APPLICATION ACCEPTED: November 14, 2008
PLANNING COMMISSION: April 15, 2009
BOARD OF SUPERVISORS: Not yet scheduled

County of Fairfax, Virginia

April 1, 2009

STAFF REPORT

APPLICATION SEA 85-D-033-02

DRANESVILLE DISTRICT

APPLICANT:	Metropolitan Washington Airports Authority (MWAA) and the Virginia Department of Rail and Public Transportation (DRPT)
PRESENT ZONING:	R-1 and R-2
PARCEL:	40-1 ((1)) 25B and 40-3 ((1)) 85, 86, 91A and 93B
ACREAGE:	39.16 acres
FLOOR AREA RATIO:	0.17
PLAN MAP:	Public Facilities, Governmental and Institutional
SE PROPOSAL:	Category 4: Electrically-powered regional rail transit facilities) to permit site improvements.

STAFF RECOMMENDATIONS:

Staff recommends approval of SEA 85-D-033-02, subject to the development conditions contained in Appendix 1.

Staff recommends approval of the modification of the transitional screening and waiver of the barrier requirements along the northern property line in favor of that shown on the SEA Plat.

Staff recommends approval of a waiver of the Comprehensive Plan trail requirement along Idylwood Road.

St.Clair Williams

Department of Planning and Zoning
Zoning Evaluation Division
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5509
Phone 703-324-1290 FAX 703-324-3924
www.fairfaxcounty.gov/dpz/

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendations of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application.

For information, contact the Zoning Evaluation Division, Department of Planning and Zoning, 12055 Government Center Parkway, Suite 801, Fairfax, Virginia 22035-5505, (703) 324-1290.

O:\SWILLI\SEA\SEA 85-D-033-02 MWAA-VDOT\Staff Report\Final Staff Report.doc

WEST FALLS CHURCH YARD

DULLES CORRIDOR METRORAIL PROJECT

Dranesville District Fairfax County, Virginia

Special Exception Plat

Applicant:
Metropolitan Washington Airports Authority
and
Virginia Department of Rail and Public Transportation
on behalf of the Washington Metropolitan Area Transit Authority
1593 Spring Hill Road, Suite 300
Vienna, VA 22182

Sheet Index

West Falls Church Yard
Dulles Corridor Metrorail Project
Special Exception Plat

Dewberry

Dewberry & Davis LLC

DRPT

DULLES TRANSIT PARTNERS, LLC

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Revised March 4, 2009
July 15, 2008

M-10682

WEST FALLS CHURCH YARD

Dulles Corridor Metrorail Project

SPECIAL EXCEPTION PLAT

Dewberry

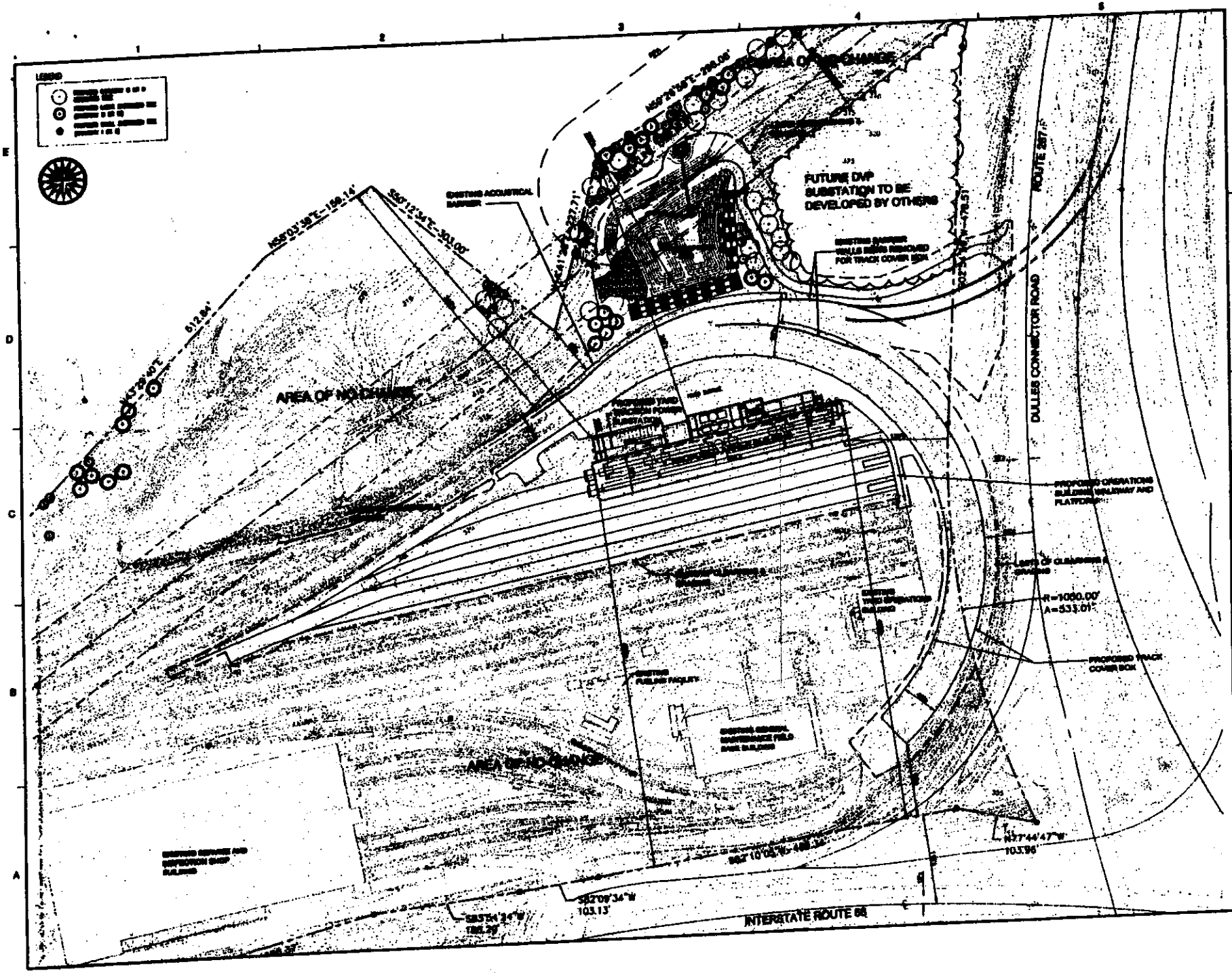
DULLES TRANSIT PARTNERS, LLC

West Falls Church Yard

Dulles Corridor Metrorail Project

Special Exception Plat

2



Dewberry

WEST FALLS CHURCH YARD
Dulles Corridor Metrorail Project
SPECIAL EXCEPTION PLAT

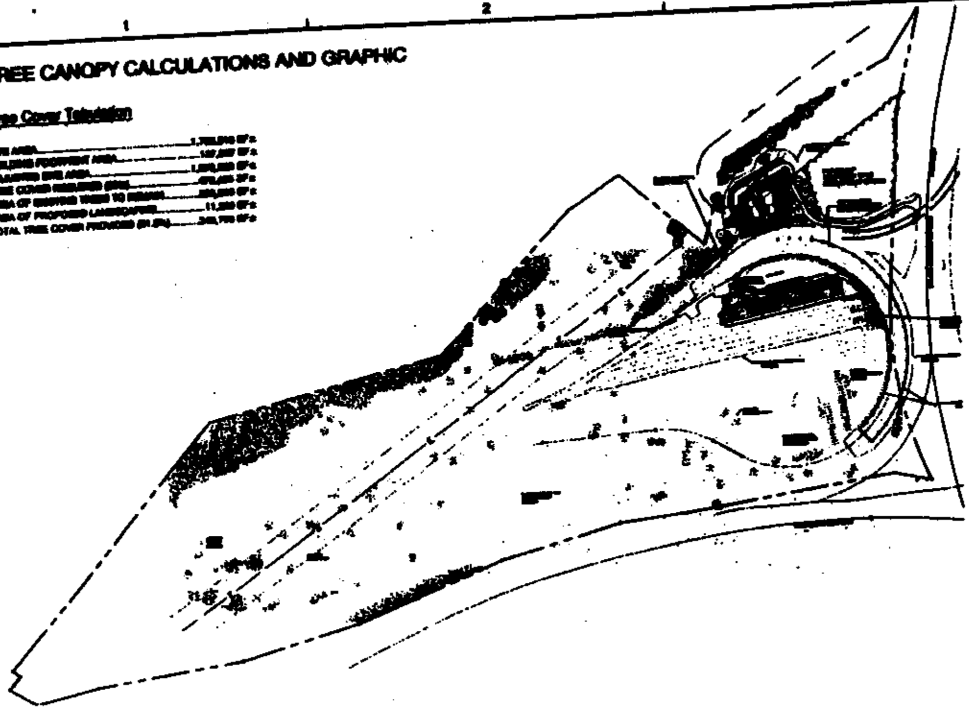
West Falls Church Yard
Dulles Corridor Metrorail Project

