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May 17, 2005

Geoffrey Griffis, Chair
D.C. Board of Zoning Adjustment
441 4th Street, N.W.
Suite 210
Washington, D.C. 20001

RECEIVED
D.C. OFFICE OF ZONING
2005 MAY 17 PM 4:03

RE: Application No. 17304
Office Building at Benning Road Metrorail Station

Dear Mr. Chairman and Members of the Board:

At the public hearing on Application 17304 on April 19, 2005, the Board requested several post-hearing submissions from the Applicant, the Washington Metropolitan Transit Authority ("WMATA"). Transmitted herewith are twenty (20) copies of the requested items, as follows:

Exhibit A — Transportation Survey of CSOSA Employees

Exhibit B — "Traffic and Parking Assessment" by O.R. George & Associates, Inc., Transportation Consultants.

Exhibit C — Response from Rosalyn P. Doggett of WMATA, including:
- (i) "Development-Related Ridership Survey II"
- (ii) Printout of Benning Road Metrorail station entries and exits during each half hour on April 19, 2005
- (iii) Response to question about enforcement of Kiss & Ride Spaces

Also submitted herewith as Exhibit D is a summary of the history of recent litigation between Dorothy Douglas, the current chair of Advisory Neighborhood Commission ("ANC") 7D, and the Marshall Heights Community Development Organization ("MHCDO"). This summary was prepared by legal counsel for MHCDO, which is a partner in this Application, and is included because it raises a question as to whether Ms. Douglas has a conflict of interest with respect to this matter which should be taken into account in weighing the ANC's position.

Finally, Exhibit E is a letter in support of the application from The Neighbors of Burns Street Organization.

BZA
Case No. 17304
Exhibit No. 50

Board of Zoning Adjustment
District of Columbia
CASE NO. 17304
EXHIBIT NO. 50A1

Respectfully submitted,
ARNOLD & PORTER

Cynthia A. Giordano

Nathan W. Gross, AICP

Enclosures

cc: Advisory Neighborhood Commission 7D

Technical Memorandum:

TRAFFIC AND PARKING ASSESSMENT - BOARD OF ZONING ADJUSTMENT APPLICATION, WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY BENNING ROAD STATION SITE, NORTHEAST, WASHINGTON, D. C.

(Case No. 17304)

Prepared for:
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
c/o JENCO GROUP
1832 Jefferson Place, N.W.
Washington, D.C. 20036
- Ms. Holly Hartman, Development Manager

Land Use Counsel:
ARNOLD & PORTER
555 Twelfth Street, NW
Washington, DC 20004-1206
- Cynthia A. Giordano, Esquire

Prepared by:
O. R. GEORGE & ASSOCIATES, INC.
Transportation Planning & Engineering Consultants
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706-2218

May 16, 2005

Exhibit B: Traffic and Parking Assessment

BENNING RD METRO EMPLOYEE TRANSPORTATION IMPACT SURVEY

The proposed facility at the Benning Rd Metro Station will be a consolidation of Court Services and Offender Supervision Agency's various facilities. The proposed new facility will accommodate approximately 90 employees.

Currently the majority of clients utilize public transportation and will continue to do so at the proposed facility. The proposed facility at the Benning Rd Metro Station will have 28 parking spaces, including 4 stacked spaces, for the exclusive use of Court Services and Offender Supervision Agency employees. Recently, a survey was conducted of the current modes of transportation used by the existing employees and their intended mode of transportation upon relocation to the new facility:

Mode of Transportation	Current % (1536 U St.)	New % (1290 U St.)
Walk	5%	2%
Metro	38%	52%
Bus	14%	11%
Drive	43%[1]	35%[2]

As set forth in this survey, there will be a significant beneficial traffic impact as a result of the consolidation of the facility directly above the Benning Rd Metro Station. Currently over 2/3 of the employees drive and park in neighborhoods. At the proposed facility only 1/3 of the employees will drive, with approximately 2/3 of such employees able to park on site. At the present time, only 38% of employees travel by Metro. Upon relocation, that number will increase to over 50%.

---

[1] Estimate of employees who drive on a regular basis. 75% of all employees drive at some time.
[2] Estimate of employees who drive on a regular basis. 59% of all employees drive at some time.

Exhibit A: Transportation Survey of CSOSA Employees

O. R. GEORGE & ASSOCIATES, INC.

Traffic Engineers – Transportation Planners

10210 Greenbelt Road, Suite 310 • Lanham MD 20706
Tel: (301) 794-7700 • Fax: (301) 794-4400
E-mail: orgassoc@aol.com

TECHNICAL MEMORANDUM

DATE: May 16, 2005

TO: Washington Metropolitan Area Transit Authority
Office of Planning/Real Estate Division
via
The Jenco Group
Attn: Ms. Holly Hartman, Development Manager

FROM: Osborne George

RE: Traffic and Parking Impact Assessment – Board of Zoning Adjustment Application No. 17304, for 4500 Benning Road (Square 518), Northeast, Washington D. C.

INTRODUCTION

In accordance with your request, we have performed an assessment of the traffic and parking situation in the immediate vicinity of the subject property. We understand that the purpose of the assessment is to supplement the case record with data and analyses, which pertain to the relief being sought under the following two (2) Special Exceptions:

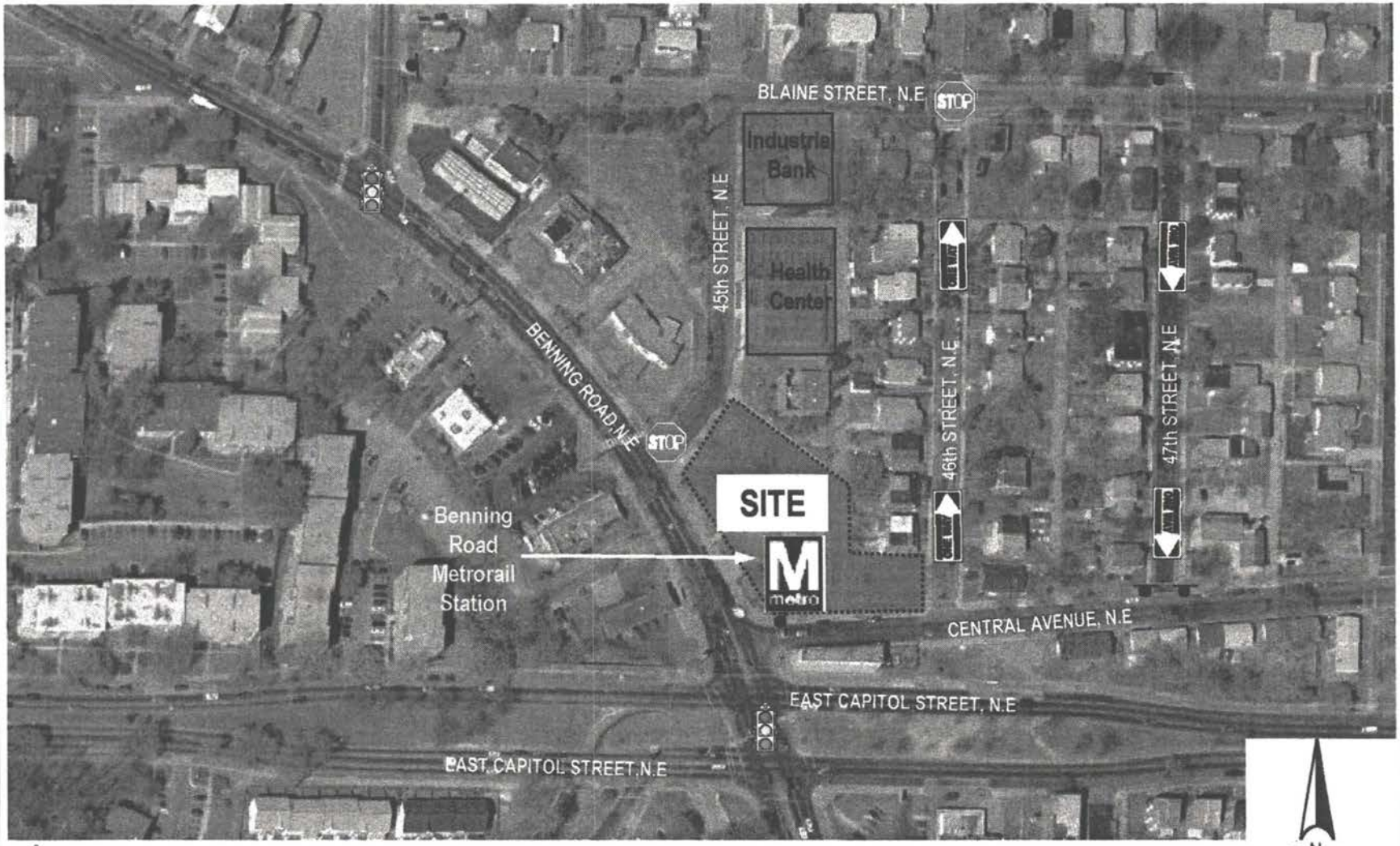
a) Reduction of the number of parking spaces required per Section 2107 of the Zoning Regulations; and

b) Authorization to provide parking in a residential zone per Section 214 of the Zoning Regulations.

We understand that the applicant is required to show that the relief sought *"are not likely to become objectionable to adjoining property because of noise, traffic, or other objectionable conditions"*. We have therefore reviewed the Applicant's Statement, the transcript of the hearings to date, and the various agency reports (notably DDOT and the Office of Planning) that are part of the case record. It appears that there is the need to better define and quantify the existing and proposed access and parking patterns for the area that would be impacted by the Applicant's proposal. The remaining sections of this memorandum therefore present data, analysis and discussion to address this requirement. In order to facilitate the data and discussion, which follow, Exhibit 1 is included to show the location and local setting of the subject property.

SITE LOCATION AND SETTING

The record notes that the subject property is the site of the Benning Road Metrorail Station, which is one of the urban/outlying stations of the regional rapid transit system. The location of the station is just north of the intersection of East Capital Street and Benning Road in the Central Northeast/Capital View area of Ward 7.



Signalized

Stop - Sign Control

O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 1

Site Location Map
CSOSA Benning Road Center (BZA Application No: 17304)

Both East Capitol Street and Benning Road are classified as Principal Arterials, on the City's/DDOT's Functional Classification Map, and they serve considerable volumes of commuter and other traffic accessing the central employment area of the City, as well local area travel movements. As shown in Exhibit 1, the WMATA property is bounded by the following roadway facilities:

- Benning Road, N.E: A 4-lane undivided principal arterial abuts the site along its southwestern frontage.
- Central Avenue, N.E: A 2-lane local roadway abuts the site along the south frontage.
- 45th Street, N.E: A local roadway abuts the site along its west frontage.
- A 15-foot wide public alley abuts the site along the east and separates the site proper from the proposed parking lot at the southern end. This alleyway is abutted by commercially-zoned property on the west side and residentially-zoned properties on the east side, of which five (5) have vehicular access to the alley.

Exhibit 2 further illustrates the site location, area land uses, and parking provisions that would facilitate the discussion and data presentation of the traffic and parking conditions, which follow.

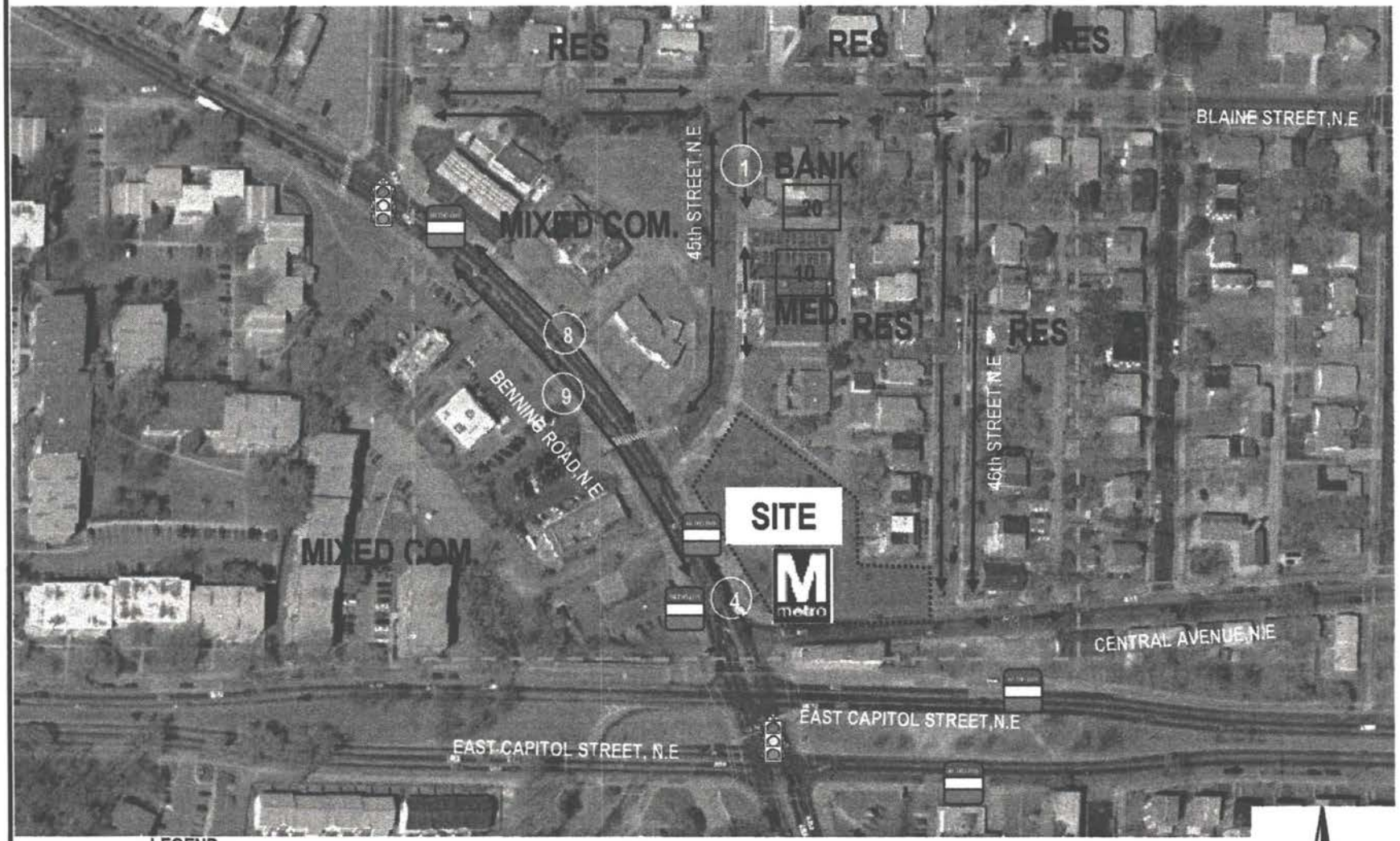
The Applicant's Statement notes that the subject property is zoned C-3-A, which allows for medium-density commercial development. The land uses within the local area can be defined as "mixed," and include strip commercial, residential and institutional uses. The broader area served by the Benning Road Metrorail Station is dominated by residential uses, which range from low-density single-family-detected to high-rise multi-family developments.

With regards to existing and future access patterns for the site, it is relevant to note that the Benning Road Station is typical of the Metro System "in-town" stations, many of which are provided with neither park-and-ride nor kiss-and-ride parking. It is also noteworthy that the parking provisions for the stations further to the east along the Blue Line may have a bearing on the access patterns to the Benning Road Station, and they are therefore summarized below as background information:

	Parking Provisions	
	Kiss-n-Ride	
Station	**Short Term**	**Long Term**
Benning Road	6	0
Capitol Heights	14	372
Addison Road	50	1,268
Morgan Boulevard	78	608
Largo Town Center	141	2,200

Source: Washington Metropolitan Area Transit Authority and O. R. George & Associates

Based on the factors discussed above in this section, the area defined in Exhibit 2 was considered appropriate for assessing the impacts that may be associated with the Applicant's proposal. The existing vehicular and pedestrian access and parking situation are discussed in the section following (on page 5).



LEGEND

- (X) Residential Parking Program (2hr Limit)
- (X) Unrestricted Parking
- Restricted Parking (During Peak Hours)
- Metrobus Stop (Routes - U5,U6,U8,W4,96,97)
- Study Area Impact Area

N

NO SCALE

O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 2

Traffic and Parking Impact Area
CSOSA Benning Road Center (BZA Application No: 17304)

EXISTING ACCESS AND PARKING SITUATION

The Benning Road Station was opened for service in 1981. Based on WMATA data of daily boardings, the Station currently serves approximately 3,000 persons on an average weekday. Daily activity has fluctuated over the years, and for the period 1994-2004 has averaged 2,820 persons per day. This appears to confirm relatively stable levels of activity for this location. The WMATA records also show that this level of usage is the third lowest for the system, exceeding only the Arlington Cemetery and Cheverly Stations.

Exhibit 3 shows the current pattern of boarding and alightings for a typical weekday based on a system-wide ridership survey conducted by WMATA for the Benning Road Station in April, 2005. It is felt that this provides considerable perspective when compared with the CSOSA activity projected for the site, which is discussed later in this memorandum.

Existing Traffic Conditions

Based upon the Applicant's Statement, it is quite apparent that the proposed use will not be a high traffic generator. Trip generation for the proposed use is discussed later in this memorandum for purposes of confirming the information presented to date by the Applicant. However, in order to provide general background information for the record, field observations and traffic turning movement counts were performed for the station portals and adjacent intersections. Exhibits 4 and 5 show (respectively) the vehicles and pedestrian movements within the immediate area of the station. Based on this effort, the following assessments were made.

i) The dominant mode of access to the station is currently by pedestrian/walk-up mode. The overall breakdown is as follows
   - Pedestrian/Walk-up 50.0 %
   - Drop-off/Kiss-n-ride 10.0 %
   - Transit/Metrobus 40.0 %

ii) Persons who drive to the station appear to do so during the early hours of typical weekdays, and use the unrestricted 22 parking spaces along 45th Street and along the north side of Central Avenue, west of 46th Street.

