequate to accommodate the proposed property re-zoning.

As part of the general assessment the intersection of Eastern Avenue at Dix Street was examined. This intersection is "signalized." However the traffic control is of a somewhat irregular configuration with the Dix Street approach controlled by a stop sign. Under any development or revitalization of the area, minor upgrades of this traffic control arrangement would be required. Such upgrades would ensure adequate levels of service at this location.

In addition to the above factors, this assessment notes that the District of Columbia provides guidelines and criteria for assessing the impacts of development proposals. All of these include criteria for assessing local impacts, including provision for mitigation measures most often reflected through Transportation Management Plans. These would bring into play the additional "layers" of the City's review process for ensuring that quality levels of service are provided in conjunction with the economic development within the various sectors of the City.

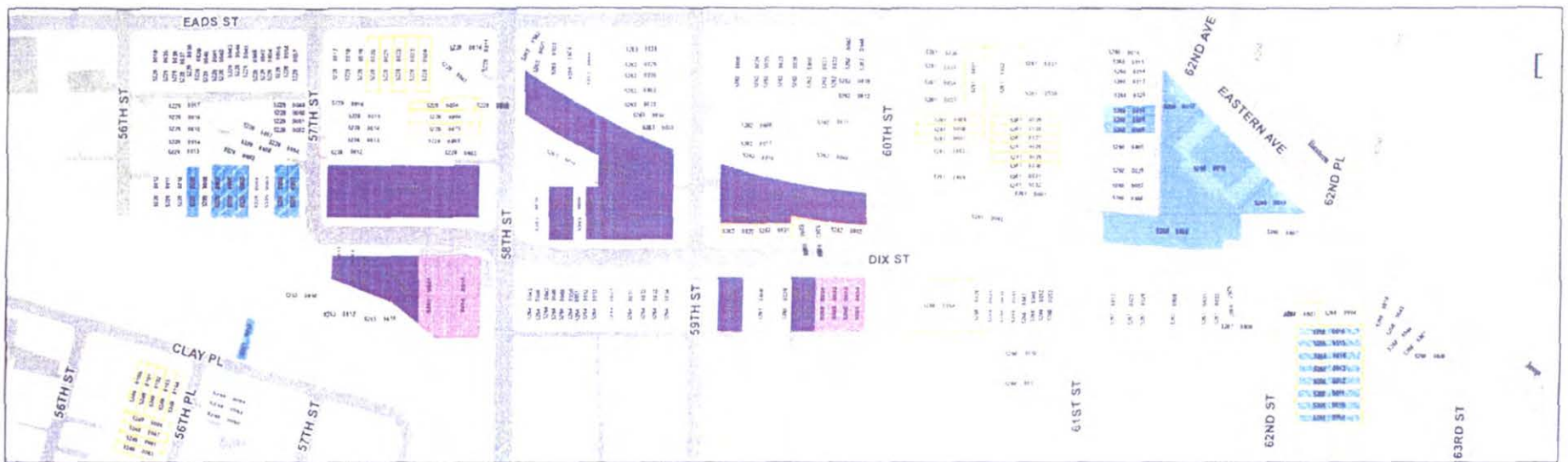
We trust that the above satisfies the Church's current requirements, and we look forward to assisting further as the process moves forward. Thank you.

ORG/TJD

Attachments: As noted.

**ATTACHMENT**

**1**



# Legend

- Marvin Gaye Park
- Publicly Owned Properties
- Properties owned by Church, Fort of Z C No. 08-03
- Beulah Baptist Church - Properties Under Contract