Special Exception Plat

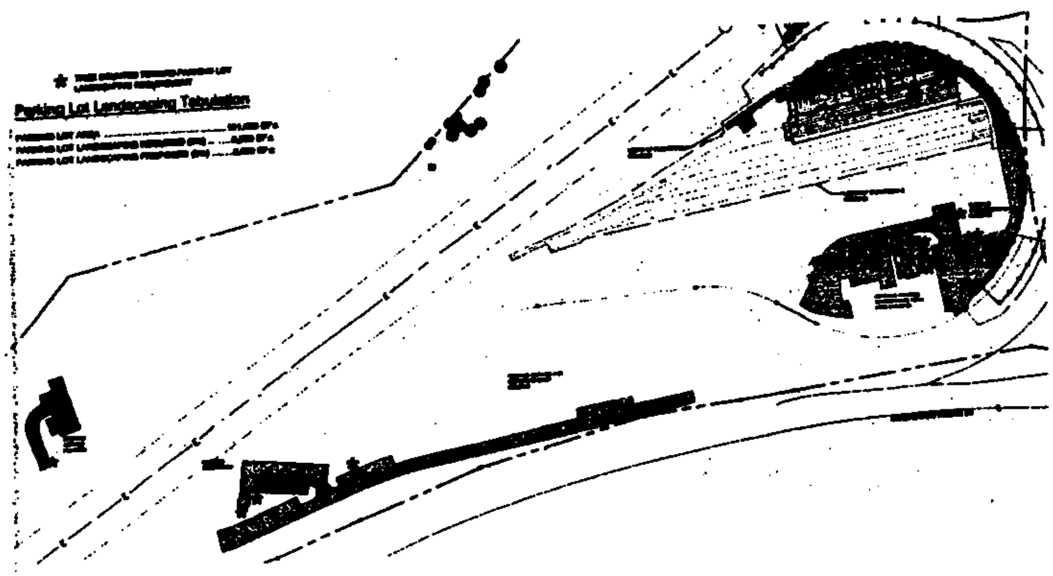
3

TREE CANOPY CALCULATIONS AND GRAPHIC

Tree Cover Tabulation

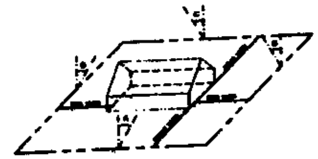


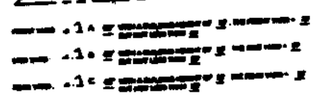
Parking Lot Landscaping Tabulation



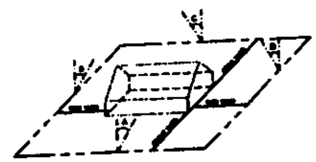
INTERIOR PARKING LOT LANDSCAPING CALCULATIONS AND GRAPHIC

NOTES:





ANGLE OF BULK PLANE FOR R-1 DISTRICT



ANGLE OF BULK PLANE FOR R-2 DISTRICT

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WEST FALLS CHURCH YARD

Dulles Corridor Metrorail Project

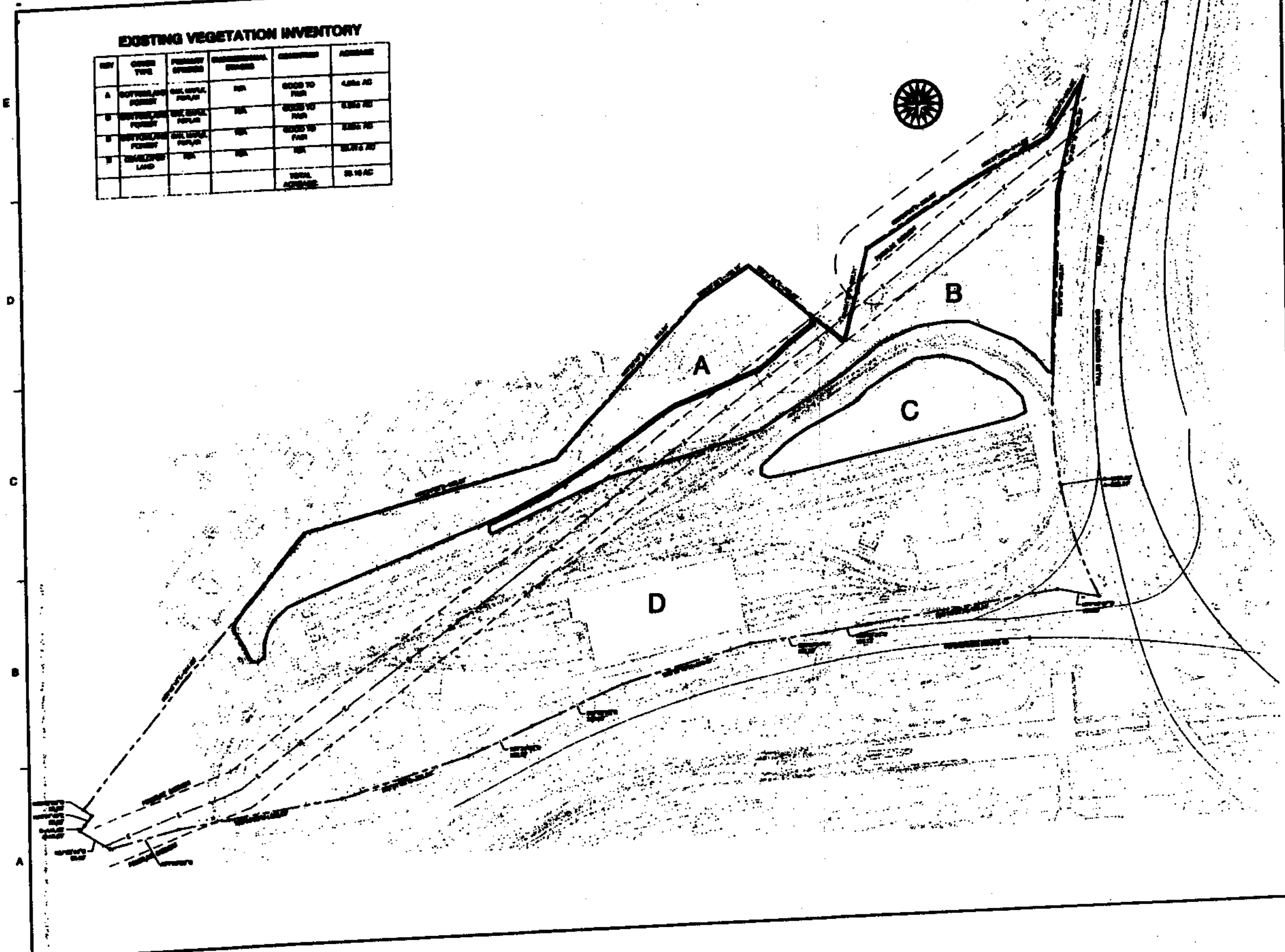
SPECIAL EXCEPTION PLAT

West Falls Church Yard

Dulles Corridor Metrorail Project

Notes & Tabulation

4



EXISTING VEGETATION INVENTORY

KEY	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGES	CONDITION	ACREAGE
A	BOTTOMLAND FOREST	OAK, MAPLE, POPLAR	N/A	GOOD TO FAIR	[illegible] AC
B	BOTTOMLAND FOREST	OAK, MAPLE, POPLAR	N/A	GOOD TO FAIR	[illegible] AC
C	BOTTOMLAND FOREST	OAK, MAPLE, POPLAR	N/A	GOOD TO FAIR	[illegible] AC
D	DEVELOPED LAND	N/A	N/A	N/A	[illegible] AC
				TOTAL ACREAGE	[illegible] AC