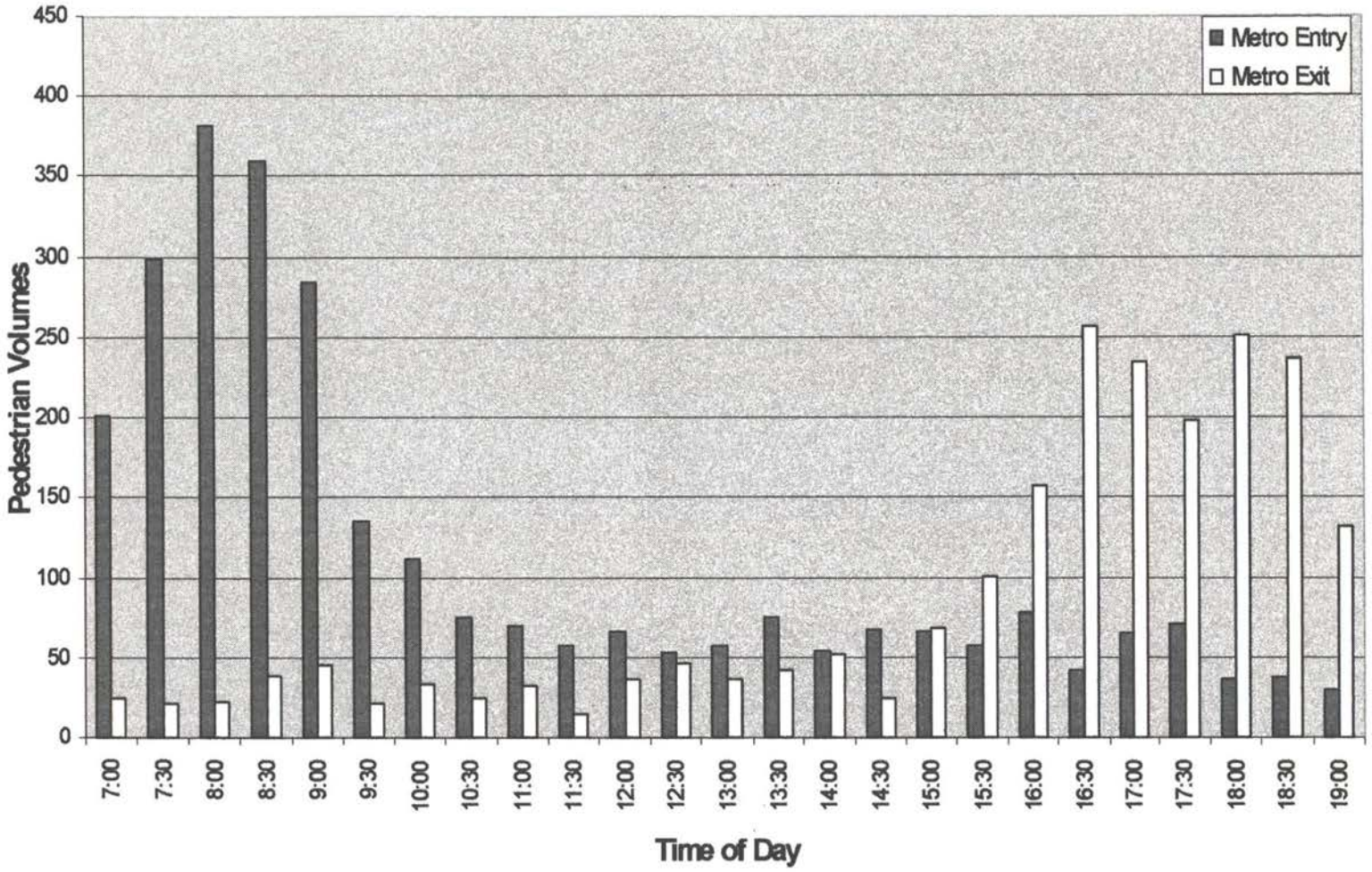
iii) The unrestricted spaces along 45th Street and along Central Avenue (west of 46th Street) were utilized mainly by vehicles without Zone 7 (RPP) permits.

iv) Approximately 150 vehicles use the adjacent alleyway during typical weekdays. During the peak AM and PM peak period the volumes were generally in the range of 15 vehicles, with vast majority traveling in north-to-south direction.

v) Pedestrian usage of the alleyway east of the station was relatively moderate, generally in the range of 35 – 40 persons per hour during the peak access periods.

As general background to this assessment, traffic counts were performed for the intersections of East Capitol Street at Benning Road, and for Benning Road at Central Avenue and at 45th Street. The data for the Benning Road/East Capitol Street was analyzed, and the intersection is operating at capacity during the peak hours. The relevant data is included in Attachment A.

Benning Road Metro Station Ridership - April 19, 2005



O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 3

Existing Benning Road Metrorail Ridership
CSOSA Benning Road Center (BZA Application No: 17304)



LEGEND

- Vehicles Entering Kiss 'n' Ride
- Vehicles Exiting Kiss 'n' Ride
- Vehicles Entering/ Exiting Via Public Alleyway
- XX (XX) AM (PM) Peak Hour Vehicle Volumes

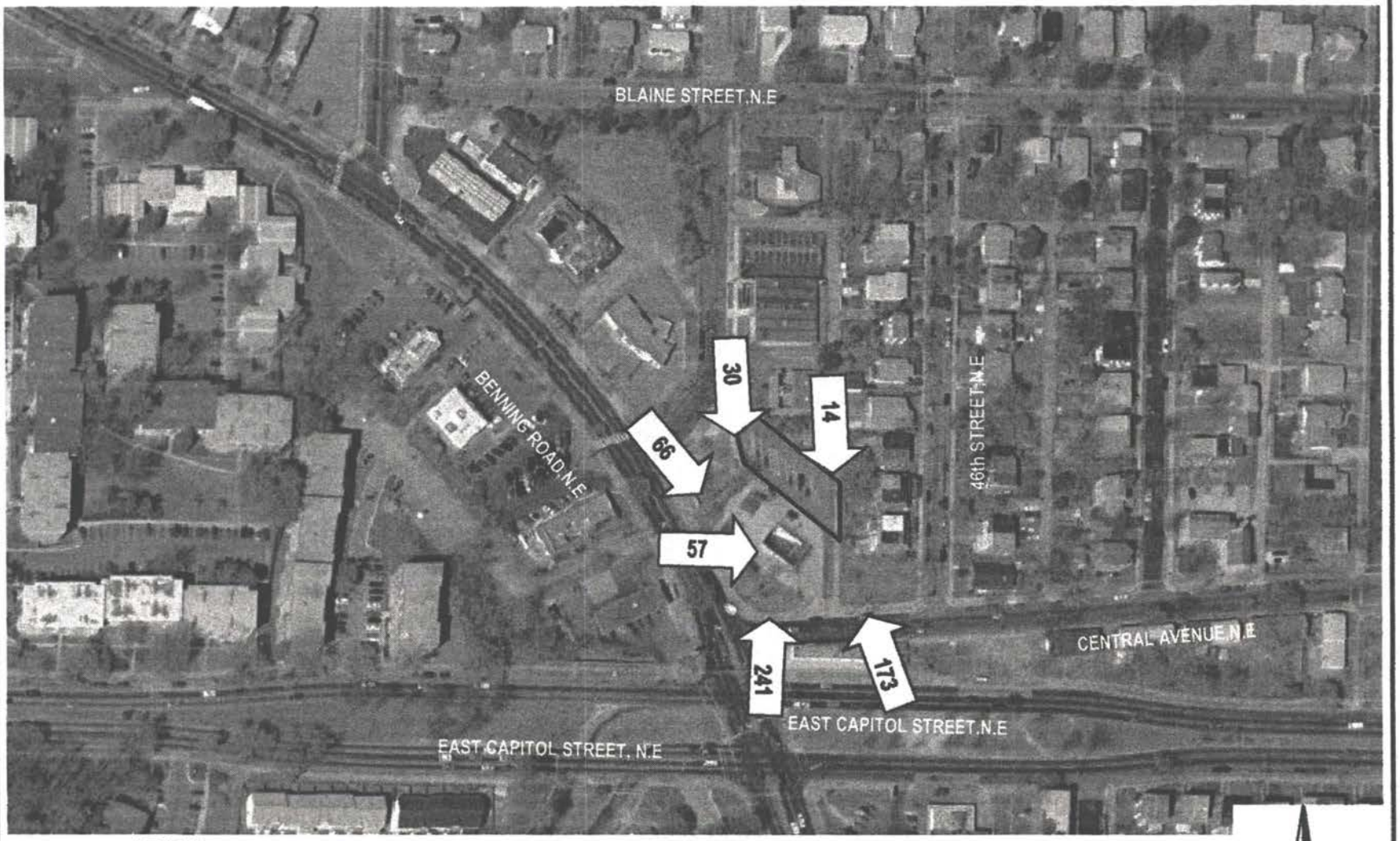
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NO SCALE

O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 4

Benning Road Station - Weekday Peak Hour Vehicular Access Patterns
CSOSA Benning Road Center (BZA Application No: 17304)



LEGEND

XX AM Peak Hour Pedestrian Volumes

N

NO SCALE

O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 5

Benning Road Station - Weekday AM Peak Hour Pedestrian Access Patterns
CSOSA Benning Road Center (BZA Application No: 17304)

Existing Parking Situation

As noted earlier, the site is provided with six (6) short-term/kiss-and-ride spaces. Along the adjacent blocks, and within convenient walking distances to the Metro station there are the following categories of spaces.

- Unrestricted use spaces (along 45th Street and Central Avenue) ..... 22 spaces
- Unrestricted use spaces (except for weekday peak periods) along Benning Road between 44th and 45th Streets ..... 17 spaces
- Residential Parking Permit (RPP) spaces along Blaine Street and 46th Street ..... 77 spaces
- Short-term (30-minute) parking along 45th Street north of site ..... 2 spaces

Total 118 spaces

Field observations were made of the parking usage within the defined area. The survey showed that there was heavy use of the unrestricted parking along 45th Street, where there was also a low turnover of parked vehicles. Use of these spaces showed the following typical use by vehicle registrations.

i) Ward 7 permit holders (20%)

ii) Other City/Non permit holder (45%)

iii) Out-of-State registration (35%)

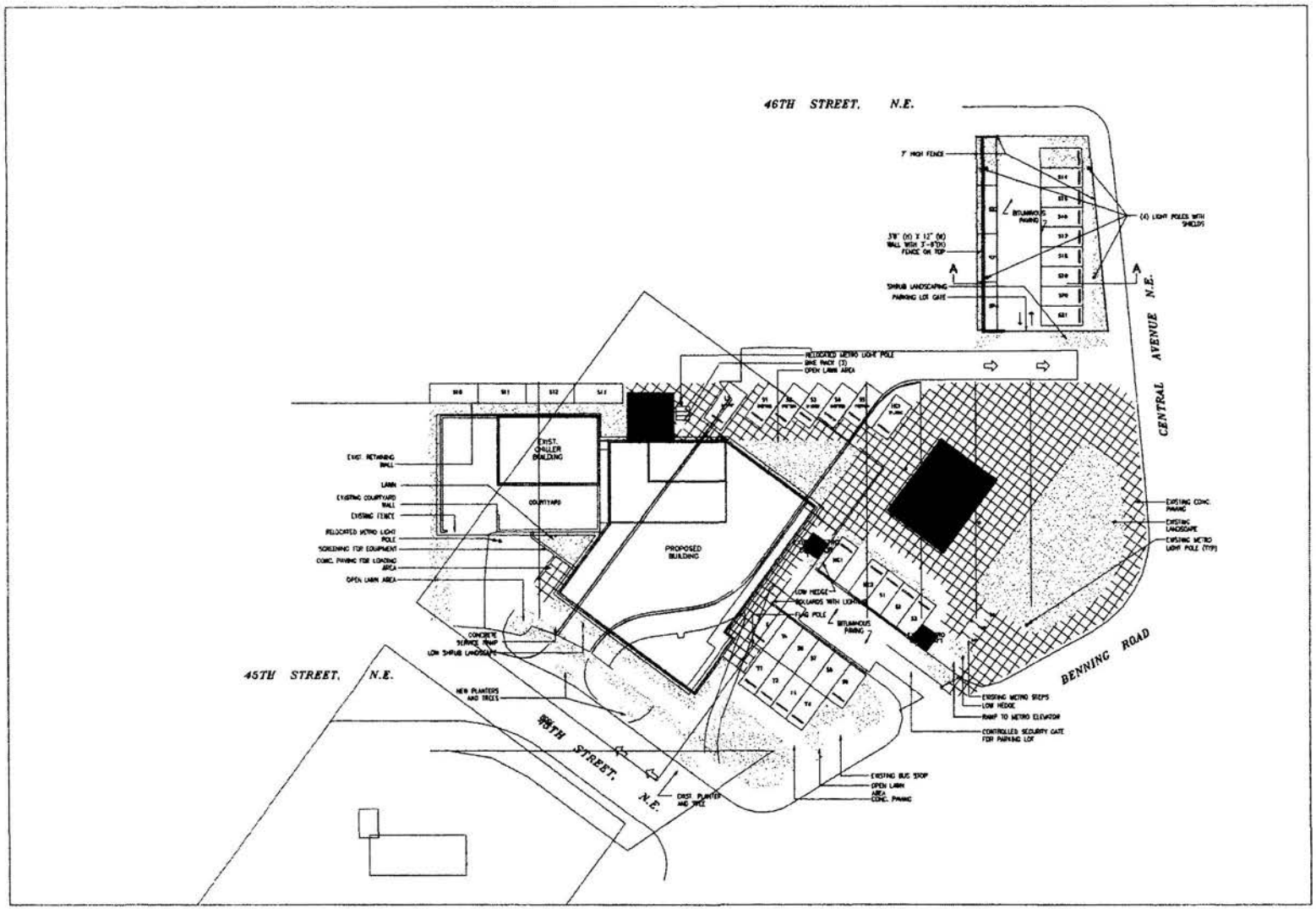
Parking along Benning Road was very lightly utilized. The six (6) kiss-and-ride spaces were also moderately used, even during the morning and afternoon peak hours. Generally, no more than three (3) spaces were observed to be utilized at any one time. In this connection, it is also noted that a number of vehicles dropping-off or picking-up passengers utilize the adjacent alleyway, because of proximity and better visibility of the immediate station entrance. This factor will be addressed further in the later section discussing the proposed use.

THE PROPOSED USE

As noted in the Applicant's Statement and in testimony, the proposed use is for a 37,000 Gross Square Foot (GSF) building, supported by 28 off-street parking spaces in two (2) lots. One of these lots (11 spaces) would be accessed off Benning Road, [in addition to four (4) tandem/stacked spaces]. The other 17 spaces would be accessed off the abutting alleyway, eleven (11) in the proposed lot, and four (4) parallel spaces along the alley. Six (6) kiss-and-ride spaces area also provided within the alleyway to replace the existing kiss-and-ride spaces. As such, 28 spaces are provided for the new building, which is 37 spaces short of the 65-space requirement stipulated by the City's Zoning Regulations. For convenient reference, a replica of the Applicant's site plan is included as Exhibit 6.

The Applicant's Statement presents details of the proposed long-term use of the building by CSOSA. The principal transportation-related elements are summarized below:

a) The building will house (exclusively) offices and related facilities of the District of Columbia Court Services & Offender Supervision Agency (CSOSA).



NO SCALE

Source: Shalom Baranes

O. R. GEORGE & ASSOCIATES, INC. Traffic Engineers - Transportation Planners	**EXHIBIT 6** Proposed Development Site Plan CSOSA Benning Road Center (BZA Application No: 17304)

b) Between 90 – 100 employees will be based in the building on typical weekdays.

c) The Benning Road CSOSA center will serve approximately 444 clients on a typical weekday, over the period 7:00 AM - 7:00 PM, with the core hours being 10:00 AM - 5:00 PM.

d) Two (2) group sessions (each accommodating between 30 and 60 persons) would be held between 12:00 - 1:00 PM, and between 6:00 - 7:00 PM.

e) The Applicant and CSOSA have cited considerable demographic data regarding CSOSA employees and clients, which strongly suggest that levels of transit usage would be quite high. These factors include:

   i. Experience with CSOSA employees at comparably located centers. (Attachment B presents data provided by WMATA showing approximately 80% participation for centers located in proximity to Metrorail Stations.)

   ii. Limited auto ownership and residential distribution of clients within proximity of the proposed center. Also, no parking will be provided for clients.

   iii. The readily available transit services (both Metrorail transit and bus services); and

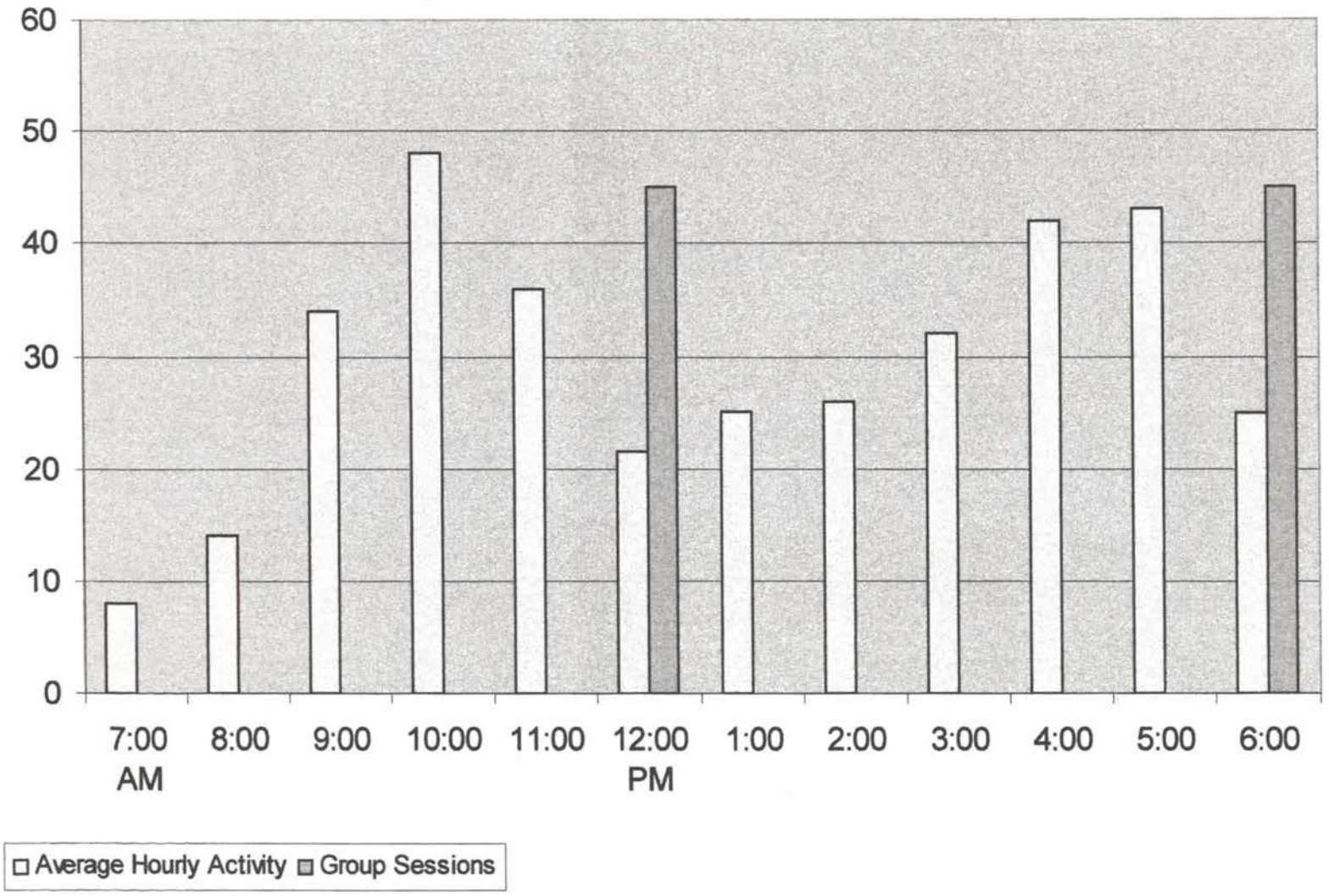
   iv. Availability of government vehicles for use by CSOSA employees during daytime hours and the parking spaces that would be available to employees.

The Applicant has provided statements in the record indicating generalized order-of-magnitude estimates of traffic and parking generation for the proposed use. While the estimates appear reasonable, this assessment finds that there is room for providing further basis for and refining the estimates, that would better allow for quantifying the impacts of the proposed use. This is presented in the section following.

FUTURE TRAFFIC AND PARKING SITUATION

The assessment of the existing traffic and parking situations were presented on pages 5 through 9. In order to get some basis for the traffic projections, this consultant undertook observations of the CSOSA center, which is situated in the 1200 block of Taylor Street, N.W. It is noted that this center is situated approximately 5 blocks from the Georgia Avenue/Petworth Metrostation, and is served by bus service along Georgia Avenue, Kansas Avenue and 14th Street. This survey was performed to supplement a 5-day activity survey, which was conducted by CSOSA in February, 2005 for the Taylor Street center. Our observations confirmed that non-vehicular traffic was the dominant mode used, accounting for approximately 80% of the trips generated. The CSOSA data for Taylor Street is presented in Attachment C.

Based upon the Taylor Street data, Exhibit 7 was developed to show a generalized distribution pattern of client trips at the proposed Benning Road center. Based on this distribution pattern, generalized estimates were developed of peak and off-peak activity (in terms of persons accessing the center on a typical weekday). This is presented in the Tables starting on page 13.