AS OF MAY 1, 2008

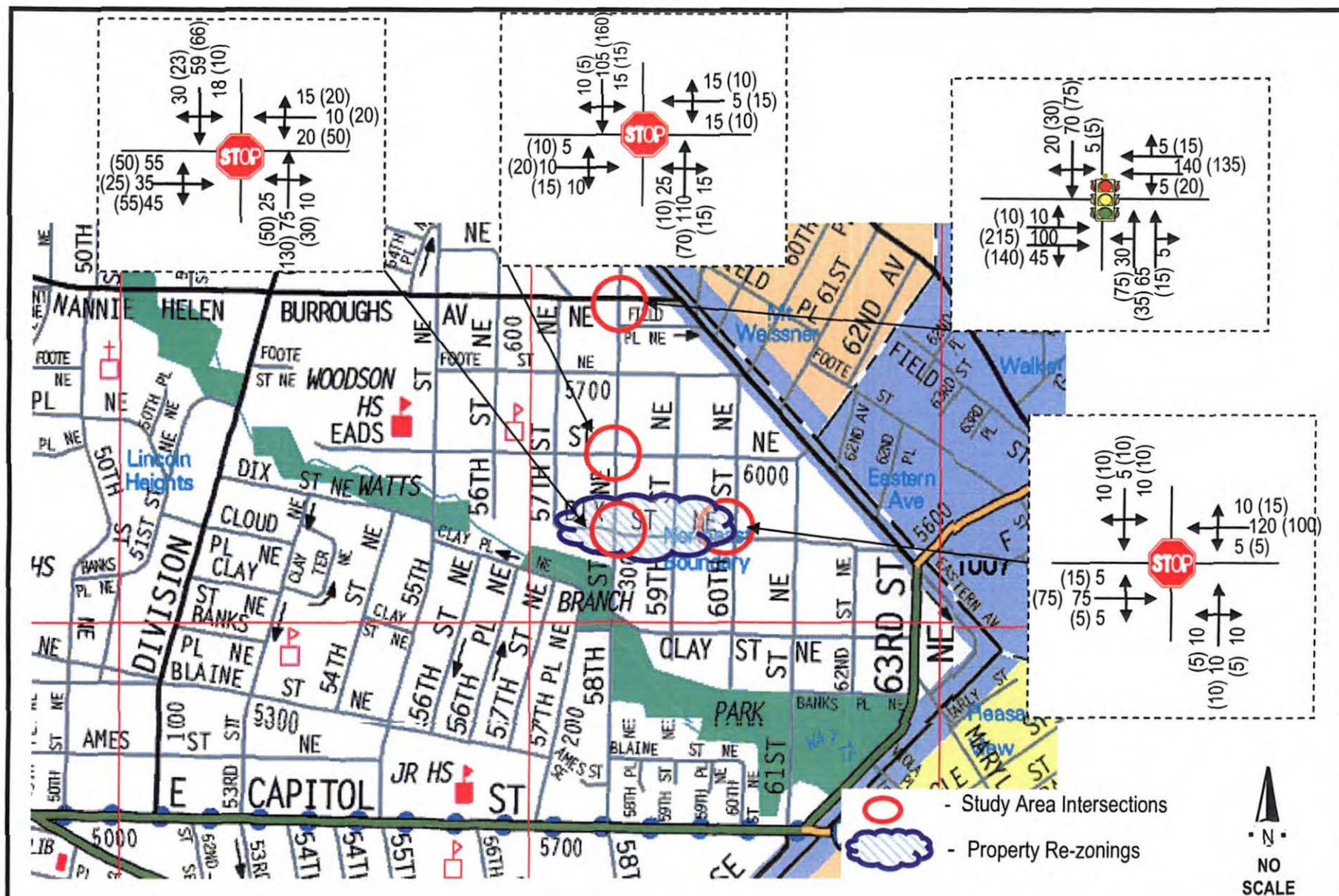
BEULAH BAPTIST CHURCH OF DEANWOOD HEIGHTS, INC.