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Dewberry & Davis LLC

DULLES TRANSIT PARTNERS, LLC

WEST FALLS CHURCH YARD

Dulles Corridor Metrorail Project

SPECIAL EXCEPTION PLAT

West Falls Church Yard

Dulles Corridor Metrorail Project

Existing Vegetation Map

M-10682

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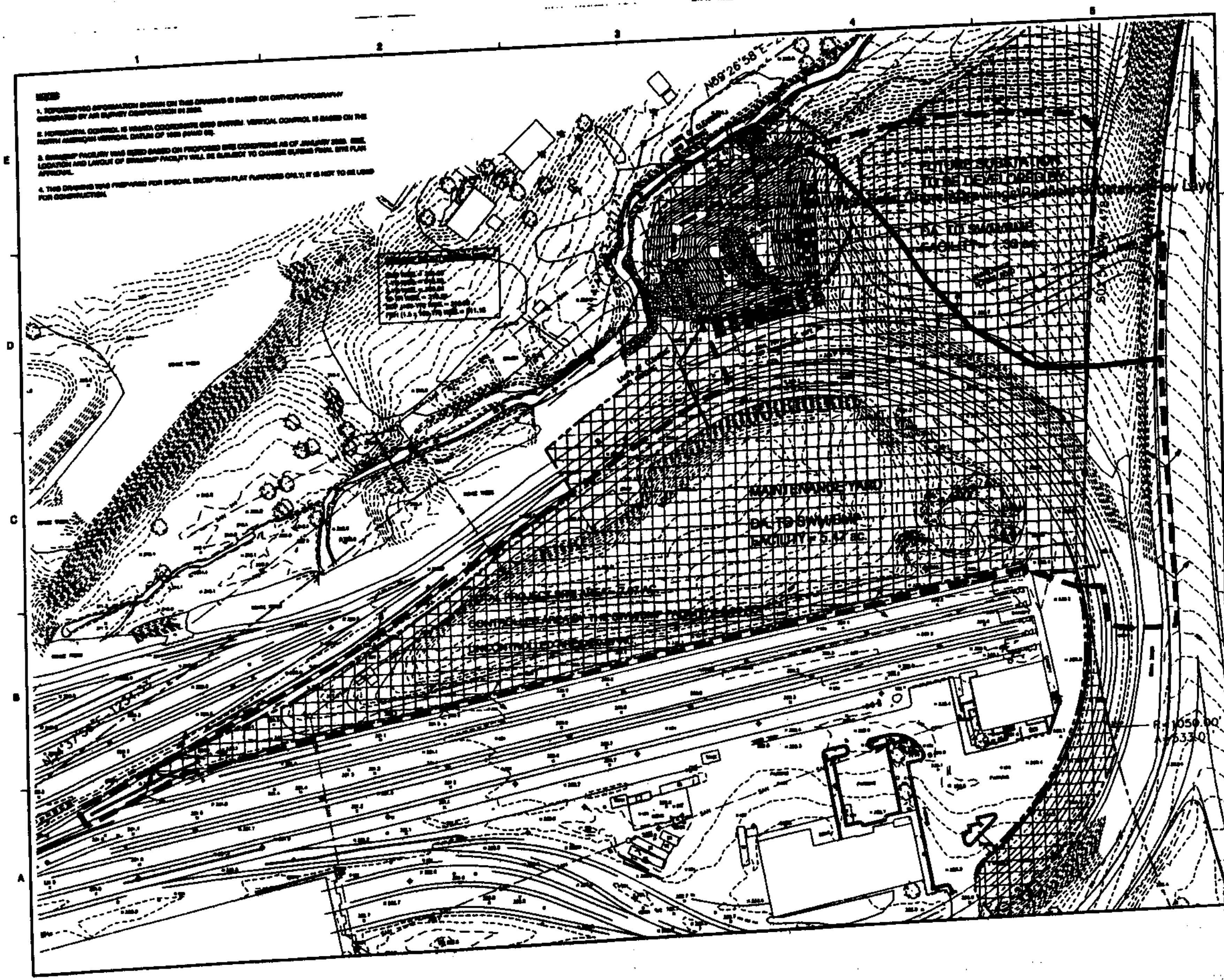

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Dewberry & Davis LLC

DULLES TRANSIT PARTNERS, LLC

WEST FALLS CHURCH YARD

Dulles Corridor Metrorail Project

SPECIAL EXCEPTION PLAT

DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE IN FEET

West Falls Church Yard
Dulles Corridor Metrorail Project

SWM/BMP FACILITY Grading

M-10882

6

6 of 10

M-10882

Preliminary Stormwater Management (SWM), Best Management Practices (BMP) Narrative

1. Pre-Developed Conditions

This site is presently used as a Yard Maintenance and Rail Car Storage facility by the Washington Metropolitan Area Transit Authority and is zoned R-1 and R-2. [illegible] The adjacent properties are residential to the north and west. The site is bordered by the Dulles Access Road to the east and Interstate 66 to the south. This site drains generally to the [illegible] This site lies in the Pimmit Run watershed. [illegible] north. The runoff is collected in a storm drain system that flows to an existing SWM facility, which is located north of the site. The outflow from this existing SWM facility is discharged into a channel that conveys the flow to the east to its confluence with Pimmit Run.

2. Post-Developed Conditions

The proposed project consists of the construction of additional rail car storage tracks, sound enclosure, a maintenance building and a parking area. The proposed project will be located on an unoccupied area [illegible] connecting the existing storage facilities with the Orange line tracks that are currently [illegible] along Interstate 66. The area to be used for the proposed project is currently a large depression that will be filled completely to allow the construction of these facilities. The runoff generated by the tracks, building and associated parking [illegible] and the sound enclosure for the existing track will be collected and routed to a new SWM / BMP facility located to the north of the proposed project site. The new SWM / BMP facility will drain to the channel downstream of the existing SWM facility. The new SWM / BMP facility will collect most of the new impervious areas of approximately 5.47 ac. from the additional tracks and building and approximately 1.33 ac. from an electrical substation to be developed by others.

3. Hydrologic Design Criteria

A storm hydrograph was constructed using the Natural Resources Conservation Service (NRCS, formerly SCS), 24-hr duration, Type II rainfall distribution for all storm events. The rainfall frequency depths for a 24-hour storm event were obtained from Table 6.23 Storm Volume in inches of Rainfall of Fairfax County Public Facilities Manual (PFM). The U.S. Army Corps of Engineers HEC-1 computer program was used to compute forested condition and post-developed condition discharges.

According to PFM, the 24-hour design storm for Spillway Design Flood (SDF) and Freeboard Hydrograph (FBH) are 100-year and 1.5x100-year storm, respectively. Due to the height and the reservoir type, the proposed pond is classified as Type C based on PFM Plate no. 64-6. Using the same storm duration and storm distribution for SDF and FBH, the emergency spillway was designed to pass SDF with a minimum freeboard of 2 feet above the SDF elevation. The top of dam elevation was also design above the water-surface elevation resulting from routing the FBH. The SDF and FBH were routed through the impoundment assuming that no storage is available below the emergency spillway crest and that the riser (principal spillway) is inoperative or clogged.