O. R. GEORGE &ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

Exhibit 7
Projected Hourly Client Activity
CSOSA Benning Road Center (BZA Application No. 17304)

TABLE 1
Generalized Weekday Client Activity Distribution Pattern
CSOSA Benning Road Center

Time Period	Number of Clients	Percentage of Daily Activity
• 7:00 – 9:00 AM	54	12%
• 9:00 – 5:00 PM	325	63%
• 5:00 – 7:00 PM	112	25%
Total	**500**	**100%**

Source: CSOSA and O. R. George & Associates.

Based upon DDOT's guidelines, traffic impacts are usually assessed for the morning and afternoon peak hours, which typically occur between 7:30 – 9:30 AM and 4:30 – 6:30 PM. In view of the outlying location of the Benning Road site, the hours of 7:00 – 9:00 AM and 5:00 – 7:00 PM noted in the above Table were considered as appropriate. Using CSOSA's estimate of approximately 80% non-vehicle trips, the projected trip generation by CSOSA's clients are projected to be as follows:

TABLE 2
CSOSA Benning Road Center
Client Trip Generation

Time Period	Vehicle Trips	Other Trips
AM Peak Hour (8:00 – 9:00)	6	8
PM Peak Hour (5:00 – 6:00)	9	33

Note: Assumes 70% of the peak period activity occurs during the peak hour.

With respect to trip generation by CSOSA staff, this assessment notes the following:

a) CSOSA staff will operate under a flexible work schedule, arriving over the period 6:30 – 10:30 AM, and departing over the period 3:30 – 7:30 PM.

b) It is estimated that approximately 50% of CSOSA employees will arrive during the AM peak hour (8:00 – 9:00 AM), and 40% will depart during the PM peak hour (5:00 – 6:00 PM).

c) Transit usage will be in the range of 75% during both peak hours. This is more conservative than the 80% indicated by CSOSA (See Attachment C).

The table following shows the projected weekday peak hour trips that would be generated by CSOSA employees.

TABLE 3
CSOSA Benning Road Center
Employee/Staff Trip Generation

Time Period	Vehicle Trips	Other Trips
AM Peak Hour (8:00 – 9:00)	12	35
PM Peak Hour (5:00 – 6:00)	10	28

Based on the above, it can be seen that the site is likely to generate approximately 20 vehicle trips during the AM Peak hour, and approximately 33 trips during the PM peak hour. Derivation of those numbers is shown in the Table below.

TABLE 4
CSOSA Benning Road Center
Survey of Client and Staff Trip Generation

Time Period	Vehicle Trips	Other Trips
*AM Peak Hour (8:00 – 9:00)		
-- CSOSA Clients	6	8
-- CSOSA Staff	12	35
Total	**18**	**43**
*PM Peak Hour (5:00 – 6:00)		
-- CSOSA Clients	9	33
-- CSOSA Staff	10	26
Total	**19**	**61**

Table 4 shows that the proposed use would generate approximately 20 new vehicle trips during the typical weekday peak hours. This trip generation is well below the typical fifty (50) trips, which is the threshold for a formal traffic analysis.

IMPACT ASSESSMENT SUMMARY

Based upon the data, Analysis and discussion presented in this report, it is quite apparent that the proposed use will not have a significant impact in terms of the traffic generation and parking demands. The principal factors are as follows:

a) ***Building Usage:*** Typically, commercial office buildings occupancy range between 3.5 and 5.0 persons per 1,000 Gross Square Feet, with government offices tending toward the higher range. As such this building could house as many as 185 persons. The applicant has noted that the building will be occupied by 90 - 100 persons, an approximate 50% percent reduction from typical usage.

b) ***Building Location:*** The location within the complex of a Metrorail station, and with access to bus transit is likely to generate high transit usage. This is supported by the demographics of the clients who would be served at the site, and the distribution or spread over a typical 12-hour day.

c) ***Current Vehicle Usage***: Field surveys confirm that vehicular traffic to the Station is currently quite limited

d) ***Alleyway Frontage/Access:*** The properties abutting the alleyway on the west side are all zoned commercial. The properties along the east side are residentially-zoned, and five (5) of the existing residential properties have vehicular access off the alley.

e) ***Alleyway Usage***: Currently, less than approximately ten (10) vehicles and about fifteen (15) pedestrians use the alleyway during weekday peak hours. The typical 7:00 A.M. – 7:00 P.M. period approximately 120 vehicles use the alleyway.

f) ***Site Layout and Access:*** the proposed use would result in a marginal increase on vehicular traffic usage of the alleyway. DDOT has made it a requirement that the alleyway, and the Applicant's proposal calls for improved pedestrian connectivity and plaza area off the alleyway. These factors should adequately provide for safe and efficient access

In summary, the greatly "reduced" building occupancy and low levels of vehicle trip generation by building employees and clients indicate that the parking supply should be quite adequate. In terms of vehicular activity, the proposed use would be much less intense than could be developed on the property, considering its zoning classification. Accordingly, the proposal should not result in conditions, which are objectionable based on parking and traffic considerations.

In addition to the above, this assessment notes that there are also several general considerations that may be relevant to the proposed use. Notably, Benning Road Metrorail Station has the third lowest transit ridership of the entire system. The proposal therefore supports Metro's policies to utilize this particular site to increase ridership at this station. In addition, most trips to the site will occur during the off-peak hours of the day, when there is excess transit capacity. Having the trips spread throughout the day helps alleviate the potential for periods of undue congestion. Also, the use of "flex time" by many employees further helps avoid congested periods.

This study finds that the Applicant should consider the following measures would serve to enhance parking availability and vehicular circulation within the area:

a) Work with DDOT to provide appropriate signage indicating the alleyway as "One Way" Southbound;

b) Work with DDOT to install parking meters along the adjacent block of 45th Street. These meters could be free to Zone 7 permit holders, but would be at some cost to others. This measure would increase turnover, and make spaces available to CSOSA clients for short-term usage (if necessary).

We trust that the above satisfies your requirements. Please let us know if we can assist further as this matter moves forward. Thank you.

ORG/cmw

ATTACHMENT

A

TRAFFIC VOLUME DATA -
BENNING ROAD METROSTATION AREA

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:
Board :
City/County:
Weather :

File Name : 11112222
Site Code : 11112222
Start Date : 05/06/2005
Page No : 1

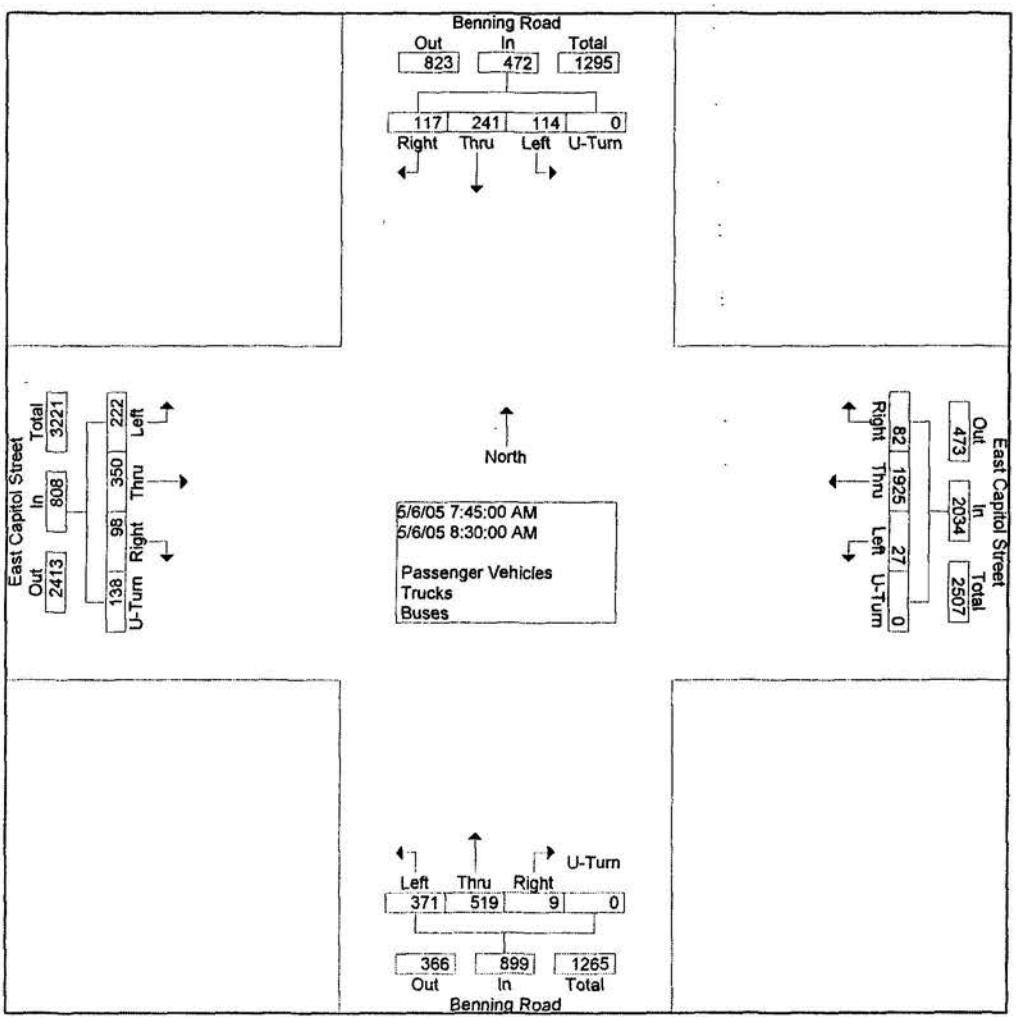
Groups Printed- Passenger Vehicles - Trucks - Buses

	Benning Road From North					East Capitol Street From East					Benning Road From South					East Capitol Street From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:45 AM	30	52	36	0	118	6	471	24	0	501	104	143	0	0	247	66	76	28	33	203	1069
08:00 AM	33	47	26	0	106	6	499	23	0	528	80	126	0	0	206	45	79	31	42	197	1037
Total	63	99	62	0	224	12	970	47	0	1029	184	269	0	0	453	111	155	59	75	400	2106
08:15 AM	29	68	22	0	119	5	452	14	0	471	102	125	2	0	229	51	103	22	32	208	1027
08:30 AM	22	74	33	0	129	10	503	21	0	534	85	125	7	0	217	60	92	17	31	200	1080
08:45 AM	38	84	13	0	135	11	361	23	0	395	83	139	7	0	229	60	120	17	30	227	986
09:00 AM	28	87	12	0	127	9	497	20	0	526	74	141	5	0	220	49	126	21	7	203	1076
Total	117	313	80	0	510	35	1813	78	0	1926	344	530	21	0	895	220	441	77	100	838	4169
Grand Total	180	412	142	0	734	47	2783	125	0	2955	528	799	21	0	1348	331	596	136	175	1238	6275
Apprch %	24.5	56.1	19.3	0.0		1.6	94.2	4.2	0.0		39.2	59.3	1.6	0.0		26.7	48.1	11.0	14.1		
Total %	2.9	6.6	2.3	0.0	11.7	0.7	44.4	2.0	0.0	47.1	8.4	12.7	0.3	0.0	21.5	5.3	9.5	2.2	2.8	19.7	

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File Name : 11112222
Site Code : 11112222
Start Date : 05/06/2005

	Benning Road From North					East Capitol Street From East					Benning Road From South					East Capitol Street From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 07:45 AM to 09:00 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	114	241	117	0	472	27	1925	82	0	2034	371	519	9	0	899	222	350	98	138	808	4213
Percent	24.2	51.1	24.8	0.0		1.3	94.6	4.0	0.0		41.3	57.7	1.0	0.0		27.5	43.3	12.1	17.1		
08:30 Volume	22	74	33	0	129	10	503	21	0	534	85	125	7	0	217	60	92	17	31	200	1080
Peak Factor																					0.975
High Int.	08:30 AM					08:30 AM					07:45 AM					08:15 AM					
Volume	22	74	33	0	129	10	503	21	0	534	104	143	0	0	247	51	103	22	32	208	
Peak Factor					0.915					0.952					0.910					0.971	



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Counted by:
Board :
City/County:
Weather :

File Name : 37943794
Site Code : 37943794
Start Date : 05/05/2005
Page No : 1

Groups Printed- Passenger Vehicles - Trucks - Buses

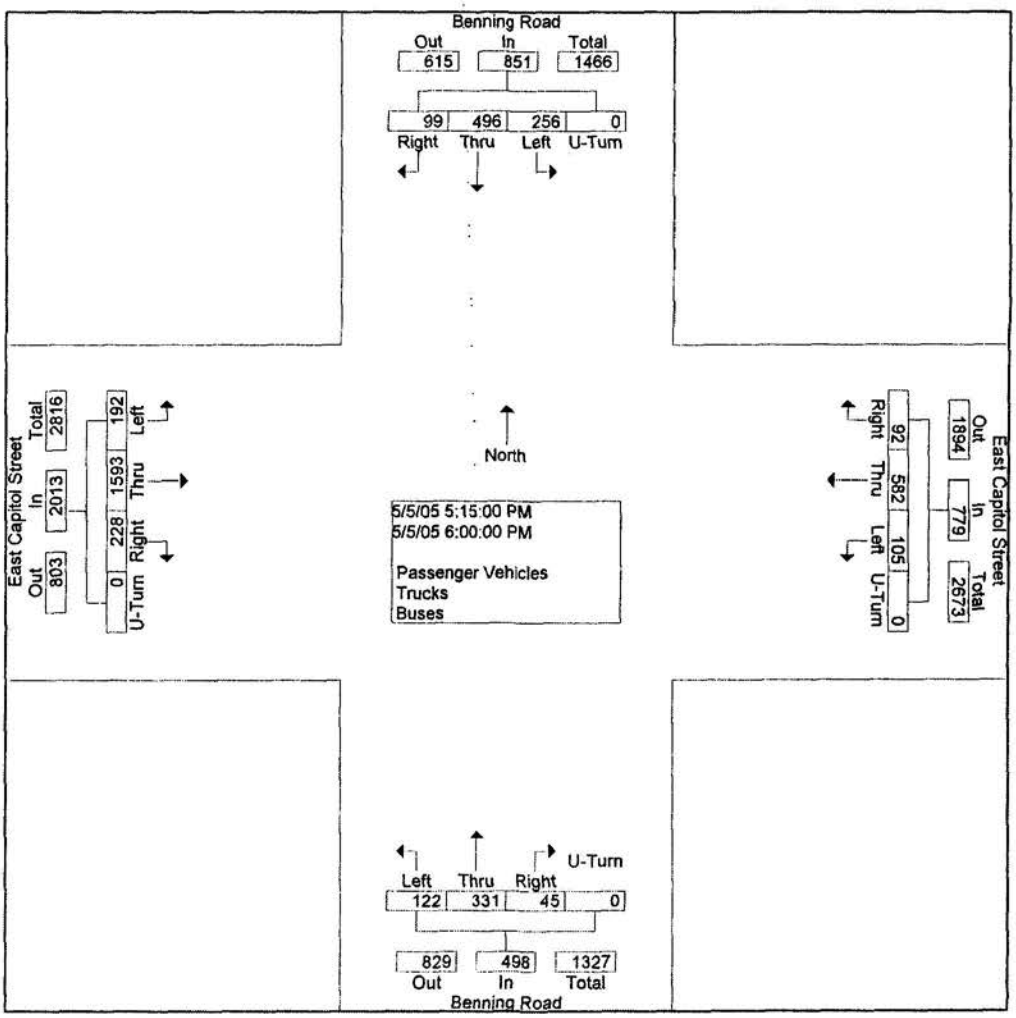
	Benning Road From North					East Capitol Street From East					Benning Road From South					East Capitol Street From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:15 PM	61	104	11	0	176	22	126	40	2	190	19	107	18	0	144	41	332	54	0	427	937
04:30 PM	82	98	31	0	211	21	137	19	0	177	26	89	12	0	127	60	333	85	4	482	997
04:45 PM	57	110	16	0	183	23	131	23	0	177	39	88	17	0	144	54	348	51	0	453	957
05:00 PM	64	123	32	0	219	24	116	15	0	155	28	77	14	0	119	48	427	43	0	518	1011
Total	264	435	90	0	789	90	510	97	2	699	112	361	61	0	534	203	1440	233	4	1880	3902
05:15 PM	49	112	20	0	181	34	138	28	0	200	31	74	26	0	131	45	377	60	0	482	994
05:30 PM	72	132	20	0	224	17	141	16	0	174	30	87	4	0	121	50	423	54	0	527	1046
05:45 PM	69	118	38	0	225	26	165	29	0	220	34	86	10	0	130	53	389	54	0	496	1071
06:00 PM	66	134	21	0	221	28	138	19	0	185	27	84	5	0	116	44	404	60	0	508	1030
Total	256	496	99	0	851	105	582	92	0	779	122	331	45	0	498	192	1593	228	0	2013	4141
Grand Total	520	931	189	0	1640	195	1092	189	2	1478	234	692	106	0	1032	395	3033	461	4	3893	8043
Apprch %	31.7	56.8	11.5	0.0		13.2	73.9	12.8	0.1		22.7	67.1	10.3	0.0		10.1	77.9	11.8	0.1		
Total %	6.5	11.6	2.3	0.0	20.4	2.4	13.6	2.3	0.0	18.4	2.9	8.6	1.3	0.0	12.8	4.9	37.7	5.7	0.0	48.4	

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File Name : 37943794
Site Code : 37943794
Start Date : 05/05/2005
Page No : 2

	Benning Road From North					East Capitol Street From East					Benning Road From South					East Capitol Street From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 04:15 PM to 06:00 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	256	496	99	0	851	105	582	92	0	779	122	331	45	0	498	192	1593	228	0	2013	4141
Percent	30.1	58.3	11.6	0.0		13.5	74.7	11.8	0.0		24.5	66.5	9.0	0.0		9.5	79.1	11.3	0.0		
05:45 Volume	69	118	38	0	225	26	165	29	0	220	34	86	10	0	130	53	389	54	0	496	1071
Peak Factor																					0.967
High Int.	05:45 PM					05:45 PM					05:15 PM					05:30 PM					
Volume	69	118	38	0	225	26	165	29	0	220	31	74	26	0	131	50	423	54	0	527	
Peak Factor					0.946					0.885					0.950					0.955	



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Counted by:
Board :
City/County:
Weather :