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Scale: 1" = 100' (1:1250) 0 50 100 200 Feet  
May 2007

**ATTACHMENT**

**2**

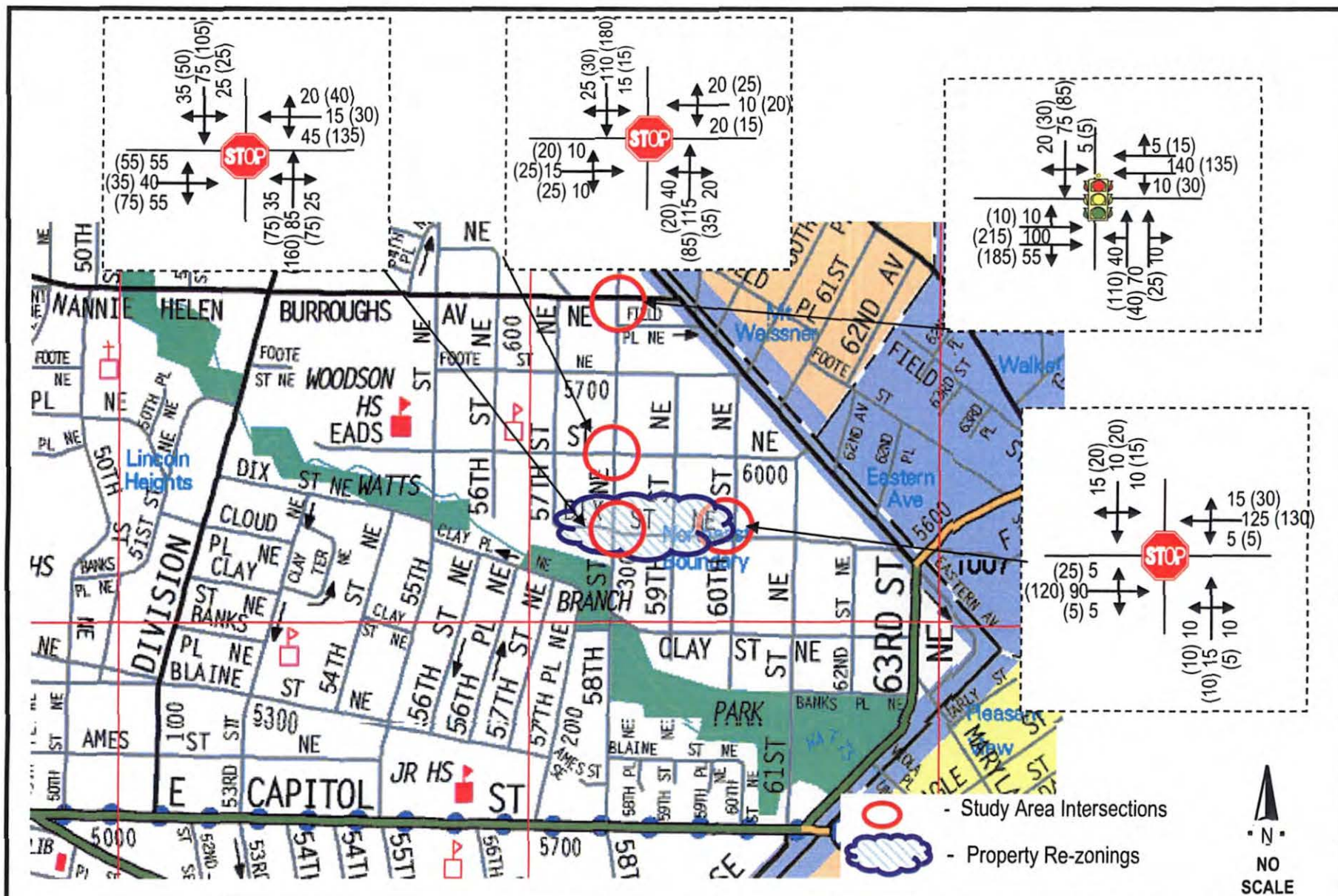


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*Traffic Engineers - Transportation Planners*

**Attachment 2a: Projected Total Traffic Situation -  
Potential/Likely Development Scenario**

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning



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**Attachment 2b: Projected Total Traffic Situation –  
Maximum Trip Generation Scenario**

Deanwood Heights Property Re-zoning Application (Case No. 08-03 and 08-03-1)  
Beulah Baptist Church of Deanwood, Inc., and the District of Columbia Office of Planning