4. Analysis of Stormwater Outfall

According to the draft of "Guideline to Stormwater Outfall Analysis", dated on March 8, 2000 and the Analysis of Downstream Drainage System in Fairfax County Public Facility Manual (PFM), the "Detention Method" (§ 6-0203.4C) is allowed to be used to analyze stormwater outfalls and to alleviate adverse impacts due to erosive velocity or over-bank flooding. The detention method requires extended detention of the 1-year storm volume for a minimum of 24 hours. If extended detention of the BMP volume also is provided, the 24 hours shall be applied to the difference between the 1-year storm volume and the BMP volume, and the 2-year and 10-year post-development peak rates of runoff from the development site shall be reduced below the respective peak rates of runoff for the site in good forested condition. This reduction results in a proportional improvement and is computed as follows:

$$Ri = [1 - (Vf / Vd)] X 100 \text{ where,}$$

Ri = Reduction of Peak Flow Below a Good Forested Condition (%)
Vf = Runoff Volume from the Site in a Good Forested Condition
Vd = Runoff Volume from the Site in a Post-Developed Condition

5. Stormwater Management (SWM)

The proposed SWM/BMP facility is preliminary designed as an extended detention dry pond with a sediment forebay for water quality and for adequacy of the outfall channel to conform to Fairfax County's PFM section 6-0203. The pond is located to the north of the project site. In addition to the pond, approximately 700 ft. of 72" dia. underground pipes are provided for detention. A sediment forebay is designed in accordance with Minimum Standard 3.04 of the Virginia SWM Handbook. A concrete riser structure is designed as a principal spillway. BMP and 1-yr. detention orifices are sized for 48-hour and 24-hour drawdown time per requirements. The riser is also designed to control 2-yr and 10-yr. storm events below a good forested condition using the Detention Method. The Detention Method calculation is shown on this sheet. A separate emergency spillway is designed to pass the SDF (100-yr) with a minimum 2 feet of freeboard and the FBH without overtopping the top of the embankment.

The following summary tables are provided to show that the detention requirements are met.

Detention Summary

	Drainage Area (ac.)	Peak Discharge (cfs) 2-Yr.	10-Yr.
Allowable Release Rate from Dry Pond	7.87	3	11
Peak Rate Into Dry Pond	6.80	24	44
Peak Rate out of Dry Pond	6.80	1	5
Over-Detention Provided		2	6

Water Surface Elevation Summary

	WSE (ft.)	Freeboard Provided (ft.)	Top of Riser (ft.)	Crest of E.S.W. (ft.)	Top of Dam (ft.)
2-Yr.	308.84	4.90	310.35	310.80	313.00
10-Yr.	310.35	2.65			
100-Yr. (SDF)*	310.80	2.81 (2 ft. required)			
1.5 x 100-Yr. (FBH)*	311.16	1.84			

SDF – Spillway Design Flood
FBH – Freeboard Hydrograph

* Considering the riser is clogged and no storage below the emergency spillway elevation (310.80).

6. Water Quality/Best Management Practices (BMP)

The total project site area for BMP computations is 7.87 ac. An approximate drainage area of 6.80 ac. is treated by the SWM/BMP facility and an approximate onsite area of 0.27 ac. is untreated. In accordance with current Fairfax County and Virginia Stormwater Management Handbook design criteria, the extended detention dry pond with a sediment forebay will provide at least 40% phosphorus removal. BMP Calculations using the Occoquan Method according to Northern Virginia BMP Handbook are shown on this sheet. The total phosphorus removal for the site is 40%. The phosphorus removal required for this part of the County is 40%. Therefore, the BMP requirement for this project site is met.

BMP Facility Design Calculations

Plan Name: West Falls Church Maintenance Yard
Plan Number:
Engineer: PP
Date: [illegible]

[illegible]

Part I: List all of the Subareas and "C" Factors used in the BMP Computations

[illegible]

Part II: Compute the Weighted Average "C" Factor for the Site

[illegible]

Part III: Compute the Total Phosphorus Removal for the Site

[illegible]

Part IV: Determine Compliance with Phosphorus removal requirements

[illegible]

Part V: Compute the Weighted Average "C" Factor for each Proposed BMP Facility

[illegible]

Part VI: Determine the storage required for each facility

[illegible]

Part VII: Determine the required orifice size for each extended detention facility

[illegible]

[illegible]

Dewberry

Dewberry & Davis LLC

DULLES TRANSIT PARTNERS, LLC

WEST FALLS CHURCH YARD
Dulles Corridor Metrorail Project
SPECIAL EXCEPTION PLAT

DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: N/A

DRAWN BY: PP
DATE: JULY 15, 2009

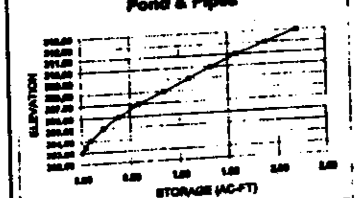
West Falls Church Yard
Dulles Corridor Metrorail Project

SWM/BMP COMPUTATIONS

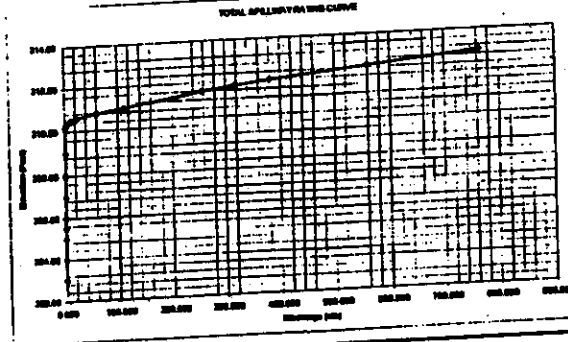
PROJECT NO. M-10682

7

Pond & Pipes



TOTAL SPILLWAY RATING CURVE



Dewberry

Dewberry & Davis LLC

DULLES TRANSIT PARTNERS, LLC

WEST FALLS CHURCH YARD

Dulles Corridor Metrorail Project

SPECIAL EXCEPTION PLAT

DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE

N/A

No.	DATE	BY	Description
1	03.04.08	JAG	No Change

DESIGNED BY PP

APPROVED BY PM

CHECKED BY

DATE JULY 18, 2008

TITLE
West Falls Church Yard
Dulles Corridor Metrorail Project

SWM/BMP COMPUTATIONS

PROJECT NO. M-10682

8

SHEET NO. 8 of 10

M-10682

SPILLWAY DESIGN FLOOD (SDF) & FREEBOARD HYDROGRAPH (FBH)

HEC-1

HEC-1

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WEST FALLS CHURCH YARD
Dulles Corridor Metrorail Project
SPECIAL EXCEPTION PLAT

West Falls Church Yard
Dulles Corridor Metrorail Project

SWM/BMP COMPUTATIONS

9

West Falls Church Yard Outfall Narrative

The [illegible] of the West Falls Church Yard Dulles Corridor Metrorail Project is located in the [illegible] watershed. The site is located west of, and adjacent to, the Washington Dulles Access and Toll Road (Route 267). It is proposed to expand the existing yard by the addition of [illegible]. The proposed improvements include construction of an extended detention facility located immediately north of the proposed improvements.

Description of Existing Outfalls

The West Falls Church Yard Improvements will be developed so that it has a single outfall. Runoff from the site will drain through a piped storm drainage system to the proposed extended detention facility, which will discharge through a [illegible] natural channel with defined bed and banks. The drainage area to the extended detention facility will be [illegible] acres. The total project site area is 7.87 acres.

The project site drains into an outfall channel that has an approximate drainage area of 254 acres shown as Point 1 on the map on this sheet. From this confluence, the channel flows approximately [illegible] feet in a [illegible] direction to [illegible] diameter concrete pipes under Route 267. Based on field observations, this channel has a [illegible], [illegible]-10-foot bottom width, 15-20-foot top width, and [illegible] depth. The side slopes are steep ranging from near vertical banks to 1:1 and exhibit signs of erosion. The pipes under Route 267, which have a length of 270 feet, have a paved inlet and discharge to a trapezoidal concrete channel. At the confluence, this concrete channel has drainage area of approximately 440 acres shown as Point 2 on the map on this sheet.