File Name : 15151515
Site Code : 15151515
Start Date : 05/11/2005
Page No : 1

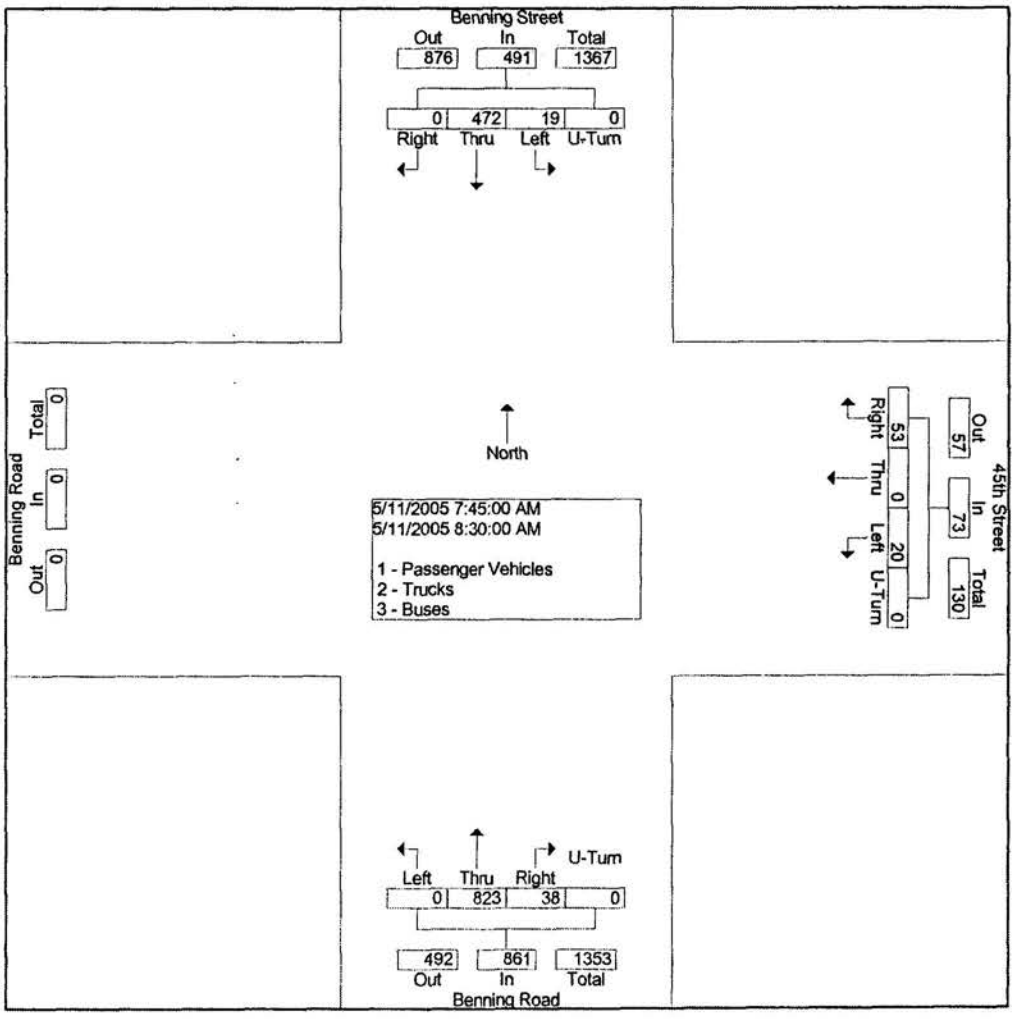
Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	Benning Street From North					45th Street From East					Benning Road From South					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:45	0	118	5	0	123	7	0	9	0	16	10	233	0	0	243	382
08:00	0	106	3	0	109	13	0	5	0	18	3	194	0	0	197	324
Total	0	224	8	0	232	20	0	14	0	34	13	427	0	0	440	706
08:15	0	119	8	0	127	26	0	3	0	29	12	190	0	0	202	358
08:30	0	129	3	0	132	7	0	3	0	10	13	206	0	0	219	361
*** BREAK ***																
Total	0	248	11	0	259	33	0	6	0	39	25	396	0	0	421	719
*** BREAK ***																
16:45	0	183	6	0	189	5	0	2	0	7	22	165	0	0	187	383
17:00	0	219	8	0	227	6	0	1	0	7	18	140	0	0	158	392
Total	0	402	14	0	416	11	0	3	0	14	40	305	0	0	345	775
17:15	0	181	7	0	188	4	0	2	0	6	19	147	0	0	166	360
17:30	0	224	7	0	231	7	0	1	0	8	21	153	0	0	174	413
Grand Total	0	1279	47	0	1326	75	0	26	0	101	118	1428	0	0	1546	2973
Apprch %	0.0	96.5	3.5	0.0		74.3	0.0	25.7	0.0		7.6	92.4	0.0	0.0		
Total %	0.0	43.0	1.6	0.0	44.6	2.5	0.0	0.9	0.0	3.4	4.0	48.0	0.0	0.0	52.0	

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File Name : 15151515
Site Code : 15151515
Start Date : 05/11/2005
Page No : 2

	Benning Street From North					45th Street From East					Benning Road From South					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour From 07:45 to 11:45 - Peak 1 of 1																
Intersection	07:45															
Volume	0	472	19	0	491	53	0	20	0	73	38	823	0	0	861	1425
Percent	0.0	96.1	3.9	0.0		72.6	0.0	27.4	0.0		4.4	95.6	0.0	0.0		
Volume	0	472	19	0	491	53	0	20	0	73	38	823	0	0	861	1425
Volume	0	118	5	0	123	7	0	9	0	16	10	233	0	0	243	382
Peak Factor																0.933
High Int.	08:30					08:15					07:45					
Volume	0	129	3	0	132	26	0	3	0	29	10	233	0	0	243	
Peak Factor					0.930					0.629					0.886	

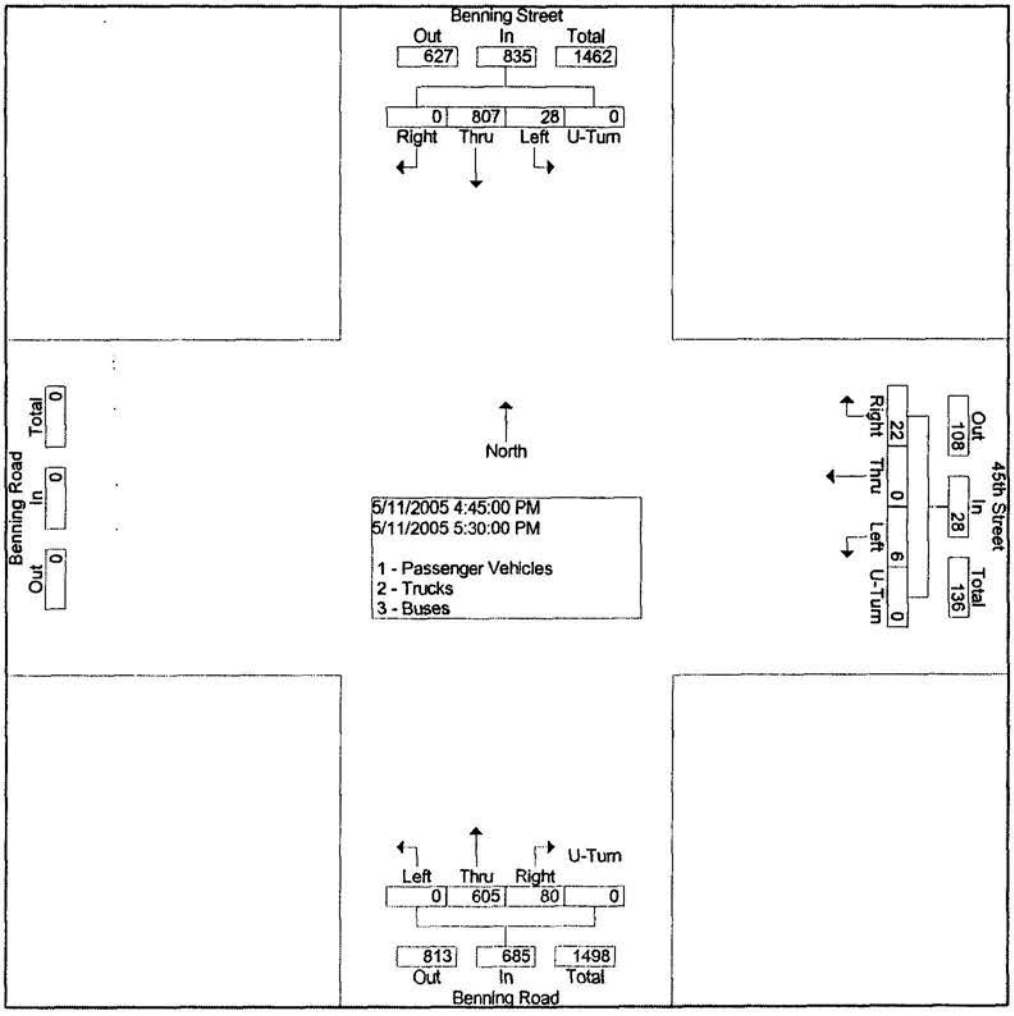


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File Name : 15151515
Site Code : 15151515
Start Date : 05/11/2005
Page No : 3

	Benning Street From North					45th Street From East					Benning Road From South					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour From 12:00 to 17:30 - Peak 1 of 1																
Intersection	16:45															
Volume	0	807	28	0	835	22	0	6	0	28	80	605	0	0	685	1548
Percent	0.0	96.6	3.4	0.0		78.6	0.0	21.4	0.0		11.7	88.3	0.0	0.0		
Volume	0	807	28	0	835	22	0	6	0	28	80	605	0	0	685	1548
Volume	0	224	7	0	231	7	0	1	0	8	21	153	0	0	174	413
Peak Factor																0.937
High Int.	17:30					17:30					16:45					
Volume	0	224	7	0	231	7	0	1	0	8	22	165	0	0	187	
Peak Factor					0.904					0.875					0.916	



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Counter:
Counted By:
Weather:
Other:

File Name : 15151516
Site Code : 08888888
Start Date : 05/10/2005
Page No : 1

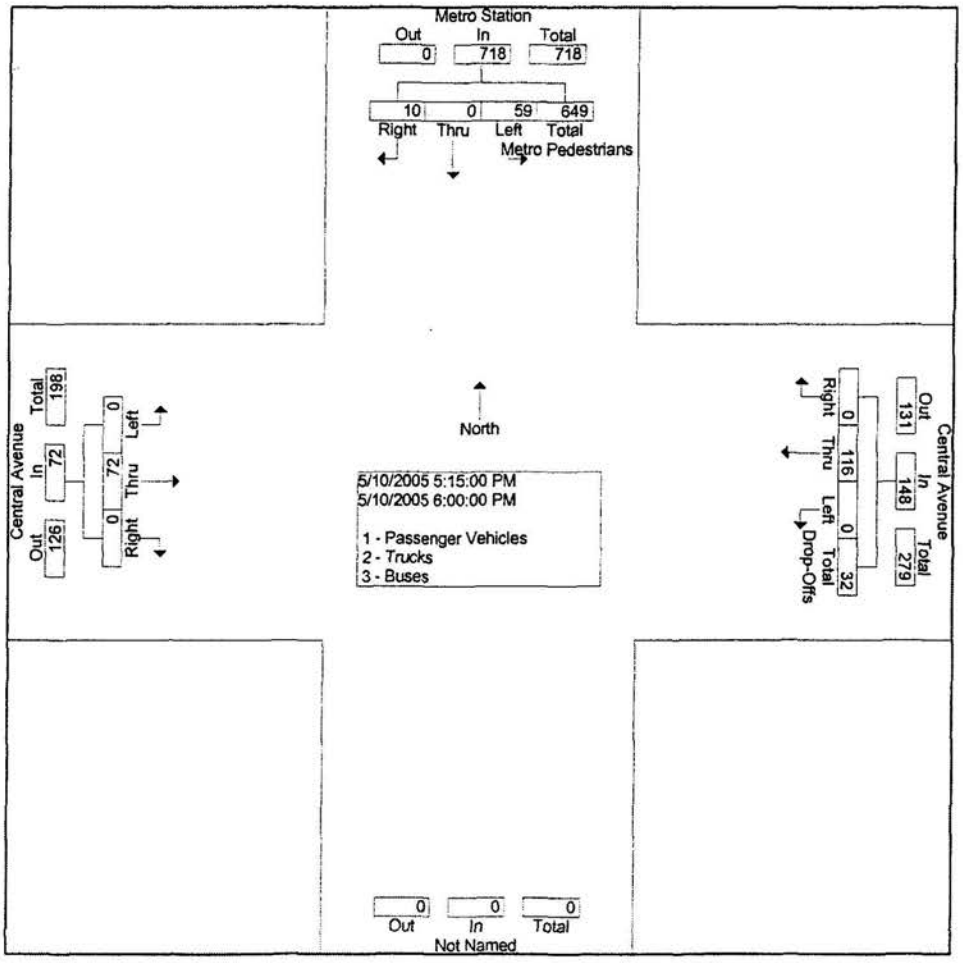
Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	Metro Station From North					Central Avenue From East					Central Avenue From West				
End Time	Right	Thru	Left	Total Metro Pedestrians	App. Total	Right	Thru	Left	Total Drop-Offs	App. Total	Right	Thru	Left	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0		
17:15	2	0	17	164	183	0	21	0	6	27	0	16	0	16	226
17:30	1	0	10	130	141	0	31	0	8	39	0	19	0	19	199
17:45	2	0	15	203	220	0	36	0	10	46	0	21	0	21	287
18:00	5	0	17	152	174	0	28	0	8	36	0	16	0	16	226
Total	10	0	59	649	718	0	116	0	32	148	0	72	0	72	938
18:15	1	0	11	126	138	0	24	0	5	29	0	15	0	15	182
18:30	0	0	8	118	126	0	26	0	1	27	0	29	0	29	182
*** BREAK ***															
Total	1	0	19	244	264	0	50	0	6	56	0	44	0	44	364
*** BREAK ***															
07:45	4	0	2	73	79	0	98	0	3	101	0	9	0	9	189
08:00	2	0	3	172	177	0	130	0	3	133	0	21	0	21	331
Total	6	0	5	245	256	0	228	0	6	234	0	30	0	30	520
08:15	5	0	8	177	190	0	147	0	3	150	0	21	0	21	361
08:30	1	0	9	208	218	0	101	0	3	104	0	24	0	24	346
08:45	2	0	5	190	197	0	95	0	5	100	0	20	0	20	317
09:00	4	0	2	118	124	0	62	0	2	64	0	19	0	19	207
Total	12	0	24	693	729	0	405	0	13	418	0	84	0	84	1231
Grand Total	29	0	107	1831	1967	0	799	0	57	856	0	230	0	230	3053
Apprch %	1.5	0.0	5.4	93.1		0.0	93.3	0.0	6.7		0.0	100.0	0.0		
Total %	0.9	0.0	3.5	60.0	64.4	0.0	26.2	0.0	1.9	28.0	0.0	7.5	0.0	7.5	

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File Name : 15151516
Site Code : 08888888
Start Date : 05/10/2005
Page No : 2

	Metro Station From North					Central Avenue From East					Central Avenue From West				
End Time	Right	Thru	Left	Total Metro Pedestrians	App. Total	Right	Thru	Left	Total Drop-Offs	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 17:15 to 01:15 - Peak 1 of 1															
Intersection	17:15														
Volume	10	0	59	649	718	0	116	0	32	148	0	72	0	72	938
Percent	1.4	0.0	8.2	90.4		0.0	78.4	0.0	21.6		0.0	100.0	0.0		
Volume	10	0	59	649	718	0	116	0	32	148	0	72	0	72	938
Volume	2	0	15	203	220	0	36	0	10	46	0	21	0	21	287
Peak Factor															0.817
High Int.	17:45					17:45					17:45				
Volume	2	0	15	203	220	0	36	0	10	46	0	21	0	21	
Peak Factor					0.816					0.804				0.857	

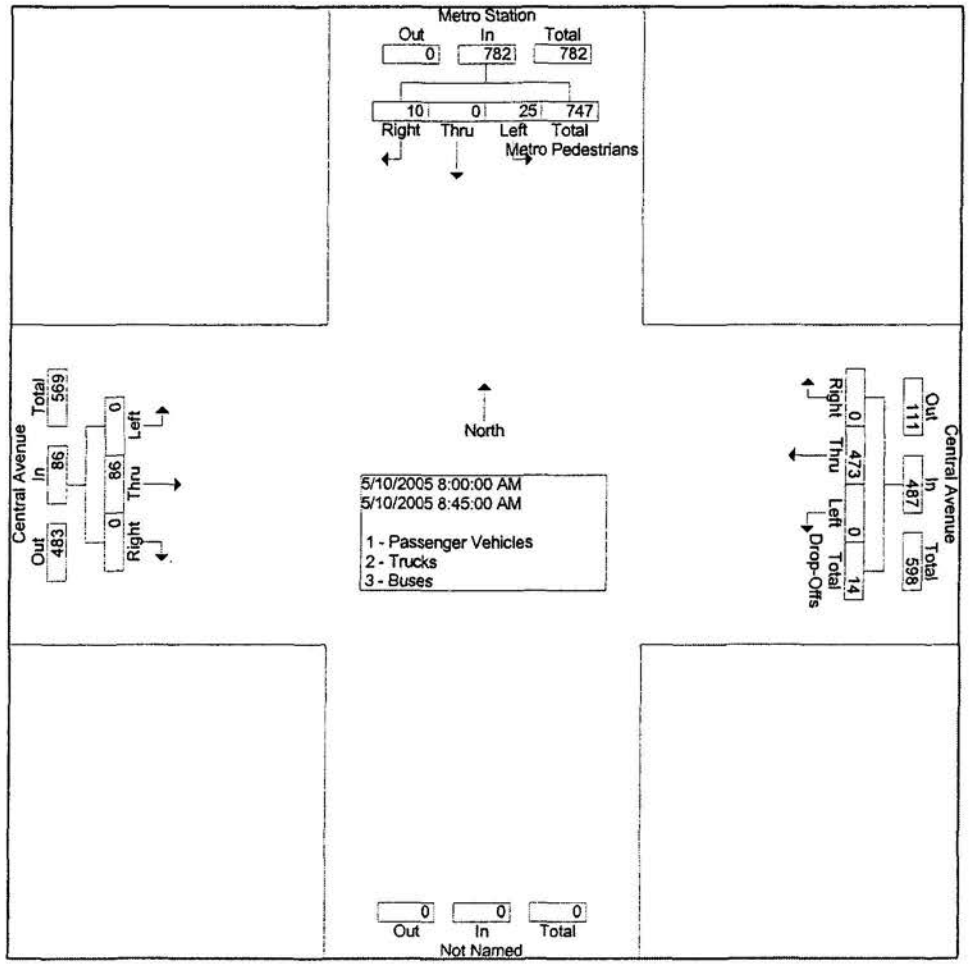


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File Name : 15151516
Site Code : 08888888
Start Date : 05/10/2005
Page No : 3

	Metro Station From North					Central Avenue From East					Central Avenue From West				
End Time	Right	Thru	Left	Total Metro Pedestrians	App. Total	Right	Thru	Left	Total Drop-Offs	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 01:30 to 09:00 - Peak 1 of 1															
Intersection	08:00														
Volume	10	0	25	747	782	0	473	0	14	487	0	86	0	86	1355
Percent	1.3	0.0	3.2	95.5		0.0	97.1	0.0	2.9		0.0	100.0	0.0		
Volume	10	0	25	747	782	0	473	0	14	487	0	86	0	86	1355
Volume	5	0	8	177	190	0	147	0	3	150	0	21	0	21	361
Peak Factor															0.938
High Int.	08:30					08:15					08:30				
Volume	1	0	9	208	218	0	147	0	3	150	0	24	0	24	
Peak Factor					0.897					0.812				0.896	



A-10

ATTACHMENT

B

CSOSA EMPLOYEE TRANSIT SUBSIDY PARTICIPATION
FOR VARIOUS WASHINGTON, D.C. CENTERS

Subj: **CSOSA Metro Transit Subsidy Numbers**
Date: 5/16/2005 8:58:54 PM Eastern Standard Time
From: jim.williams@csosa.gov
To: orgassoc@aol.com
CC: Cedric.Hendricks@csosa.gov, holly@jencogroup.com

<<Participants By Location-March.xls>> Attention: Terri Davis
The attached shows CSOSA employee use of the transit subsidy by office location. The four locations highlighted on the spreadsheet are each within one block of a metro station. Using the numbers for the locations highlighted, the average participation for those four locations combined, is 79%.
Let me know if you have any questions.
Jim Williams

B-1

Location	Employees On Board	Employees Participating Paperfare	Employees Participating SmartBenefits	Total Employees Participating	Percent Participating
300 Indiana Ave	155	85	31	116	75%
3850 S Capitol St	48	2	0	2	4%
1418 Good Hope Rd	40	6	0	6	15%
808 17th St	21	9	10	19	90%
800 N Capitol St	98	37	10	47	48%
25 K St	105	56	5	61	58%
401 New York Ave	21	3	0	3	14%
1230 Taylor St	57	9	6	15	26%
1740 Park Rd	1	1	0	1	100%
1514 8th St	1	1	0	1	100%
601 Indiana Ave	37	11	13	24	65%
633 Indiana Ave	162	90	48	138	85%
1301 Clifton Street	8	0	1	1	13%
Total	**754**	**310**	**124**	**434**	58%

Subj: **4500 Benning Road Projected Visitors Per Day**
Date: 5/16/05 8:59:09 PM Eastern Daylight Time
From: jim.williams@csosa.gov
To: orgassoc@aol.com
CC: Cedric.Hendricks@csosa.gov, holly@jencogroup.com

<<CSOSA Field Office Visitor Projections.xls>> Attention: Terri Davis
Terri, the attached analysis projects a daily total of 444 visitors per day. If you have any questions, let me know. I'll be sending you an analysis of employee use of the metro transit subsidy, soon, either today or tomorrow morning.
Jim Williams

B-3

CSOSA Field Office Visitor Projections

Date Prepared: 5/16/05

Current				Projected			
Location	Square Feet	Actual 4/5/05 - 4/9/05	Daily Average	Location	Square Feet	Projected Weekly	Projected Daily
25 "K" Street	32,000	2,838	567	25 "K" Street	32,000	1,920	384
1230 Taylor Street	20,000	1,440	288	1230 Taylor Street	20,000	1,200	240
3850 South Capitol Street	14,000	1,860	372	3850 South Capitol Street	14,000	883	176
1418 Good Hope Road	8,000	660	132	4500 Benning Road	37,000	2,220	444
401 N.Y. Avenue	9,000	505	101	910 Rhode Island Avenue	18,000	1,080	216
Total:	83,000	7,303	1,460	Total:	121,000	7,303	1,460

Projection Factors:
(a/b=c)

Weekly:	**7,303**	**121,000**	**0.060**
Daily:	**1,460**	**121,000**	**0.012**

ATTACHMENT

C

CSOSA SURVEY DATA -
CLIENT HOURLY ACTIVITY FOR WEEKDAY
TAYLOR STREET CENTER

Subj: **Taylor Street Study**
Date: 5/12/2005 8:15:58 PM Eastern Standard Time
From: Cedric.Hendricks@csosa.gov
To: orgassoc@aol.com
CC: jim.williams@csosa.gov

Terry Davis -

Attached is the pedestrian traffic study done at our Taylor Street Field Unit.