Description of Outfall Adequacy Requirements

The Fairfax County PFM (Public Facilities Manual) describes the downstream extent of review as:

- To a point that is [illegible] at least 150 feet downstream of a point where the receiving pipe or channel is joined by another that has a drainage area that is at least 90% of the size of the first drainage area at the point of confluence; or
- To a point at which the total drainage area is at least 100 times greater than the contributing drainage area of the development site; or
- To a point that is at least 150 feet downstream of a point where the drainage area is 360 acres or greater.

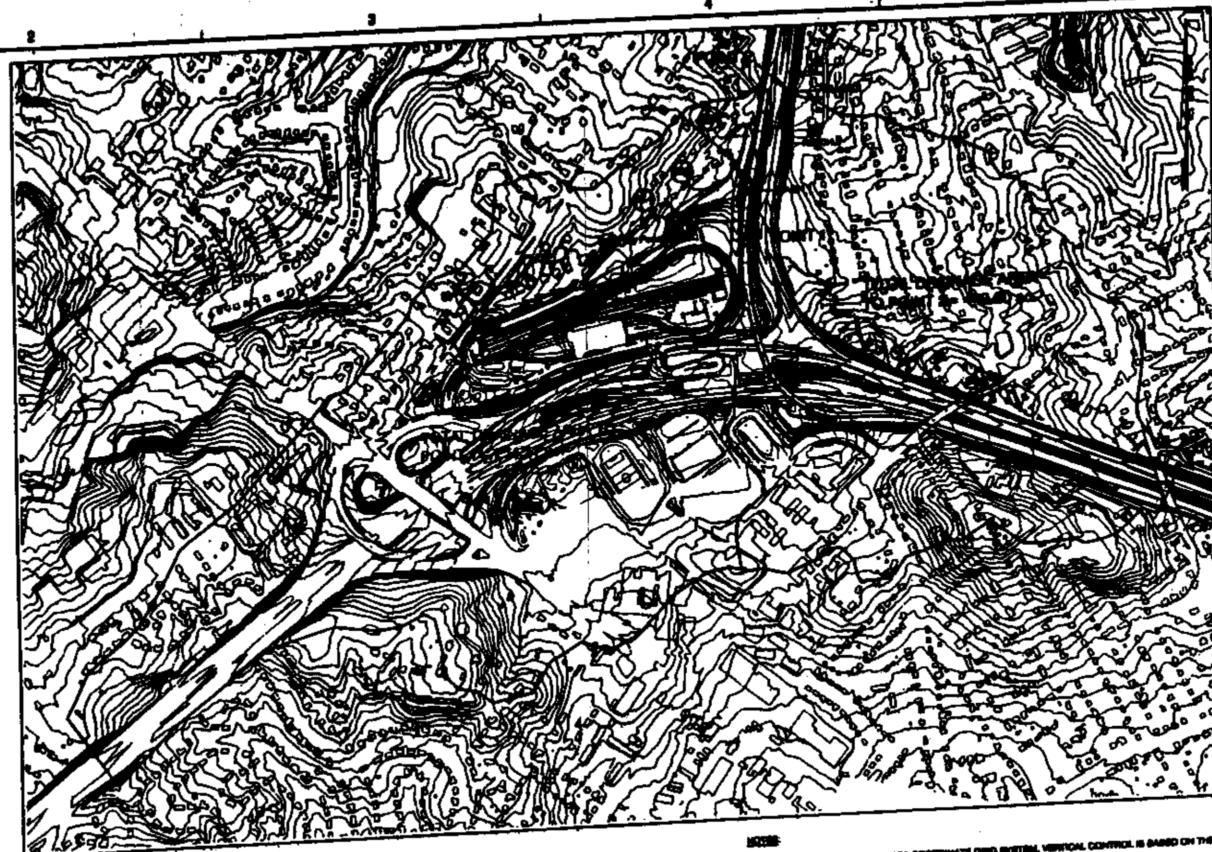
Based on the third criterion, 150 feet downstream of Point 2 represents the downstream extent of review.

The outfall can be broken up into three reaches. Reach 1 is the natural channel between the extended detention facility outfall and Route 267. Reach 2 are the pipes under Route 267. Reach 3 is the trapezoidal concrete channel on the east side of the Route 267.

Field surveyed cross sections have been obtained for Reach 1 at three locations and are shown in the map on this sheet. The stability and capacity adequacy calculations are presented on this sheet. The median particle size of the bed material was determined by visual observation; [illegible] analysis of [illegible] samples were not used. Permissible shear stress was obtained from Chart 1, Plate number 77-6 of the PFM. Adequate stability and capacity were not achieved in Reach 1. According to the draft of "Guidelines to [illegible] Outfall Analyses", dated on March 8, 2006 and the Analysis of Downstream Drainage System in the PFM, the "Detention Method" (§ 6-0203.4C) is allowed to be used to analyze storm water outfalls and to address adverse impacts due to erosive velocity or over-bank flooding. A description of how this method was applied is presented on Sheet 6.

For Reaches 2 and 3, additional field survey will be obtained during final site plan approval to further evaluate adequacy. However, the detention method was used to address the inadequacies of Reach 1 and would address Reaches 2 and 3, if they are determined to be inadequate.

CHANNEL ADEQUACY ASSESSMENT						
τ = γ R S						
D_{50} = 1 in. - Median Particle Size of Bed Material						
Location	Stability (psf)			Capacity (cfs)		
	τ	$τ_p$		Q_p	Q_{cap}	
XS - 1	1.05	0.4	Unstable	279	307	Adequate
XS - 2	1.47	0.4	Unstable	279	460	Adequate
XS - 3	0.97	0.4	Unstable	279	160	Inadequate



NOTES:

1. HORIZONTAL CONTROL IS [illegible] COORDINATE GRID SYSTEM. VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Dewberry

Dewberry & Davis LLC

DULLES TRANSIT PARTNERS, LLC

WEST FALLS CHURCH YARD
Dulles Corridor Metrorail Project
SPECIAL EXCEPTION PLAT

SEAL

KEY PLAN

SCALE

SCALE IN FEET

No.	Date	By	Description
1	03.04.09	[illegible]	No Change

REVISIONS

DESIGN BY: [illegible]

APPROVED BY:

CHECKED BY: [illegible]

DATE: JULY 15, 2008

TITLE
West Falls Church Yard
Dulles Corridor Metrorail Project

Adequate Outfall Analysis

PROJECT NO. M-10682

10

SHEET NO. 10 of 10

M-10682

A GLOSSARY OF TERMS FREQUENTLY USED IN STAFF REPORTS WILL BE FOUND AT THE BACK OF THIS REPORT

DESCRIPTION OF THE APPLICATION

The applicant, Metropolitan Washington Airports Authority (MWAA) and the Virginia Department of Rail and Public Transportation (DRPT), seek to amend the existing Category 4 Special Exception Amendment for an electrically-powered regional rail transit facility in order to permit site improvements to the existing West Falls Church Service and Inspection Yard (WFC Yard). These improvements, which are proposed in order to accommodate train storage and service for the Dulles Corridor Metrorail Extension, include:

- A connection to the WFC Yard from the new tracks of the Dulles Corridor Metrorail extension;
- Additional storage tracks;
- A service and inspection annex building;
- A traction power substation;
- A track cover box;
- A stormwater management facility; and
- Designation of a site for a future Dominion Virginia Power substation.

The proposed site would operate 24 hours per day, 7 days per week and proposes approximately 40 additional employees for a total of approximately 100 employees on site at any one time.

WAIVERS/MODIFICATIONS

The applicant seeks the following waivers and modifications:

- Modification of the transitional screening and waiver of the barrier requirements along the northern property line in favor of that shown on the SEA Plat; and
- Waiver of the Comprehensive Plan, major paved trail shown along the south side of Idylwood Road.

Copies of the proposed development conditions, applicant's affidavit, and applicant's statement of justification are contained in Appendices 1-3 of this report.

LOCATION AND CHARACTER

The site is located on the south side of Idylwood Road, north of I-66 and west of the Dulles Airport Access Road (DAAR). Existing structures and uses on the site include a service and inspection shop, a yard operation building, a plant maintenance building, two tie breaker stations, a traction power substation, a service building, a fueling facility as well as track storage for 148 rail cars.

The following chart identifies the uses located around the site.

SURROUNDING AREA DESCRIPTION			
Direction	**Use**	**Zoning**	**Plan**
North	Residential; Single-family detached (Glenmont Subdivision) & Mount Royal Park	R-2	Residential; 2-3 du/ac & Public Park
North	Residential; Single-family detached (Southampton Subdivision)	R-3	Residential; 2-3 du/ac
South	Interstate 66; Falls Church City Park & George Mason High School	R-1	Public Facilities, Governmental & Institutional
South	Interstate 66; Multifamily Residential (Pavilion & Village Condominiums)	R-30	Mixed Use
East	Dulles Airport Access Road; Residential; Single-family detached (Southampton Subdivision)	R-2	Residential; 2-3 du/ac
West	Residential; Single-family detached (Reddfield Subdivision)	R-2	Residential; 2-3 du/ac

BACKGROUND

Site History (See Appendix 4)

On July 29, 1985, the Board of Supervisors approved SE 85-D-033 to permit the addition of a maintenance building to the existing Washington Metropolitan Area Transit Authority (WMATA) facilities. Copies of the previously approved development condition are contained in Appendix 4.

On September 29, 1986, the Board of Supervisors approved SEA 85-D-033, to amend SE 85-D-033 to permit the addition of acoustical barriers to the existing WMATA facilities. Copies of the previously approved development condition are contained in Appendix 4.

Memorandum of Agreement between the County and the State Letter to County Executive (See Appendix 5)

The planned Dulles Corridor Metrorail extension, including the improvements proposed with this application, is subject to an agreement between Fairfax County and the Commonwealth of Virginia. The Memorandum of Agreement and an accompanying letter from the Secretary of Transportation for the Commonwealth describe how the proposed extension will be implemented. In a letter to Anthony H. Griffin, County Executive, dated June 14, 2007, Pierce R. Homer, Secretary of Transportation for the Commonwealth of Virginia designated the Metropolitan Washington Airports Authority (MWAA) as the project sponsor of this proposed extension. The letter further outlined the continuing role of the state with regard to the implementation of Phase 1 of the planned Metrorail extension to Dulles International Airport (the Project). The letter provided specific guidance on interpretation of the MOU.

Previously, the project sponsor for federal financing from the Federal Transit Administration (FTA) had been the Virginia Department of Rail and Public Transportation (DRPT), which established the Project as a *state* project and, as such, subject to engineering review and approval and permitting by the state through its Department of General Services (DGS). Pursuant to this June 2007 letter, the state committed to assist MWAA in the completion of financing, preliminary engineering, design-build activities, right-of-way acquisition, environmental mitigation, utility coordination and relocation, permitting, intergovernmental agreement and public involvement. DRPT was designated as the project coordinator for the Commonwealth and was required to be co-applicant with MWAA for the approval of the requisite special exceptions and 2232 applications to be submitted to the County. VDOT was designated to assist MWAA with the acquisition of rights-of-way, easements and other land rights needed for the Project.

The Department of General Services (DGS) of the Commonwealth of Virginia was designated as the entity required to perform site plan review and inspections, and to issue all building permits for those portions of the Project located within the County of Fairfax that is not owned by the federal government and/or MWAA. The Department of Conservation and Recreation (DCR) was designated as responsible for reviewing and approving all stormwater management plans, erosion and sediment control plans, land disturbing activity and construction within Chesapeake Bay Preservation areas. The letter further states that the stricter of the two requirements, either the state's or those of Fairfax County, will be utilized by DGS in the review of the engineering plans for the Metrorail extension. The County is required to transmit any development conditions imposed by the Board of Supervisors to DGS, which is charged with informing the County the extent to which the special exception condition were

implemented as part of the site plans for the Project. To the extent that any or all of these special exception development conditions were not addressed by DGS during the process of carrying out its regulatory role for the Project, Fairfax County is permitted access to all approved plans and is permitted to inspect the Project to ensure that the special exception conditions are satisfactorily implemented by the Project. In addition, DGS shall verify that the facilities have conformed with all the requirements for issuance of a Non-Residential Use Permit (Non-RUP) contained in Sect. 18-704 of the County's Zoning Ordinance. The County is also granted access to the Project's facilities to inspect to ensure that all applicable requirements for the issuance of Non-RUPS have been met.

Record of Decision (Appendix 6)

On November 17, 2006, the Federal Transit Administration issued an Amended Record of Decision, stating that the FTA has determined that the Dulles Corridor Metrorail Project had satisfied the requirements for the National Environmental Policy Act (NEPA) of 1969. This determination was based on the Final Environmental Impact Statement (EIS) which was developed to respond to comments and issues raised during the circulation of the Draft EIS and the Supplemental Draft EIS. The Record of Decision noted that the following environmental impacts had been addressed to the extent possible by the Project: property acquisition; land use; historical and archeological resources; wetlands; noise and vibration; traffic and transportation.

The Record of Decision further noted that the Project conforms with Air Quality Plans for the Washington Metropolitan Area, found that the Project conforms with Section 4(f) of the Department of Transportation Act of 1966 which affords protection to features such as parks, wildlife refuges and historic sites by finding that the Project had included all possible planning to minimize impacts to these types of resources. The FTA found that the Project's encroachments on floodplains have been minimized to the extent possible and that the remaining encroachments represent the only practicable alternative, which the Project will continue to try and reduce. The report also states that all encroachments will need to be designed to conform to Federal, State and local regulations regarding floodplains.

COMPREHENSIVE PLAN PROVISIONS

Plan Area: II

Planning Sector: M2 Pimmitt Community Planning Sector

Plan Map: Public Facilities, Governmental & Institutional

Plan Text:

On page 91 of the Fairfax County Comprehensive Plan, 2007 Edition, Area II McLean Planning District, Amended through 8-6-2007, M2-Pimmit Community Planning Sector, it states:

Land Use

A portion of the West Falls Church Transit Station Area is located in this planning sector. Recommendations for this area are found in the section of the Plan entitled 'West Falls Church Transit Station Area."

The Pimmit sector is largely developed as single-family residential neighborhoods. Infill development in that sector should be of a compatible use, type and intensity in accordance with the guidance provided by the Policy Plan under Land Use Objectives 8 and 14.

Where substantial parcel consolidation is specified, it is intended that such consolidations will provide for projects that function in a well-designed, efficient manner and provide for the development of unconsolidated parcels in conformance with the Area Plan.

Figure 18 indicates the geographic location of land use recommendations for this sector. Where recommendations are not shown on the General Locator Map, it is so noted.

1. *To preserve the stable residential portions of the sector, infill should be residential in nature and compatible with existing development. Specifically,*

   a. *Low density residential infill should be continued northwest of Idylwood Road, between Route 7 and Great Falls Street, to preserve the character of the neighborhood, which is planned for development at 2-3 dwelling units per acre.*

   b. *The single-family residences with access to Route 7, adjacent to the Reddfield community and northwest of Idylwood Road, are planned for residential use at 2-3 dwelling units per acre. A service road should connect to Idylwood Road as far away from Route 7 as possible. Buffering should be included along Route 7 as well as between new development and the Reddfield community.*

2. *The area located southeast of Idylwood Road, west of the Dulles Airport Access Road and north of the West Falls Church Transit Station Area, is planned for 2-3 dwelling units per acre with the exception of Mount Royal Park which is located to the west of the single-family housing. The single-family dwellings should have landscaped buffering from noise and non-residential uses with appropriate pedestrian and vehicular access.*

ANALYSIS

Special Exception Amendment Plat (Copy at front of staff report)

Title of SEA Plat:	West Falls Church Yard – Dulles Corridor Metrorail Project
Prepared By:	Dewberry & Davis, LLC
Original and Revision Dates:	July 15, 2008 as revised through March 4, 2009.