I have just spoken with Associate Director Jim Williams and he will call you at (301) 794-7700 regarding the METRO usage study.

Cedric R. Hendricks, Esq.
Associate Director
Office of Legislative, Intergovernmental and Public Affairs
Court Services and Offender Supervision Agency
(202) 220-5440 office
(202) 359-1910 cell
(202) 220-5335 fax

<<Taylor Street Lobby.xls>>

C - 1

COURT SERVICES & OFFENDER SUPERVISION AGENCY

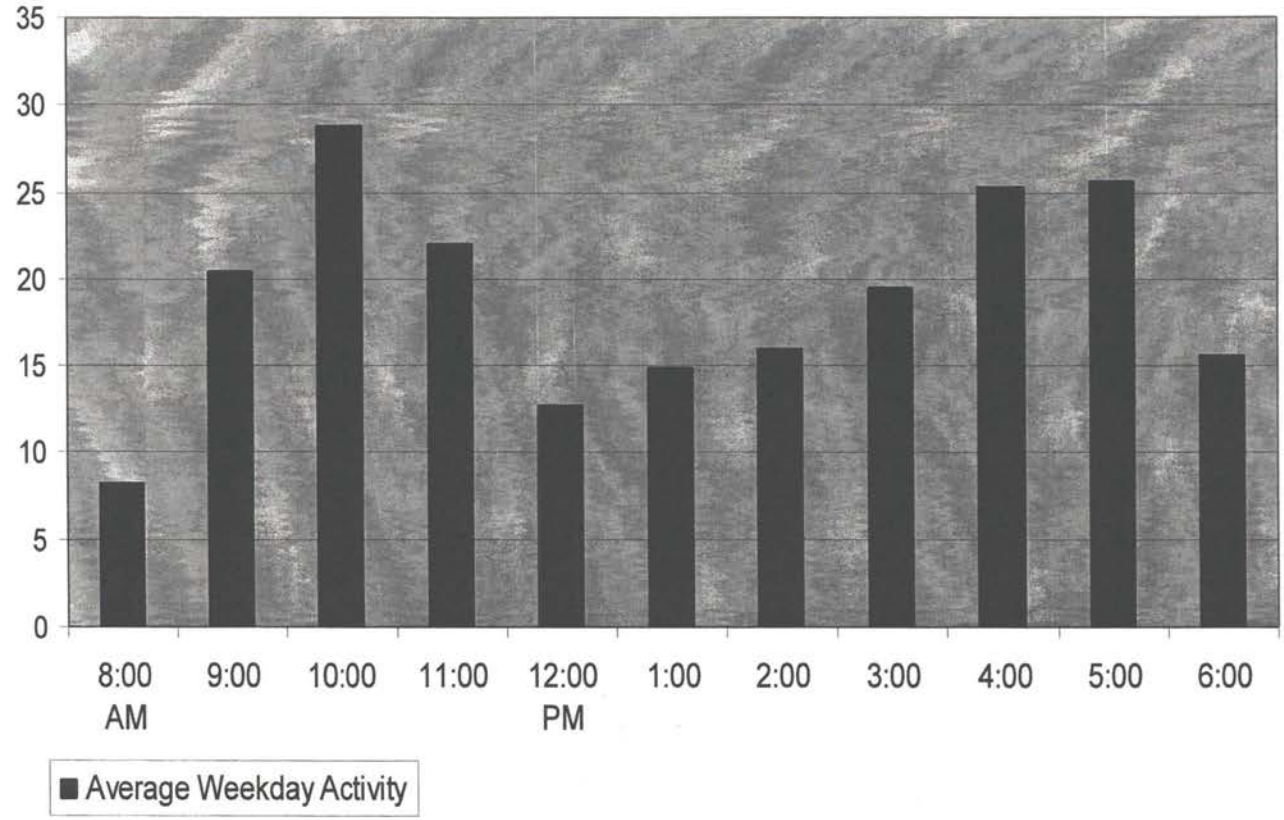
1230 Taylor Street Site Location

Hourly Patrol of Lobby Areas

February 7 - February 14, 2005

Captain Wyllie Mitchell

DATE		CSOSA-PROTECTION SECURITY OFFICER PATROL HOURS (PSO)											
		0820 HRS	0920 HRS	1020 HRS	1120 HRS	1220 HRS	1320 HRS	1420 HRS	1520 HRS	1620 HRS	1720 HRS	1820 HRS	TOTAL
TOTAL RECEIVED - Mon. February 7 -- 210 client/offenders													
TUES.	Lobby 1	3	6	25	4	6	3	2	0	1	2	1	53
Feb. 8	Lobby 2	0	8	12	4	1	1	0	6	4	3	2	41
	Drug Lab	1	2	10	2	4	0	7	7	6	12	3	54
TOTAL RECEIVED - Tues. 220 clients/offenders													
WED.	Lobby 1	1	0	0	3	0	0	0	0	1	1	0	6
Feb. 9	Lobby 2	0	1	1	6	3	2	1	5	5	2	0	26
	Drug Lab	2	5	5	2	3	0	2	2	4	11	6	42
TOTAL RECEIVED - Wed. 205 clients/offenders													
THURS	Lobby 1	0	3	0	3	0	5	1	0	1	1	3	17
Feb.10	Lobby 2	0	5	4	2	2	2	0	2	3	4	0	24
	Drug Lab	4	5	2	7	4	0	9	6	10	2	8	57
TOTAL RECEIVED - Thurs. 230 clients/offenders													
FRI.	Lobby 1	2	3	3	2	3	1	0	2	0	0	0	16
Feb.11	Lobby 2	0	1	1	1	1	1	5	0	0	1	0	11
	Drug Lab	0	0	1	2	3	0	7	3	2	6	2	26
TOTAL RECEIVED - Fri. 115 clients/offenders													
TOTAL RECEIVED ENTIRE WEEK - 980 clients/offenders Mon. thru Fri.													
Mon.	Lobby 1	2	2	2	0	2	5	1	1	3	5	0	23
Feb.14	Lobby 2	1	1	3	3	0	4	3	4	2	0	0	21
	Drug Lab	2	3	3	5	0	8	6	6	8	7	6	54
TOTAL RECEIVED -Mon. 182 clients/offenders													
Total Lobby 1 & 2		**9**	**30**	**51**	**28**	**18**	**24**	**13**	**20**	**20**	**19**	**6**	**238**
Total Drug Lab		**9**	**15**	**21**	**18**	**14**	**8**	**31**	**24**	**30**	**38**	**25**	**233**
Grand Total		**18**	**45**	**72**	**46**	**32**	**32**	**44**	**44**	**50**	**57**	**31**	**471**



O. R. GEORGE &ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

Attachment C
Average Weekday Client Activity
CSOSA Taylor Street N.W. Center

Exhibit C: Ridership Data and Responses from WMATA

MEMORANDUM

TO: District of Columbia Board of Zoning Adjustment

FROM: Rosalyn P. Daggett, Senior Development Staff

DATE: May 9, 2005

RE: BZA Application 17304
Office Building at Benning Road Metrorail Station

In response to requests of BZA members on April 19, 2005 at the hearing for the above referenced project, I have attached:

1. The "Development-Related Ridership Survey II," December, 1989. This is the most recent information available.

2. A printout of Benning Road Metrorail Station entries and exits during each half hour of operation on April 19, 2005.

Regarding a question about enforcement of the use of Kiss & Ride spaces for Metro patron drop-off and pickup, WMATA's Office of Parking has informed me that signage will indicate 15-minute use of the space only and that enforcement will be by ticketing. Both WMATA police and District of Columbia police will have authority to ticket.

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

By Metrorail:
Judiciary Square—Red Line
Gallery Place-Chinatown—
Red, Green and
Yellow Lines
By Metrobus:
Routes D1, D3, D6, P6,
70, 71, 80, X2

A District of Columbia, Maryland and Virginia Transit Partnership

Stations Name	Date	Entry 4:30	Entry 5:00	Entry 5:30	Entry 6:00	Entry 6:30	Entry 7:00	Entry 7:30
Addison Road	19-APR-05	0	45	104	221	258	390	463
Anacostia	19-APR-05	0	15	163	200	300	404	605
Archives/Navy Memorial	19-APR-05	0	0	11	17	41	38	42
Arlington Cemetery	19-APR-05	0	0	0	1	1	1	3
Ballston	19-APR-05	0	0	55	143	245	326	596
Benning Road	19-APR-05	0	21	61	114	124	201	299
Bethesda	19-APR-05	0	2	23	30	96	183	476
Braddock Road	19-APR-05	0	2	26	61	93	185	350
Branch Avenue	19-APR-05	0	84	186	370	634	939	1201
Brookland-CUA	19-APR-05	0	0	41	72	113	181	279
Capital South	19-APR-05	0	0	3	7	14	39	72
Capitol Heights	19-APR-05	0	26	46	89	122	219	274
Cheverly	19-APR-05	0	4	36	72	80	145	218
Clarendon	19-APR-05	0	2	24	17	45	75	143
Cleveland Park	19-APR-05	0	0	9	25	41	85	174
College Park/U of Md	19-APR-05	0	15	29	53	110	196	287
Columbia Heights	19-APR-05	0	2	128	134	183	252	337
Congress Heights	19-APR-05	0	0	32	52	85	133	273
Court House	19-APR-05	0	0	36	57	91	171	342
Crystal City	19-APR-05	0	0	35	74	173	388	590
Deanwood	19-APR-05	0	8	24	49	88	129	178
Dunn Loring	19-APR-05	0	18	52	110	200	344	546
Dupont Circle	19-APR-05	0	0	24	46	67	169	377
East Falls Church	19-APR-05	0	5	65	117	206	282	337
Eastern Market	19-APR-05	0	1	25	41	50	109	213
Eisenhower	19-APR-05	0	3	5	23	47	69	88
Farragut North	19-APR-05	0	0	6	21	29	67	70
Farragut West	19-APR-05	0	0	13	23	47	64	134
Federal Center	19-APR-05	0	0	2	4	14	29	36
Federal Triangle	19-APR-05	0	0	3	5	9	12	22
Foggy Bottom	19-APR-05	0	0	13	18	58	93	207
Forest Glen	19-APR-05	0	9	28	44	77	154	219
Fort Totten Red	19-APR-05	0	2	133	210	271	426	560
Franconia-Springfield	19-APR-05	1	103	214	353	704	1019	1250
Friendship Heights	19-APR-05	0	0	33	18	70	162	343

Entry 8:00	Entry 8:30	Entry 9:00	Entry 9:30	Entry 10:00	Entry 10:30	Entry 11:00	Entry 11:30	Entry 12:00	Entry 12:30	Entry 13:00
418	380	219	160	116	84	46	68	64	70	55
693	643	545	318	249	179	175	121	120	161	108
56	48	40	48	62	60	75	111	161	194	171
1	1	4	4	16	63	38	55	192	195	180
895	1205	1149	593	408	253	213	214	193	183	184
382	359	284	135	112	75	70	58	66	53	58
575	896	807	550	338	238	149	176	161	172	151
454	578	496	222	158	98	67	55	69	59	40
1085	447	271	140	93	145	53	59	38	48	52
434	532	392	236	162	111	118	120	139	146	132
114	167	189	126	79	102	118	210	194	216	208
259	201	105	57	45	39	32	16	30	30	27
217	155	113	140	38	46	30	24	15	18	16
272	379	359	211	132	72	58	63	52	81	56
379	610	746	471	237	98	97	85	87	80	66
341	352	230	192	223	181	135	147	85	78	68
378	552	534	318	237	138	87	88	143	110	88
268	290	184	147	59	49	59	47	42	40	33
542	911	914	519	318	216	173	128	113	126	118
781	919	771	496	465	296	281	237	269	285	253
199	183	131	89	50	38	28	23	34	39	32
635	584	429	230	203	191	112	80	78	57	57
680	1071	1295	843	603	404	373	355	406	453	443
487	558	435	239	181	128	68	62	38	41	38
356	509	555	315	177	102	102	82	90	108	96
90	98	52	58	59	46	44	46	31	30	15
140	220	281	237	223	269	235	278	426	451	376
164	240	240	232	229	218	223	272	382	427	413
69	113	98	82	72	59	58	117	140	141	137
31	38	50	54	91	106	87	153	282	240	237
312	468	491	534	437	442	321	329	348	390	362
280	309	261	133	67	50	39	32	26	23	22
604	636	416	244	164	147	102	88	90	92	81
1278	1004	593	339	436	323	192	185	142	146	102
558	773	859	566	477	296	279	229	187	195	173

Entry 13:30	Entry 14:00	Entry 14:30	Entry 15:00	Entry 15:30	Entry 16:00	Entry 16:30	Entry 17:00	Entry 17:30	Entry 18:00	Entry 18:30
58	56	52	71	44	55	77	64	60	30	47
143	150	125	171	161	231	211	235	204	155	126
229	216	217	327	381	539	749	1001	1315	1081	640
247	162	116	105	166	140	137	186	187	184	150
165	178	225	214	280	352	483	571	744	628	509
75	54	67	66	57	79	42	65	71	36	38
142	171	167	160	204	200	320	457	760	715	612
55	43	63	50	72	107	111	142	212	190	139
50	34	35	37	43	50	46	53	76	58	38
171	145	137	246	268	333	332	411	405	332	251
268	269	255	308	386	509	646	640	858	704	943
41	30	33	22	32	38	35	30	17	21	43
19	29	11	23	8	28	26	26	34	34	48
66	69	56	56	85	112	147	120	177	149	155
69	71	63	61	97	111	104	68	114	118	111
78	53	80	99	75	124	144	156	185	171	117
112	97	99	114	222	257	256	173	290	243	190
49	35	42	44	48	55	66	49	47	36	21
108	108	128	97	117	200	223	297	460	395	348
225	189	258	301	429	668	903	1102	1000	836	528
33	35	27	44	39	45	53	34	34	23	24
56	47	58	71	85	101	119	192	231	232	190
441	485	507	509	554	657	819	1142	1991	1963	1566
39	39	74	44	56	63	54	102	155	141	169
76	113	105	109	121	170	195	198	236	222	246
19	32	27	49	63	99	137	144	118	94	66
509	570	595	561	728	988	1513	2177	3449	3268	2726
527	475	585	526	748	1038	1560	2118	3295	3566	2773
97	104	129	193	239	359	465	688	874	669	459
297	316	326	428	575	795	1211	1606	1781	1749	989
400	392	487	567	692	1003	1196	1471	2223	1979	1635
20	7	18	12	18	29	37	27	42	48	34
85	100	78	103	170	189	197	233	196	166	111
88	87	98	94	78	128	150	149	202	226	129
198	172	177	183	266	272	355	391	557	499	425

Entry 00:30	Entry 1:00	Entry 1:30	Entry 2:00	Entry 2:30	Entry 3:00	Entry 3:30	Entry 4:00	Total Entry	Exit 4:30	Exit 5:00
1	0	0	0	0	0	0	0	4,000	0	0
0	0	1	0	0	0	0	0	7,426	0	1
2	0	0	0	0	0	0	0	9,115	0	0
0	0	0	0	0	0	0	0	2,817	0	0
1	0	0	0	0	0	0	0	12,596	0	0
1	1	0	0	0	0	0	0	3,355	1	0
11	0	0	0	0	0	0	0	10,552	0	0
0	0	0	0	0	0	0	0	4,503	0	0
0	1	0	0	0	0	0	0	6,539	1	0
2	0	0	0	0	0	0	0	7,135	0	0
1	0	0	0	0	0	0	0	9,833	0	0
0	0	0	0	0	0	2	0	2,060	0	1
0	0	0	0	0	0	0	0	1,718	0	0
5	0	0	0	0	0	0	0	3,785	0	1
0	0	0	0	0	0	0	8	4,865	0	1
0	0	0	0	0	0	0	0	4,410	0	0
2	0	0	0	0	0	0	0	6,522	0	0
0	0	0	0	0	0	0	0	2,439	0	0
0	0	0	0	0	0	0	0	7,974	0	0
3	0	0	0	0	0	0	0	13,917	0	0
2	0	0	0	0	0	0	0	1,835	0	0
0	0	0	0	0	0	0	0	5,624	0	0
24	0	0	0	0	0	0	0	24,104	0	0
0	0	0	0	0	0	0	0	4,470	0	1
2	0	0	0	0	0	0	0	5,687	0	1
1	0	0	0	0	0	0	0	1,819	0	0
18	0	0	0	0	0	0	0	26,535	0	0
14	0	0	0	0	0	0	0	26,588	0	0
0	0	0	0	0	0	0	0	6,149	0	0
2	0	0	0	0	0	0	0	13,213	0	0
16	0	0	0	0	0	0	0	22,212	0	0
0	0	1	0	0	0	0	0	2,171	0	1
2	0	0	0	0	0	0	0	6,341	0	0
0	0	0	0	0	0	0	0	10,174	0	1
0	0	0	0	0	0	0	0	10,131	0	1

Exit 5:30	Exit 6:00	Exit 6:30	Exit 7:00	Exit 7:30	Exit 8:00	Exit 8:30	Exit 9:00	Exit 9:30	Exit 10:00	Exit 10:30
1	26	14	34	76	74	37	81	27	28	31
4	50	87	124	168	169	193	181	125	99	51
43	132	245	426	641	838	1022	1151	843	508	286
0	2	6	7	9	34	41	92	151	196	341
2	78	150	285	414	645	686	617	389	253	182
1	3	8	24	21	22	39	45	21	33	24
0	30	76	133	204	469	522	861	502	271	214
3	14	37	38	88	164	155	173	93	56	37
1	10	18	37	45	56	37	42	36	14	25
7	34	65	208	193	346	358	373	216	197	166
5	89	222	267	376	541	870	1403	1064	668	451
1	3	5	8	21	21	37	47	31	18	5
0	17	19	18	22	21	16	21	3	10	11
1	18	33	86	118	107	115	124	86	50	44
0	7	12	22	23	63	53	61	53	62	123
0	24	33	62	97	129	109	174	113	63	76
2	29	50	60	114	194	261	244	156	81	108
1	5	8	23	19	42	29	57	25	21	22
1	17	37	115	159	295	319	461	302	147	83
21	172	313	752	970	1157	835	622	365	269	199
5	10	21	17	28	50	49	44	16	15	11
1	19	77	87	138	140	155	142	108	51	39
8	87	156	352	559	1183	1892	2228	1949	951	624
0	6	30	25	57	53	44	49	28	36	37
3	24	21	55	62	139	191	265	164	115	81
0	25	39	109	94	134	103	80	58	37	24
27	247	230	710	1247	2346	3598	3889	3622	1482	852
41	277	528	1047	1555	2167	4095	4513	3572	1321	816
13	81	128	262	435	566	634	689	544	258	183
48	282	367	710	1167	1331	1505	1540	1002	618	440
23	201	353	726	909	1485	2374	2319	1659	976	522
1	3	11	21	13	19	23	8	17	7	10
9	43	55	80	153	183	185	143	96	52	59
2	18	47	57	90	88	86	55	71	81	52
3	48	107	158	217	388	325	474	327	210	150

Exit 11:00	Exit 11:30	Exit 12:00	Exit 12:30	Exit 13:00	Exit 13:30	Exit 14:00	Exit 14:30	Exit 15:00	Exit 15:30	Exit 16:00
37	32	37	62	76	41	44	78	94	127	208
142	68	95	86	163	129	178	100	221	193	361
300	227	188	212	155	162	104	159	103	165	113
322	187	102	96	100	74	78	151	209	161	123
130	146	118	189	119	201	163	217	202	280	256
32	14	36	46	37	42	52	24	68	101	157
112	139	138	165	152	131	206	189	226	234	302
45	23	28	45	54	43	67	63	94	90	151
21	23	32	32	64	44	85	75	122	114	271
177	105	135	101	163	152	134	169	165	152	238
385	324	282	199	269	284	356	183	162	174	166
16	4	19	18	14	25	41	15	45	42	107
6	5	12	19	11	12	10	23	22	42	70
53	37	60	54	80	54	58	55	66	46	106
112	79	119	77	108	87	68	68	112	122	136
33	67	48	68	49	47	83	73	70	118	94
64	85	87	85	79	132	70	126	123	206	278
13	27	20	28	37	44	36	32	105	38	114
109	45	96	70	126	63	120	66	167	123	220
188	190	183	216	258	202	214	209	210	323	399
11	23	17	28	18	20	26	39	24	56	90
55	22	22	48	80	57	55	71	95	123	190
459	411	419	438	444	351	406	411	417	407	571
22	25	26	54	33	43	55	62	58	110	150
98	69	83	120	100	97	92	94	113	120	213
16	35	19	31	47	50	30	25	15	52	44
656	461	504	550	401	438	475	465	311	301	367
558	429	469	417	369	344	349	357	279	321	276
112	163	137	95	125	158	118	110	111	83	73
385	252	264	307	203	228	228	161	173	124	170
599	488	462	471	426	433	548	460	405	436	570
13	11	9	11	18	18	26	28	45	36	72
67	49	70	76	88	91	96	134	184	204	326
52	66	66	74	141	107	121	170	152	288	352
162	112	169	181	195	211	202	230	242	293	381

Exit 16:30	Exit 17:00	Exit 17:30	Exit 18:00	Exit 18:30	Exit 19:00	Exit 19:30	Exit 20:00	Exit 20:30	Exit 21:00	Exit 21:30
248	401	446	476	347	271	163	123	81	77	57
639	551	633	640	377	391	167	252	151	125	115
135	111	99	93	74	48	26	16	12	16	14
187	96	46	53	41	20	0	10	2	7	5
445	547	643	1229	835	773	414	311	263	232	222
257	234	198	251	237	132	101	106	57	81	59
303	406	605	666	781	608	333	393	248	156	176
159	245	306	448	521	350	173	127	132	75	107
527	751	915	983	698	485	164	173	71	90	36
341	326	387	450	363	253	186	120	92	145	92
148	177	240	288	270	232	112	76	80	75	38
112	207	212	233	139	103	68	62	17	34	17
91	151	167	184	129	172	71	25	32	42	23
104	156	267	371	390	285	211	136	84	66	43
146	174	311	373	530	402	337	229	180	167	100
213	194	413	410	354	284	152	107	94	103	79
294	320	320	472	287	302	219	151	154	118	169
213	181	202	195	150	109	40	57	25	31	28
204	332	422	678	680	497	329	279	179	210	104
443	598	631	817	606	468	306	264	194	208	155
125	127	173	135	145	75	66	24	50	28	44
311	344	374	605	603	378	257	155	86	116	104
608	625	1198	1442	1325	954	711	604	465	322	349
228	265	408	492	534	317	174	164	105	138	71
241	267	391	478	446	357	222	152	120	139	121
57	64	84	87	84	63	41	28	42	15	21
340	329	604	517	403	242	167	115	59	64	80
334	374	486	563	441	331	178	115	74	66	48
85	88	74	127	74	52	34	27	20	25	25
127	107	130	105	86	81	31	15	28	10	5
489	589	718	846	680	512	343	252	190	151	181
89	118	147	241	247	206	129	88	46	60	51
454	475	590	550	424	283	193	190	142	114	136
548	866	1008	1403	956	837	552	247	416	182	194
350	498	567	761	855	561	422	265	182	162	163

Exit 22:00	Exit 22:30	Exit 23:00	Exit 23:30	Exit 24:00	Exit 00:30	Exit 1:00	Exit 1:30	Exit 2:00	Exit 2:30	Exit 3:00
65	67	84	33	56	18	7	0	0	0	0
112	141	112	125	76	47	0	0	0	0	0
24	9	18	7	4	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
161	267	175	197	120	26	0	0	0	0	0
58	67	45	60	21	22	7	0	0	0	0
134	218	155	126	70	38	9	0	0	0	0
71	104	91	59	24	12	4	0	0	0	0
32	67	97	40	16	16	2	0	0	0	0
90	104	89	65	48	13	0	0	0	0	0
109	120	70	35	10	8	0	0	0	0	0
37	22	20	26	16	5	4	0	0	0	0
36	29	49	28	7	10	0	0	0	0	0
51	99	122	17	30	10	0	0	0	0	0
129	140	121	71	29	6	0	0	0	1	0
47	73	36	72	28	27	36	0	0	0	0
115	110	210	75	92	10	6	0	0	0	0
32	35	31	28	19	12	0	0	0	0	0
172	151	205	36	71	16	0	0	0	0	0
190	171	199	98	47	24	1	0	0	0	0
15	29	32	10	19	4	4	0	0	0	0
77	131	108	164	27	21	6	0	0	0	0
222	426	330	158	74	28	0	0	0	0	0
89	141	150	113	40	15	7	0	0	0	0
179	145	89	50	20	9	0	1	0	0	0
15	28	33	14	8	8	1	0	0	0	0
48	49	48	18	14	6	0	0	0	0	0
107	142	160	20	10	4	0	0	0	0	0
55	38	16	6	2	1	0	0	0	0	0
19	13	28	5	10	2	0	0	0	0	0
191	231	276	82	28	19	0	0	0	0	0
41	24	42	42	18	7	7	0	0	0	0
91	136	108	121	107	52	6	0	0	0	0
127	115	198	247	109	51	12	0	0	0	0
103	152	114	131	26	18	0	0	0	0	0

Exit 3:30	Exit 4:00	um Total Exit
0	0	4,285
0	0	7,642
0	0	8,729
0	0	2,951
0	0	12,582
1	0	2,845
0	0	10,701
0	0	4,569
0	0	6,368
0	0	7,018
0	0	10,828
1	0	1,879
0	0	1,636
0	0	3,894
0	1	5,015
0	0	4,352
0	0	6,058
0	0	2,134
0	0	7,706
0	0	13,687
0	0	1,723
0	0	5,642
0	0	24,564
0	0	4,455
0	0	5,747
0	0	1,760
0	0	26,282
0	0	27,553
0	0	5,827
0	0	12,307
0	0	22,623
0	0	2,024
0	0	6,615
0	0	10,305
0	0	10,116

DEVELOPMENT-RELATED RIDERSHIP SURVEY II

Prepared for

Washington Metropolitan Area Transit Authority

Prepared by

JHK & Associates

December 1989

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ACKNOWLEDGEMENTS

The study was sponsored by the Washington Metropolitan Area Transit Authority (WMATA). The project managers for WMATA were Mr. Richard Miller and Mr. John Green. The project manager for JHK & Associates (JHK) was Mr. James Curren. Mr. Dan Hardy served as JHK's project engineer, Ms. Joan Jenkins served as Field Supervisor, and Mr. Morris Rothenberg was the Responsible Officer.

JHK & Associates and WMATA would like to acknowledge and thank the many individuals and organizations that contributed to this study. This especially includes the building owners and managers who assisted JHK in granting permission for and setting up the surveys. A listing of the sites studied can be found in the text of the report. Thanks are also expressed to other WMATA staff.

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EXECUTIVE SUMMARY

This study, the Development - Related Ridership Survey II, is the second in a series sponsored by the Washington Metropolitan Area Transit Authority (WMATA). The first study conducted by JHK & Associates was completed in March 1987. The data collection for this study was collected during March and April 1989. The purposes of the studies were to study travel behavior of persons travelling to and from residential and commercial developments around Metrorail stations and to establish relationships among travel characteristics, distance, and the nature of development at each site. The studies consisted of surveys of persons travelling to and from office buildings, residential developments, retail sites and hotels near Metrorail stations. The first study surveyed 34 building sites, this study surveyed 38 buildings, 13 of which were repeated from the first study.

This executive summary highlights the key findings and conclusions from the Development-Related Ridership Surveys. The details of the procedures and results are discussed in the body of the report. A summary of observations is presented below, beginning first with general observations, followed by conclusions relating to each of the land use types.

General Observations

The choice of mode for trips to and from any type of land use is influenced by many factors. This study confirmed the findings of the first study, that the most significant and readily used factors for planning purposes are:

- The location of the site within Metropolitan Washington.
- The proximity of a building to a Metrorail station entrance.

Significant transit mode shares were recorded for all land uses.

Transit users reported almost as many linked trips as auto users.

Origin destination pairs heavily influence the propensity to take transit. Poor transit accessibility at either end of the trip results in poor transit ridership between those pairs.

Based on the response to attitudinal questions an average of 28% of all respondents hold the perception that information regarding the transit system (rail and bus) and schedules is not readily available.

Observations on Office Development

Transit mode share for offices ranged from under 10% in some suburban settings to over 50% in the downtown. In general it was found that the residences of employees was spread throughout the region, with employees who cross jurisdictional lines more inclined to use transit than those who live and work within the same jurisdiction.

Residential Buildings

The transit mode share for residential buildings surveyed in this study ranged from 30 to over 70%. The sites surveyed included both rented and owner occupied. Auto ownership was found to be significantly lower at all sites surveyed as compared to the regional average, which is 1.93 autos per household.

Retail Uses

All of the retail sites surveyed had significant transit mode share. In general, it appears that transit mode share to retail sites has increased over the two year period between studies. In contrast to the first study, this study found that transit mode share to retail sites was often higher at a given metrorail station than the transit mode share to office buildings at that station.

Hotels

Like retail sites, hotels showed a significant increase in the transit mode share when compared to the first study. Hotel trip generation rates vary from day to day more so than other land uses.

Conclusions

Several land use and transportation factors are critical to making the best possible use of the transit system. These include:

- Locating the types of uses that tend to generate the most transit trips in the Metrorail-station areas.

- Locating these land uses in close proximity to stations with good access to the station portals.
- Providing high density land development around Metrorail stations, including suburban stations.
- Providing convenient walk and feeder bus access to the stations to expand the transit market.

In general mixed development at each station area is the most desirable in terms of reducing overall vehicle trips. However, the development in a corridor as a whole should be considered, as well as development at individual stations. Variations from station to station along a rail line appear to maximize ridership on a daily basis. The study also found that in general sensitivity to the distance from the station portal varies by land use, office developments being the most sensitive and residential developments the least sensitive. This suggests that office development is best suited to areas immediately adjacent to the station. However, exceptions to this may occur for specific uses such as destination retail.

Development of the station areas is only one component of overall planning that is required in order to maximize transit ridership. Transit service and station access to and from lower density development is also critical.

Adequate road networks must be constructed in conjunction with the development of station areas. Poor road networks not only create a negative image of station areas but also restrict the transit market to relatively tight areas surrounding the station. People will not use Metrorail if they must fight congestion to reach the station.

Marketing must be targeted at individual station areas to provide those who live, work, or shop in these areas specific information about the system and how they can use it.

Development of any type tends to be controversial. There are pros and cons that must be weighed. It is clear, however, that the limited supply of developable land and the fixed nature of the Metrorail system make development decisions around rail stations particulary critical. These decisions must be lived with for years to come and therefore must be made with a long-term view. One locational benefit, for example, is that a 200,000 square foot office being considered for development in the suburbs could achieve an annual reduction of some 500,000 vehicle miles of travel by locating near a Metrorail Station.

It is inevitable that the Washington area will grow. Careful attention to how it grows, particulary in areas served by Metrorail, will reap major benefits in optimizing

the use of the existing and future regional transportation system.

INTRODUCTION

This is the Final Report for the Development-Related Ridership Survey II, prepared for the Washington Metropolitan Area Transit Authority (WMATA). Like the first Ridership Survey completed in March 1987[1], the purpose was to study the travel behavior of persons travelling to and from residential and commercial developments around Metrorail stations. The data collected was used to establish relationships between travel characteristics and the nature of development at each site. The sites chosen for this survey were carefully selected to provide expansion of the existing database, and to permit long-term trend analysis. In addition, a more extensive examination of mid-day travel characteristics was conducted in this survey than in the original effort. This information will provide WMATA and other local agencies with better information on the accessibility benefits of locating buildings near Metrorail stations.

The purpose of this study is to present findings from the survey data, mathematical relationships developed between travel characteristics and site development factors, and trip generation characteristics and site development factors.

STUDY APPROACH

The basic approach to the study involved the development of data on a building by building basis. Each building was considered to constitute an observation with which a distinct set of travel characteristics could be associated. The travel characteristics were expected to vary among buildings based on a number of factors including, type of land use, location within the metropolitan area, proximity to Metrorail stations, type of employers within a building, cost and availability of parking. Also, factors not directly related to sites also influence travel characteristics. Examples of these include average income, auto ownership, and the quality of Metrorail service at each end of the trip.

Data on travel characteristics was collected through a series of questionnaires, interviews, and "cordon counts" conducted at each of the 38 buildings surveyed. The type of survey conducted depended primarily on the type of land use. The four land use types and associated survey approach were as follows:

---

[1] Development-Related Ridership, JHK & Associates, March 1987.

- Office Buildings - several techniques were employed including self-administered questionnaires for employees, pedestrian intercept surveys for visitors, and cordon counts of persons entering the office for specified periods.

- Residential Buildings - self-administered surveys were distributed to each unit and cordon counts were conducted at all sites to determine actual trip generation rates for each site.

- Retail Establishments - personal interviews were conducted at the store entrances or within the store itself depending on the characteristics of the site. In addition cordon counts were conducted at most sites.

- Hotels - as with the retail sites, personal interviews were conducted combined with cordon counts of the site.

Chapter 2 of this study discusses the specific approach and survey procedures for each land use type as well as unique characteristics of specific sites, the analysis procedure, and a summary of results. Important considerations in the design of the data collection program were the development of unbiased sampling techniques, the ability to cross-check data, and compatibility with the previous surveys. Although any survey is subject to sampling error, careful design of the data collection program can reduce the chances of any biasing of the results. For example, no direct reference was made to WMATA in the self administered surveys. The surveys were cast as general transportation surveys, thereby providing the best chance of obtaining unbiased estimates of mode choice. The ability to detect any bias that may occur is also important. For example, cordon counts can provide the actual trip generation rate and in many cases the mode split, thus acting as a cross-check. Where interviews were conducted, counts allow sample size by entrance to be determined. The total number of survey responses for all land uses studied exceeded 6,600, plus cordon counts for all but three sites. A summary of response rates for mail-back surveys is given in the appendix.

Chapter 3 focuses on quantitative relationships between travel characteristics at the buildings surveyed and the factors that influence travel behavior. This includes the development of regression equations that can be used to predict transit[1] mode share for newly planned development. These equations are compared to previous findings in other studies and their limitations discussed. When properly applied within the context of their limitations, the equations provide an excellent planning tool for developments being considered in close proximity to an urban rail station.

---

[1] The term "transit" is used in this report to refer to rail and bus services unless otherwise specified.

Finally, Chapter 4 presents a summary of our conclusions and recommendations. Techniques and strategies to improve transit ridership are suggested based on the findings of the study.

SITE SELECTION

Site selection procedures considered the location of the Metrorail station, the location and type of building, and the previous study (Figure 1 shows the station areas selected and Table 1 the number of land uses surveyed at each station). The surveyed sites were selected from an initial list of candidate Metrorail stations and sites by the following criteria:

- A range of stations reflecting different development patterns and varying locations within the metropolitan area. (i.e. inside the Beltway vs. outside the Beltway):

- Station areas had to have building developments that were constructed, rehabilitated or converted within more recent years. Unlike the first study, individual sites that were older were selected in order to broaden the database.

- The expansion of the database was an important consideration. A similar study " Development Related Ridership Survey" was completed for WMATA by JHK & Associates in March of 1987. Additional station areas and sites were added while at the same time a deliberate effort was made to repeat a significant number of sites in order to begin the development of time series data.

- The developments were to be of the following minimum sizes; office buildings - 100,000 square feet, residential buildings - 75 dwelling units, hotels - 200 rooms, retail - no minimum square footage or number of establishments.

- Another major criterion involved the nature of the building tenants. In an effort to develop a data base that covers the full range of tenants, buildings were chosen to include both public and private employers. Government agencies tend to be large employers and have operational characteristics that significantly impact travel habits of employees. For example, the large employment base and fairly regular work hours enable extensive participation in ridesharing programs. Building sites with public employers were not chosen in the first study as it was felt that the data base was not large enough to allow the isolation of other factors. With the growing data base it was felt that government agencies should now be included. As well, there is a growing trend for government employers to locate adjacent to a Metrorail station, therefore it is important to include the trip making characteristics of public agencies in the data base.