The Special Exception Amendment Plat consists of 10 sheets.

- **Sheet 1** is a title sheet, and includes vicinity map and a sheet index.
- **Sheet 2** shows the proposed layout at a scale of 1"=10'
- **Sheet 3** shows the proposed layout at a scale of 1"=50'
- **Sheet 4** includes the general notes and tabulations
- **Sheet 5** shows the existing vegetation map
- **Sheet 6** shows the proposed stormwater management (SWM)/best management practices (BMP) pond grading plan.
- **Sheets 7 - 9** show the SWM/BMP calculations for the site.
- **Sheets 10 shows** the adequate outfall analysis for the site.

Site Layout: The proposed site layout depicts the WFC Rail Yard, existing structures and proposed structures, totaling 255,600 SF of development and a 0.17 FAR. The applicant proposes to construct a 23,000 SF service and inspection annex building (30 feet in height) as well as a traction power substation contained within a 2,800 SF building enclosure (20 feet in height). The SEA Plat also shows a connection from the existing rail yard to the new tracks of the Dulles Corridor Metrorail extension. This track (lead track) will facilitate rail vehicles entering and departing the rail yard directly from the Dulles Corridor Metrorail extension. A track cover box is proposed to cover the new rail yard lead track and a 1,038 foot long portion of the existing rail yard loop track. This structure will cover the lead track from the point it ties into the site until the track goes underground. Five additional storage tracks to accommodate 4, 6 and 8-car trains are proposed to accommodate overnight storage, cleaning and inspection service. The additional tracks will be able to accommodate storage of up to 40 rail cars. The SEA Plat depicts an area reserved for a future Dominion Power substation. That facility is not proposed with this application and would require separate Special Exception and 2232 approval before it could be constructed on the subject site.

Access and Parking: The site is currently accessed from Idylwood Road via a secured gate. This will continue to be the access point for employees and visitors to the site with this application. An access road to the proposed stormwater management facility is proposed from the Dulles Airport Access Road (DAAR). The location of the stormwater management access road has been reviewed and approved by the Commonwealth Transportation Board (*See Appendix 11*). There are currently 135 parking spaces on the subject site. The application proposes 21 additional parking

spaces for a total of 156 parking spaces. The applicant has indicated that the parking requirements have been established in conjunction with WMATA based on planned occupancies and shift staffing (approximately 40 additional employees for a total of 100 employees at any one time).

Open Space and Landscaping: The applicant proposes 43% (17.5 acres) of open space on the subject site. The SEA Plat depicts proposed landscaping along portions of the northern boundary of the site.

Stormwater Management: The applicant proposes to provide underground detention pipes and a pond in the northeast portion of the site to meet the stormwater management requirements for the site.

Land Use Analysis

As previously discussed, this application is a request to permit site improvements to the existing West Falls Church Service and Inspection Yard in order to accommodate train storage and service for the Dulles Corridor Metrorail Extension. The Comprehensive Plan, Area II map shows the subject property as planned for public facility use and the Comprehensive Plan text notes that a portion of the West Falls Church Transit Station Area is located in this planning sector. The application presents no land use issues.

Environmental Analysis

SEA 85-D-033 was previously approved to permit the constriction of acoustical barriers at the existing West Falls Church Rail Yard. The acoustical barriers were constructed to reduce noise levels to ensure that there would be no adverse impact on the adjacent residential community. The barriers were designed to reduce noise levels to 55 dBA Ldn at the property line. The roof lines of adjacent residences were used to calculate the heights of the barriers so that multi-storied houses would be protected. The acoustical barriers are proposed to remain with this application. In addition, the application proposes to provide a track cover box to cover the new rail yard lead track and a 1,038 foot long portion of the existing Rail Yard loop track. The track cover box is proposed to in order to mitigate noise generated from rail car wheels. With these existing and proposed measures, staff believes that any possible noise impact has been addressed.

Stormwater Management /Best Management Practices Analysis *(See Appendix 8)*

Issue: Resource Protection Area (RPA)

A RPA is located in the northeastern portion of the subject property. The SEA Plat depicts a proposed stormwater management facility within the RPA. Any encroachment into the RPA requires approval of an exception (Chesapeake Bay Preservation Ordinance, Sect. 118-6-9) and outfall into the RPA requires a Water Quality Impact Assessment (CPBO, Sect. 118-2-1-a).

Resolution:

As previously discussed, DCR was designated to be responsible for review and approval all stormwater management plans, erosion and sediment control plans, land disturbing activity and construction within Chesapeake Bay Preservation areas for all applications associated with the Metrorail extension, including the West Falls Church Rail Yard. Therefore, the applicant will be required to submit all applicable erosion and sediment control, stormwater management and Water Quality Impact Assessments to DCR for review and approval. Staff has proposed a development condition that will require the applicant to provide documentation of the required DCR approvals to DPWES prior to the construction of any of the improvements proposed with this application.

Urban Forest Management Division (UFMD) Analysis *(See Appendix 9)*

The Urban Forest Management Division (UFMD) review of this application raised comments regarding various aspects of the proposed development including the limits of clearing and grading, interior parking lot tree cover calculations which were not provided on the SEA Plat. Specifically, UFMD noted that the limits of clearing and grading were not clearly depicted on the SEA Plat nor were the interior parking lot landscaping calculations provided.

The applicant has revised the SEA Plat to clearly depict the limits of clearing and grading (sheet 3), and to provide the interior parking lot landscaping calculations (sheet 4) which meet the Zoning Ordinance standard for interior parking lot landscaping. A tree save area is now shown at the northwest corner of the site in order to mitigate any impacts to the off-site RPA. Based on the revisions that have been made to the SEA Plat, staff believes these issues have been resolved.

Transportation Analysis *(See Appendix 10)*

The Fairfax County Department of Transportation (FCDOT) has reviewed the subject application and has no objection to the approval of the application.

Fairfax County Park Authority (FCPA) Analysis *(See Appendix 11)*

The FCPA reviewed the proposal and determined that this application bears no adverse impact on land or resources of the Park Authority.

Sanitary Sewer Analysis *(Appendix 12)*

The proposed project is located in the Pimmit Run (G-1) Watershed and will be sewered by the Blue Plains Treatment Plant. Based on the current and committed flow, excess capacity is available at this time. In addition, the existing 10-inch line located on the property is adequate for the proposed use.

ZONING ORDINANCE PROVISIONS

Bulk Standards R-1 & R-2		
Standard	**Required**	**Provided**
Min. District Size	R-1: 10 acres R-2: 2 acres	R-1: 30.98 acres R-2: 8.18 acres
Max. Building Height	R-1: 60 ft. (non single-family dwellings) R-2: 60 ft. (non single-family dwellings)	30 ft.
Min. Front Yard	R-1: 50° angle of bulk plane = 36 ft. R-2: 45° angle of bulk plane = 30 ft.	I-66 – 460 ft. (proposed building) DAAR - 120 ft. (proposed building)
Min. Side Yard	R-1: 45° angle of bulk plane = 30 ft. R-2: 40° angle of bulk plane = 25 ft.	345 ft. (proposed building)
Min. Rear Yard	R-1: 45° angle of bulk plane = 30 ft. R-2: 40° angle of bulk plane = 25 ft.	425 ft. (proposed building)
Max. FAR	R-1: 0.20 (public uses) R-2: 0.25 (public uses)	0.17 (overall site)
Min. Open Space	N/A	43% (17.5 acres)
Min. Parking Spaces	135 spaces (based on previous approval)	156 spaces

Waivers/Modifications

Modification of the transitional screening and waiver of the barrier requirements along the northern property line in favor of that shown on the SEA Plat.

Section 13-301 of the Zoning Ordinance requires transitional screening and/or barriers for rail stations adjacent to all residential uses. UFMD has determined that Transitional Screening 3 (an unbroken strip of open space a minimum of fifty feet wide) and Barriers D (a 42-48 inch chain link fence), E (a 6-foot high wall, brick or architectural block faced), or F (a 6-foot high solid wood or otherwise architecturally solid fence) are required along the northern property line of the subject site.