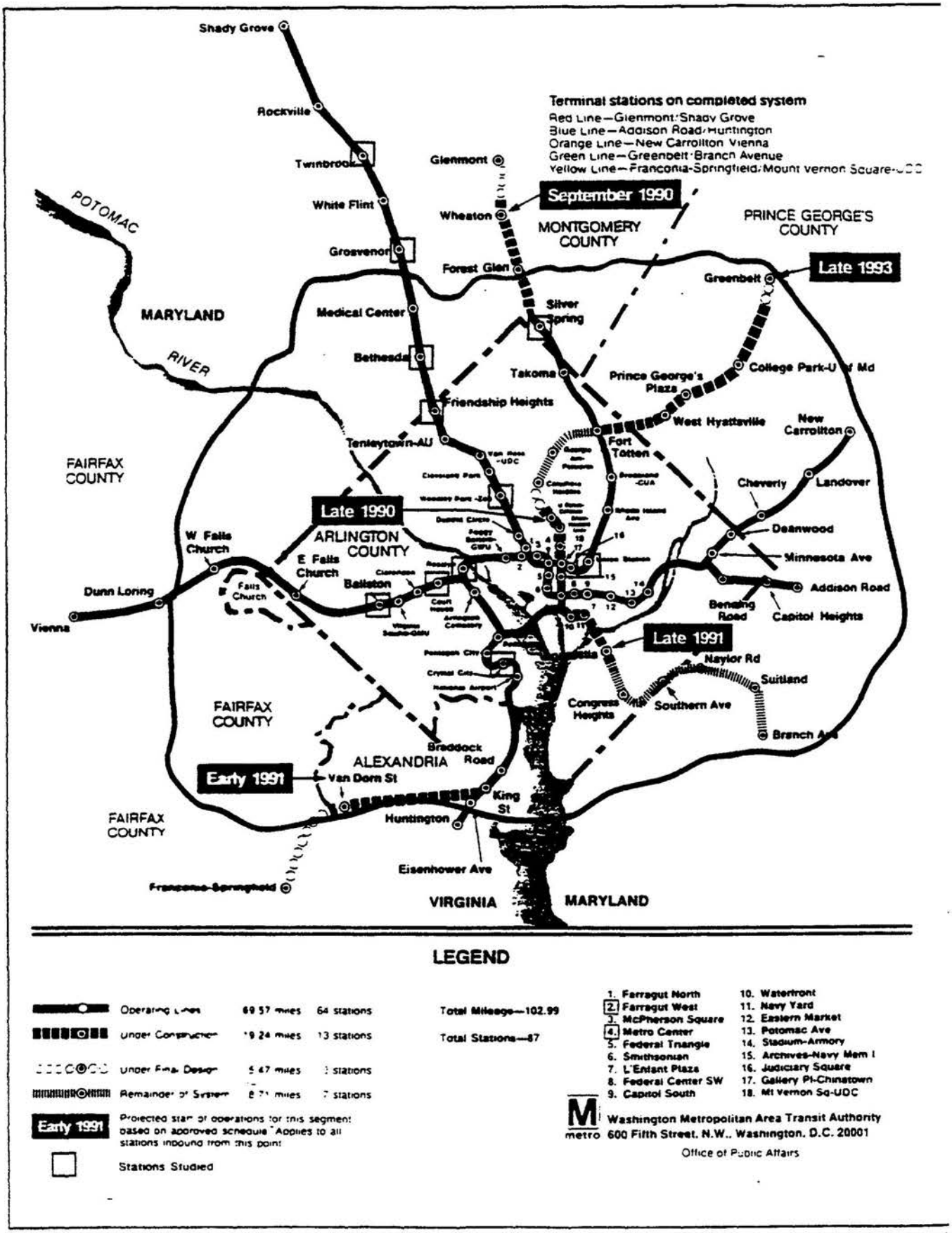


Figure 1. Metrorail System Map and Stations Studied

Table 1. Site Survey
Building Inventory Summary

	Office	Retail	Residential	Hotel	TOTAL
Metro Center		2		2	4
Farragut West	1				1
Crystal City	1	2	3	2	8
Courthouse	1				1
Silver Spring	1		2	1	4
Ballston	1	1	1		3
Bethesda	3	1		1	5
Friendship Heights		1			1
Twinbrook	2		1	1	4
Grosvenor			3		3
Union Station		1		1	2
Rosslyn				1	1
Woodley Park/Zoo				1	1
TOTAL	10	8	10	10	38

The sites selected are illustrated in Figures 2 to 13. These maps illustrate the varying distances the selected sites are from the stations. In addition, tables containing brief descriptions of the selected sites, with the numbers corresponding to the numbers shown on each map are included with the discussion for each land use. Numbers were assigned sequentially based on initial selections.

Contacting the building managers or leasing agents was the next step in the survey process. During the initial site inventory, basic information on each site (e.g. an estimate of size, proximity to Metro, etc.) was collected. Occasionally, management companies were reluctant to grant permission, stating they would not like to inconvenience their tenants or patrons. However, a thorough explanation of the study stressing that participation was voluntary on the part of each tenant or patron usually satisfied most building managers. Some managers preferred to have the request to conduct the survey in writing. The letter developed to give those building managers who requested additional information is contained in the appendix.

Unfortunately, not all of the initially selected sites were willing to participate in the survey. Replacement sites were chosen on an individual basis to provide the necessary balance in site characteristics. These sites were chosen in conjunction with WMATA. All data was collected during March and April 1989.

Sites were not re-numbered when alternate sites were chosen. All sites are shown on the maps including those that were dropped.

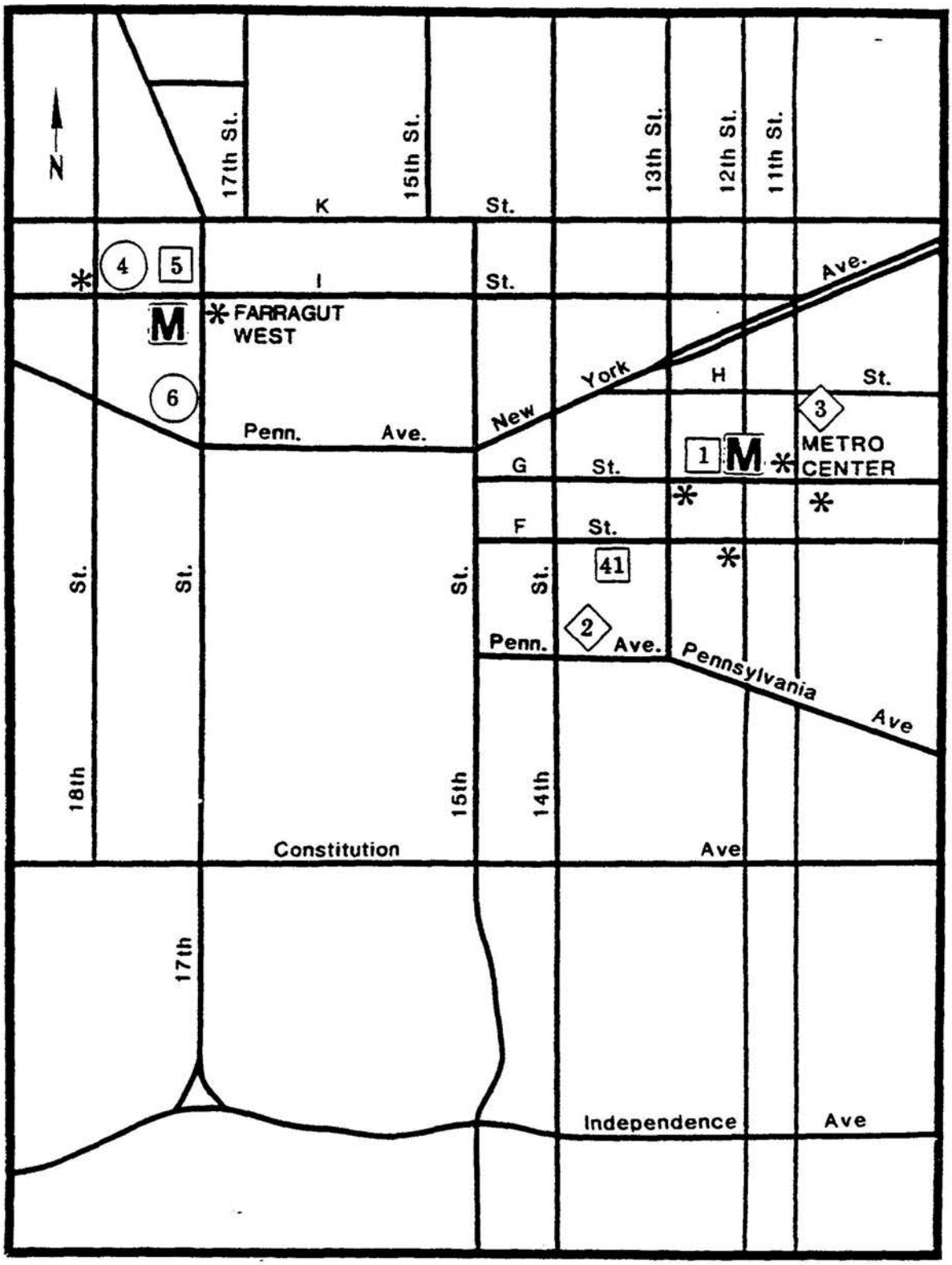


Figure 2. Farragut West/Metro Center

office ▢ retail ✱ entrance location

△ residential ◇ hotel

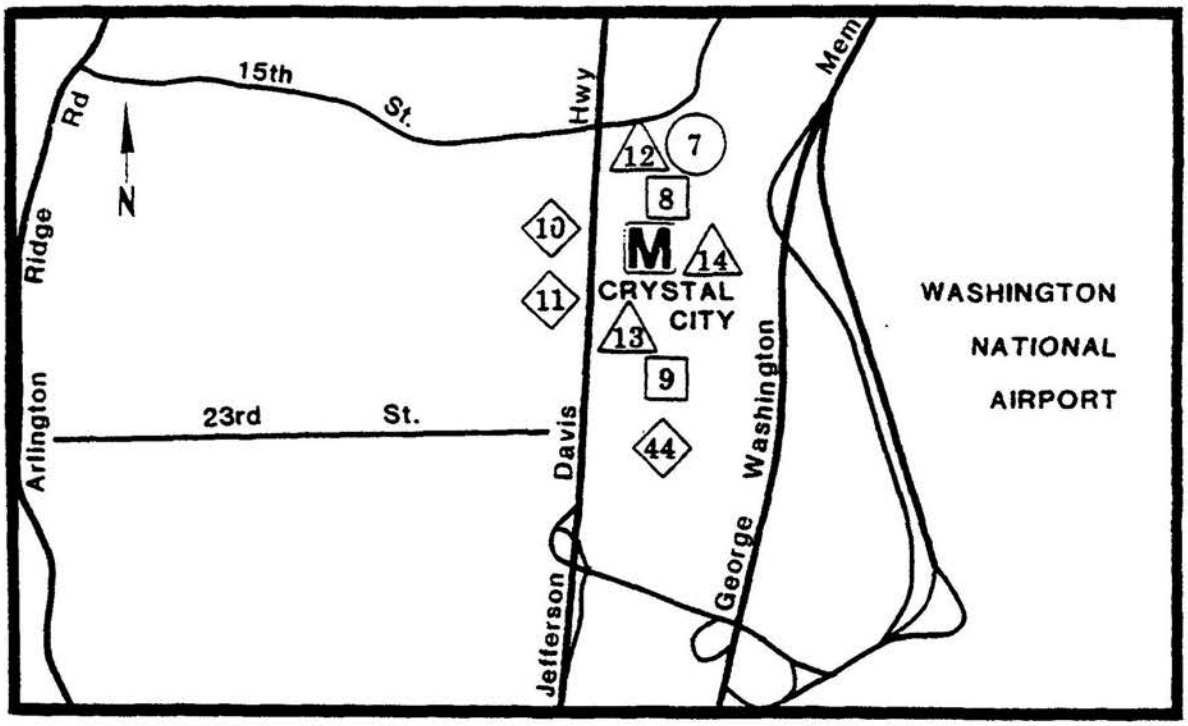


Figure 3. Crystal City

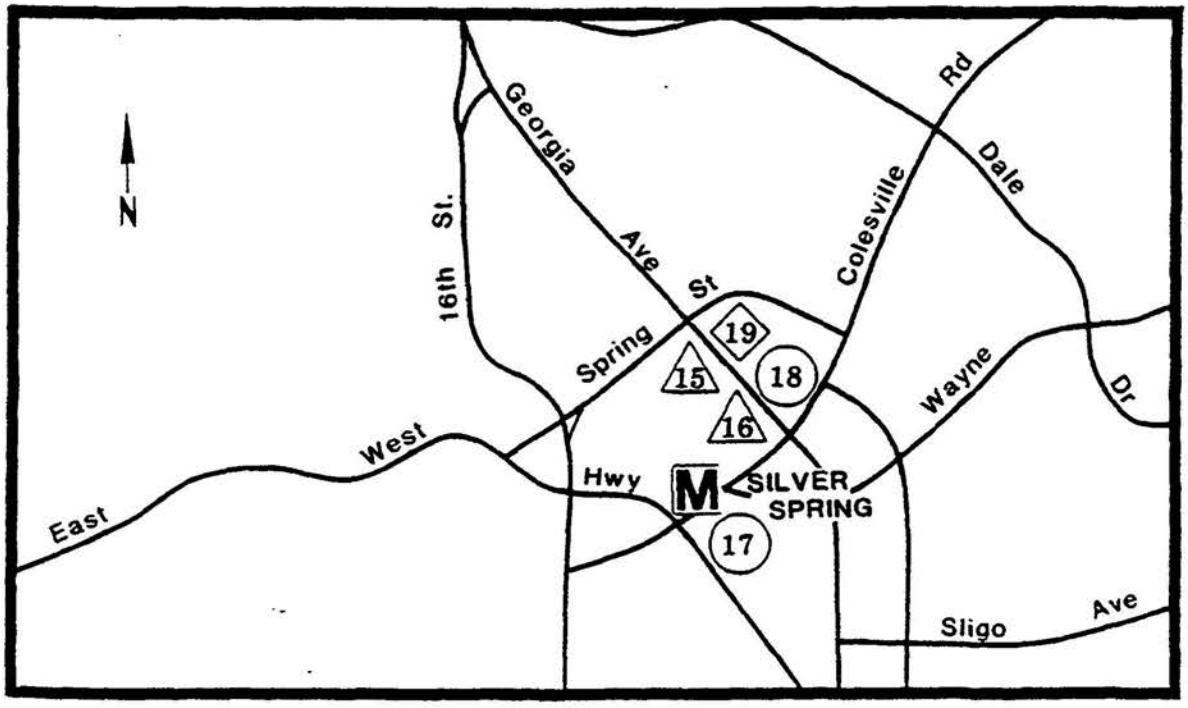


Figure 4. Silver Spring

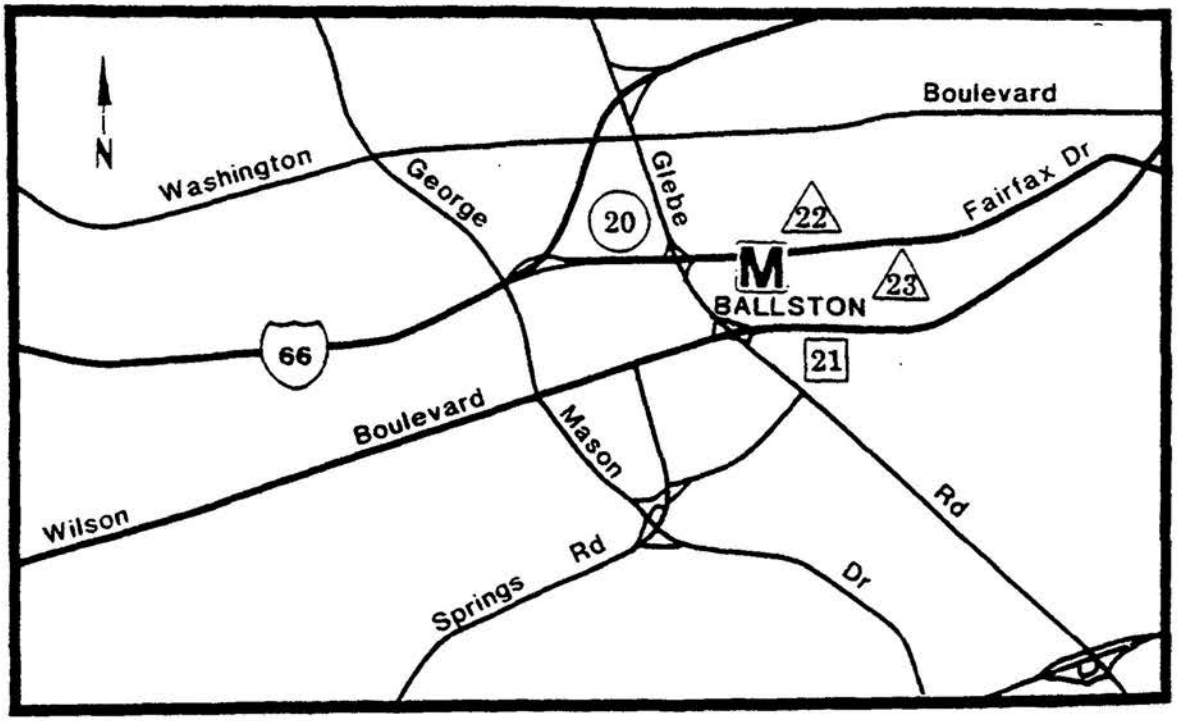


Figure 5. Ballston

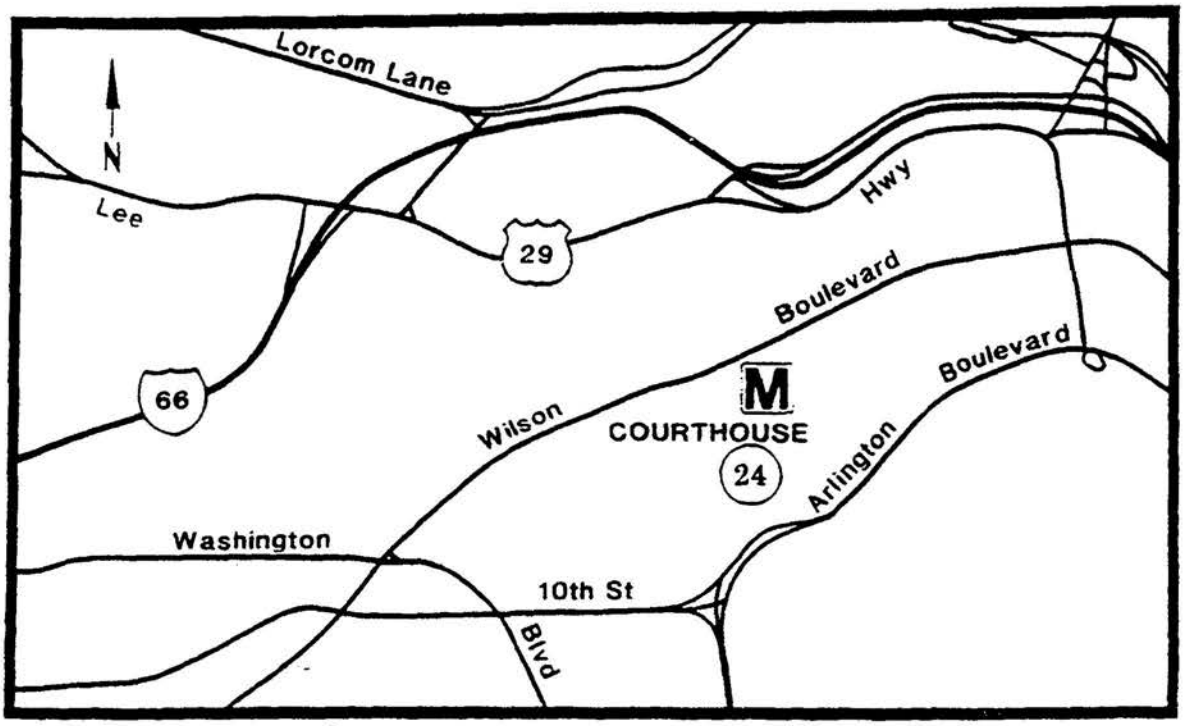


Figure 6. Courthouse

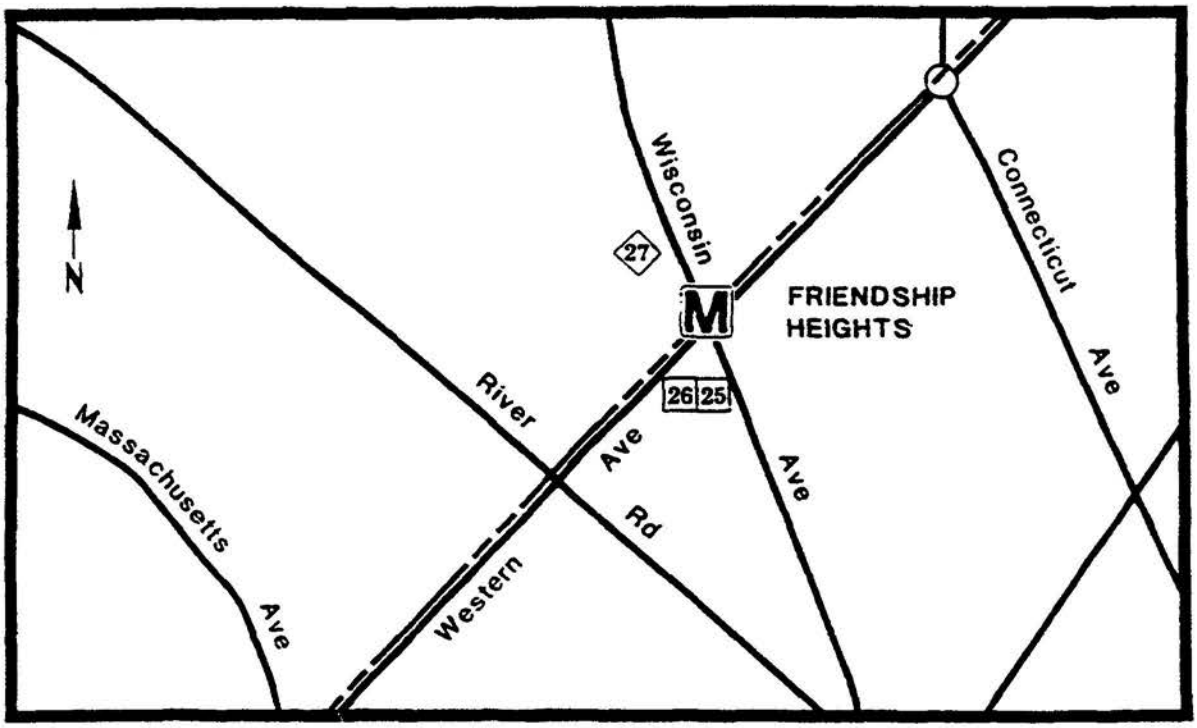


Figure 7. Friendship Heights

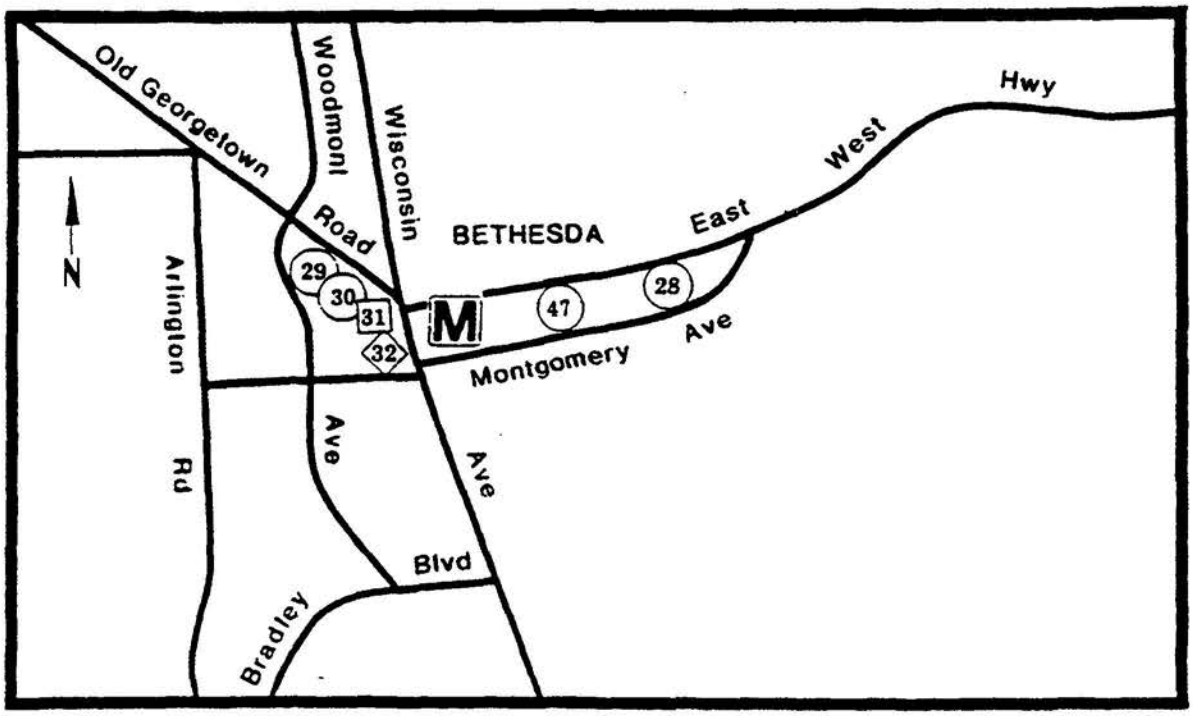


Figure 8. Bethesda

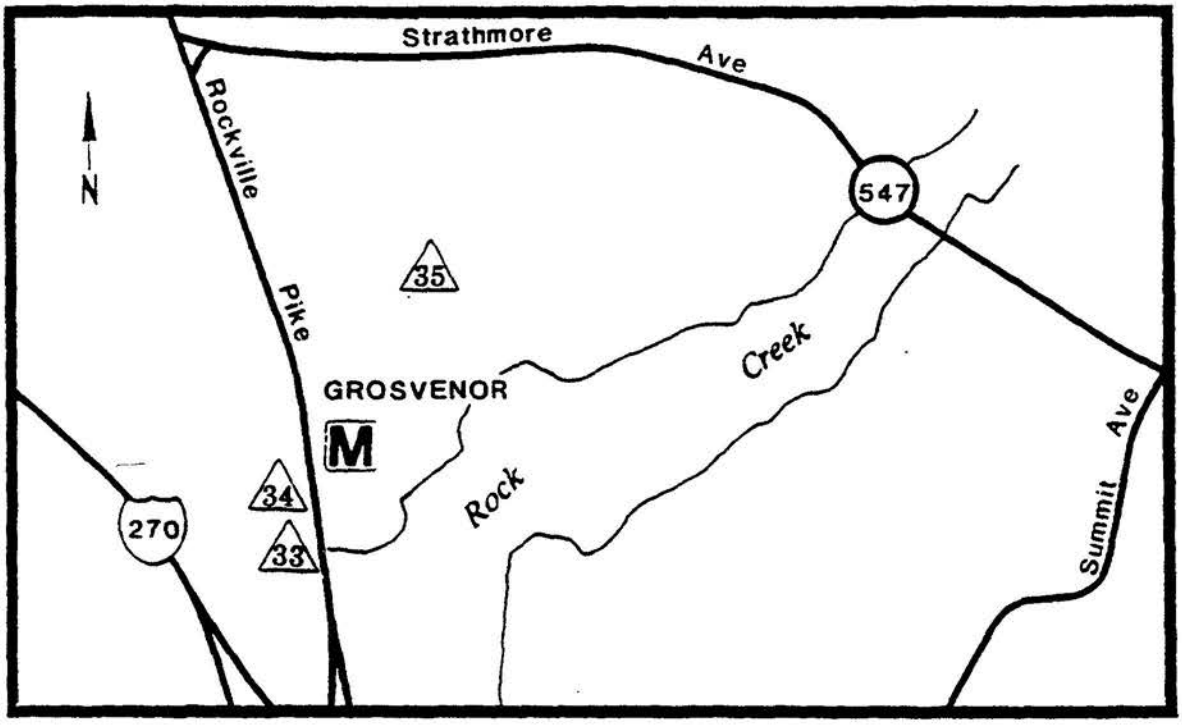


Figure 9. Grosvenor

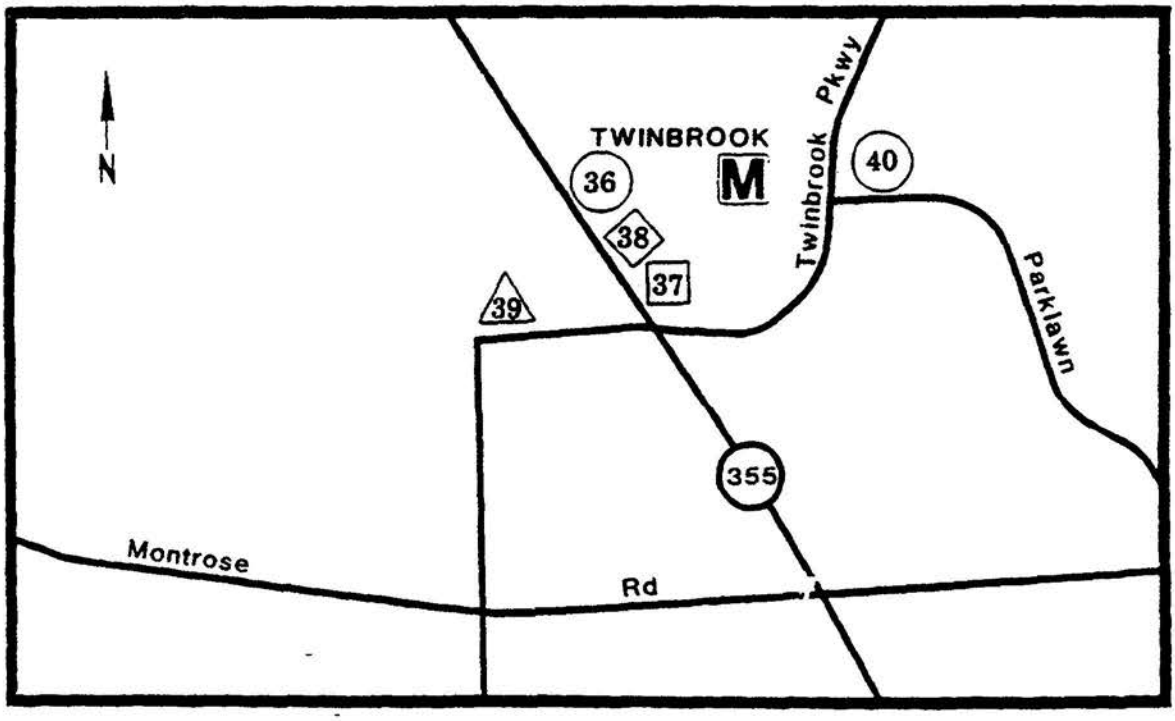


Figure 10. Twinbrook

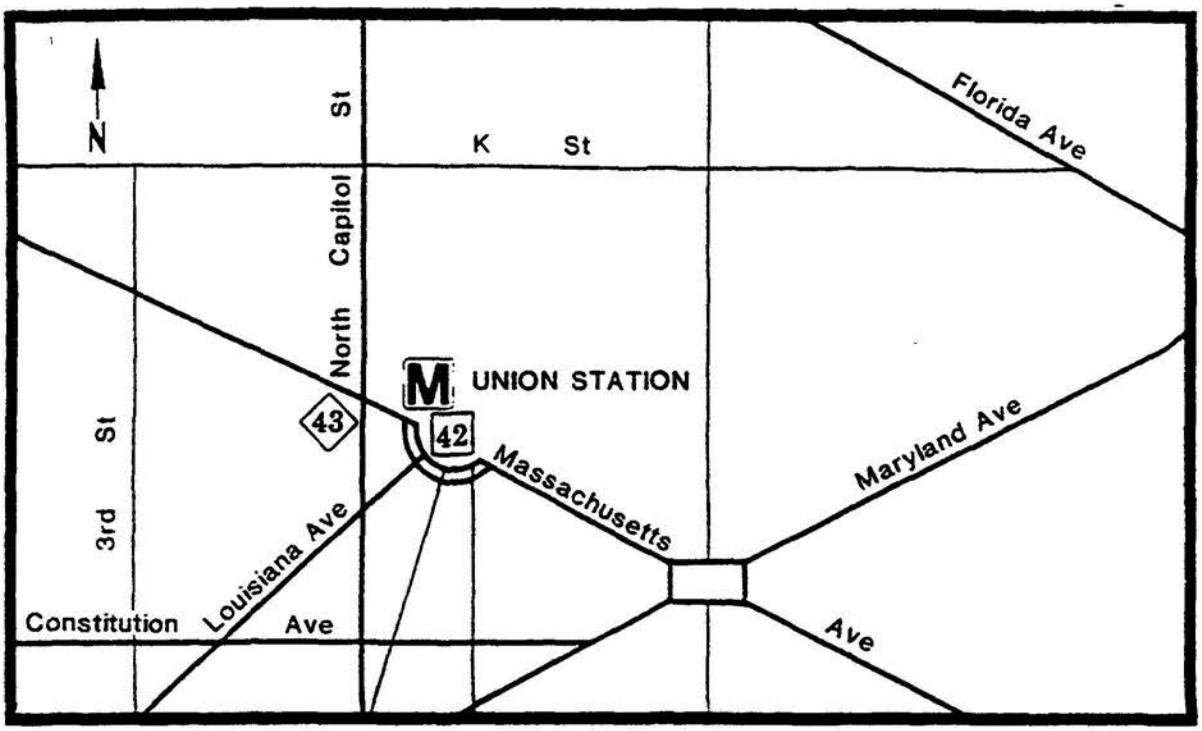


Figure 11. Union Station

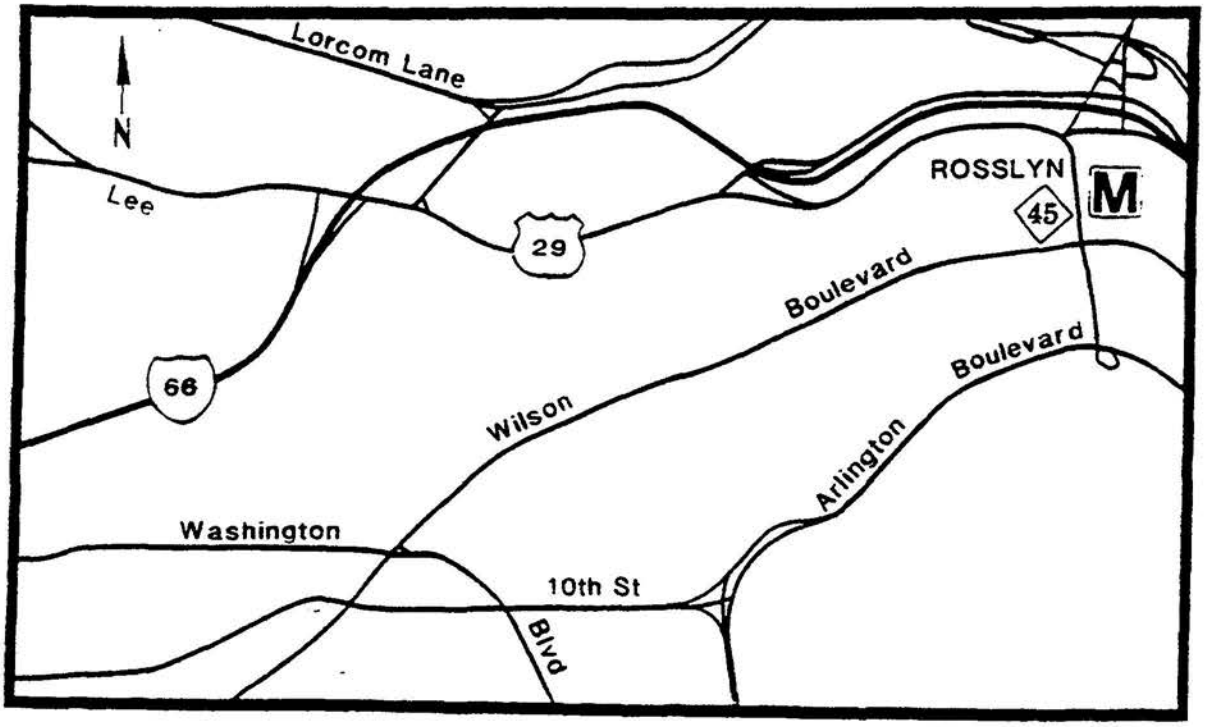


Figure 12. Rosslyn

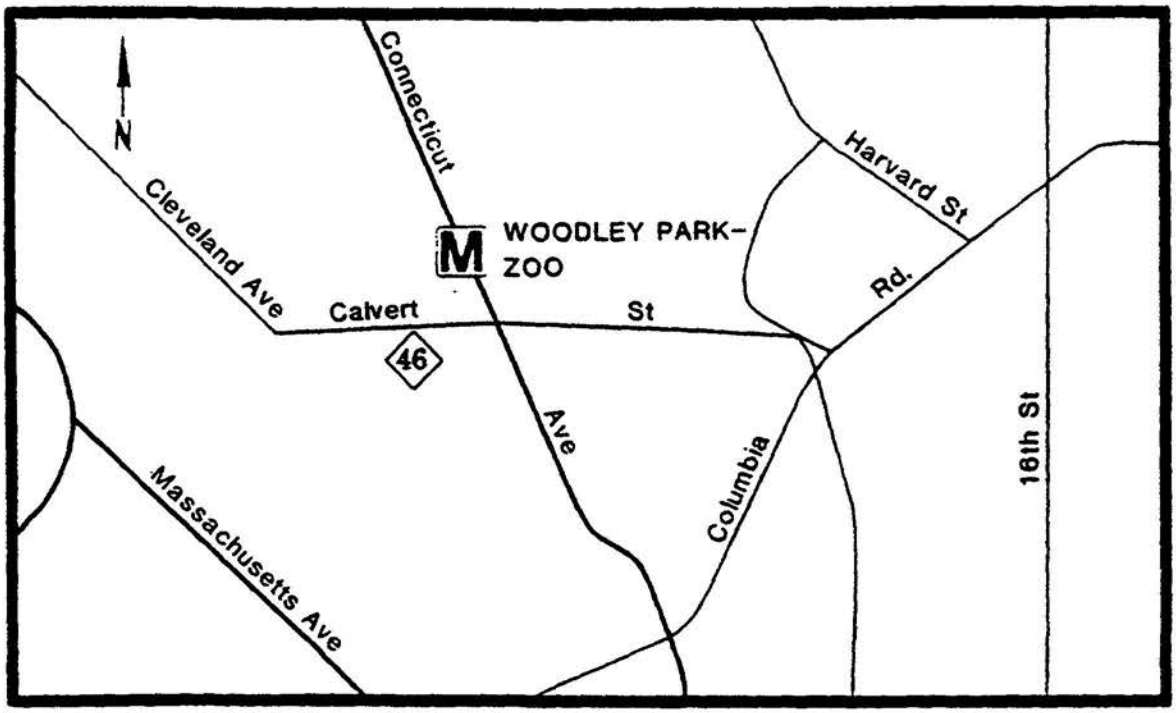


Figure 13. Woodley Park-Zoo

SURVEY PROCEDURES AND RESULTS

The survey procedures are described below for office, residential, retail, and hotel sites. A critical element of the study involved consistency with the first set of data in order that the testing and validity of the data could be accomplished without introducing any inconsistencies. The survey forms for this study were modified only slightly from those used in the 1987 study. The most significant additions in this survey were questions relating to linked trips (trips that have an indeterminate destination) and attitudes towards transit. Also, significantly more pedestrian counts were undertaken in this study with cordon counts completed at most sites.

OFFICE

Ten office buildings, varying from 100 to 2,000 feet in distance from the various Metrorail station entrances were selected for study. Table 2 provides the characteristics for each office building. At these offices, approximately 9,500 workplace surveys were distributed with slightly less than one third responding.

Data Collection

In order to determine the travel characteristics of office employees, a survey form was developed for distribution in the workplace. The objective of the survey was to determine the mode split and other travel characteristics of office employees. A sample workplace questionnaire is contained in the appendix. Demographic data were acquired first, followed by information on trips to and from the building, and then respondents' attitudes toward transit.

The questionnaires were delivered to individual employers by project staff. The staff personally visited each office to explain the survey procedure and distribute enough forms for each employee to respond. Also, a letter from WMATA explaining the purpose of the survey was left with the employer's contact person. A copy of the letter is contained in the appendix. In several cases, the building manager distributed a memo to inform tenants that the survey was to be conducted. After the surveys were distributed, the employees were asked to return them to the employer's contact person within two days. On approximately the third day the completed questionnaires were picked up by project staff. This procedure was altered at the Bell Atlantic and Parklawn buildings at the request of their management. At both buildings the survey