The applicant has requested a modification of the transitional screening requirement along the northern property line in favor of that shown on the SEA Plat. Par. 14 of Sect. 13-305 states that the transitional screening requirements may be waived or modified for any public use when such use has been specifically designed to minimize adverse impact on adjacent properties. A 100-foot wide Virginia Power easement crosses the northern area of the site. This easement prohibits the provision of the full transitional screening required at the northeast portion of the site. The SEA Plat

depicts proposed landscaping at the northeast portion of the site. The northwestern portion of the site is also impacted by the 100-foot wide power easement and existing storage tracks on the site. Mature vegetation and sound walls exist between the adjacent residential development to the north and the location of the proposed service and inspection annex building, traction power substation and additional storage tracks. As no site improvements are proposed for this portion of the site, the applicant requests the modification to permit the existing vegetation to satisfy the transitional screening requirement.

The applicant requests the waiver of the barrier requirement along the northern property line in favor of that shown on the SEA Plat due to the steep topography at the northern portion of the site. Par. 12 of Sect. 13-305 states that the barrier requirements may be waived or modified where the topography of the lot providing the transitional screening and the lot being protected is such that a barrier would not be effective. In staff's opinion, the existing topography at the northern portion of the subject property would make provision of a barrier in this area ineffective. Therefore, staff recommends a modification of the transitional screening and waiver of the barrier requirements along the northern property line to that depicted on the SEA Plat.

Waiver of the Comprehensive Plan Trails requirement.

The applicant also requests a modification of the required Major Paved Trail (8-foot wide asphalt) shown along the south side of Idylwood Road and accessing the existing service and inspection building on the Metro property. Pedestrian access is not proposed to the Rail Yard. The traffic associated with the site will be vehicular traffic by employees and invited guests through a secured gate. Due to the security measures required for the site, pedestrian connections to offsite properties is not permitted by WMATA. Therefore, staff supports the request for a waiver of the trail requirement in favor of what is shown on the SE Plat.

OTHER ZONING ORDINANCE REQUIREMENTS:

Special Exception Requirements (See Appendix 16)

General Standards (Sect. 9-006)

Par. 1 requires that the proposed use be in harmony with the Comprehensive Plan. As described in the Land Use Analysis section, the Comprehensive Plan designates the subject property as planned for public facility use. Staff believes that the application presents no land use issues. Therefore, this Standard has been met.

Par. 2 requires that the proposed use be in harmony with the purpose and intent of the applicable zoning district regulations. The application satisfies all applicable Zoning Ordinance provisions and electrically-powered regional rail transit facilities are permitted in the R-1 and R-2 district with the approval of a special exception. With the approval of this amendment request, this standard would be met.

Par. 3 requires that the proposed use be harmonious with and not adversely affect the use or development of neighboring properties in accordance with applicable zoning district regulations and the adopted Comprehensive Plan. It further states that the location, size and height of buildings, structures, walls and fences, and the nature and extent of screening, buffering and landscaping shall be such that the use will not hinder or discourage the appropriate development and use of adjacent or nearby land and/or buildings or impair the value thereof. The application proposes site improvements to the existing West Falls Church Rail Yard. The proposed structures on the site are in conformance with the bulk standards for the R-1 and R-2 Districts. The applicant requests a modification of the transitional screening and waiver of the barrier requirements for the portions of the site that abut residential properties in favor of that shown on the SEA Plat due to an 100-foot wide power easement that encumbers the northern portion of the property and the existing topography at the northern portion of the property. There is existing mature vegetation and sound walls between the adjacent residential development and the location of the proposed service and inspection annex building, traction power substation and additional storage tracks, which staff believes will provide adequate screening and buffering. With the approval of the requested modification and waiver, this standard will be met.

Par. 4 states that the proposed use shall be such that pedestrian and vehicular traffic associated with such use will not be hazardous or conflict with the existing and anticipated traffic in the neighborhood. The only vehicular and pedestrian traffic associated with the site would be that of employees and permitted visitors. As noted earlier, the applicant has requested a waiver of the trail requirement through the rail yard due to the security and safety issues such a trail would pose. No changes are proposed to the existing traffic movements on the site; therefore, this standard has been met.

Par. 5 states that in addition to the standards which may be set forth in this Article for a particular category or use, the Board may require landscaping and screening in accordance with the provisions of Article 13. The application requests a modification of the transitional screening and waiver of the barrier requirements for the portions of the site that abut residential properties due to an 100-foot wide power easement that encumbers the northern portion of the property which prohibits the provision of the full transitional screening required at that portion of the site and the existing topography at the northern portion of the property which would make provision of the barrier ineffective, in favor of that shown on the SEA Plat. Staff recommends approval of the modification and waiver requests. Furthermore, as previously discussed there is existing mature vegetation and sound walls between the adjacent residential development and the location of the proposed service and inspection annex building, traction power substation and additional storage tracks. With the approval of the modification and waiver requests, this standard will be met.

Par. 6 states that open space should be provided in an amount equivalent to that specified for the zoning district in which the proposed use is located. There is no open space requirement in the R-1 and R-2 District, however, the applicant proposes 43% (17.5 acres) of open space with the proposed development; therefore, this standard has been met.

Par. 7 states that adequate utility, drainage, parking, loading and other necessary facilities to serve the proposed use shall be provided. As previously discussed, the application proposes to provide underground detention pipes and a stormwater management pond in the northeast portion of the site, to meet the stormwater management requirements for the site. The stormwater management pond would be a dry pond with supplemental landscaping around the pond to ensure the pond does not have a negative visual impact on the residential development to the north. The SEA Plat depicts the proposed stormwater management facility within the RPA on the site. Any encroachment into the RPA requires approval of an RPA exception. In addition, the outfall into the RPA requires a Water Quality Impact Assessment. The stormwater management pond and drainage will be reviewed by the DCR per the Memorandum of Agreement. Staff has proposed a development condition that requires the applicant to demonstrate through documentation that all necessary DCR approvals have been obtained prior to the issuance of a Building Permit for the annex building shown on the SEA Plat. With regard to parking, there are currently 135 parking spaces on the subject site. The application proposes 21 additional parking spaces for a total of 156 parking spaces. The applicant has indicated that the parking requirements have been established in conjunction with WMATA based on planned occupancies and shift staffing (approximately 40 additional employees for a total of 100 employees at any one time). Par. 21 of Sect. 11-106 of the Zoning Ordinance states that the minimum required parking for public uses not identified in the off-street parking standards may be determined by the Director of DPWES. Staff has proposed a development condition requiring the applicant to provide a parking tabulation to DPWES for review and approval prior to the issuance of a building permit for the proposed annex building. With the adoption of this proposed development condition, this standard will be met.

Par. 8 states that signs shall be regulated by the provisions of Article 12; however, the Board may impose more strict requirements for a given use than those set forth in this Ordinance. No new signs are proposed with this application; therefore, this standard will be met.

9-404 Standards for all Category 4 Uses

Par.1 states that except for electrically-powered regional rail transit facilities, as further qualified in Sect. 405 below, all buildings and structures shall comply with the bulk regulations of the zoning district in which located. Thus, staff notes that while the buildings and structures on site are not required to meet the bulk regulations of these zoning districts, the structures proposed with this application are in conformance with the bulk standards.

Par. 2 states any rooftop surface or touchdown pad which will be utilized as an elevated helistop shall be designed and erected in a manner sufficient to withstand the anticipated additional stress. There are no helistops proposed with this application; therefore, this standard is not applicable.

Par. 3 states that except in the I-6 District, all maintenance, repair and mechanical work, except that of an emergency nature, shall be performed in enclosed buildings. The application proposes that all mechanical work will be performed within the existing and proposed enclosed buildings. Furthermore, staff has proposed a development condition to ensure that all repair and mechanical work will be performed in enclosed buildings. With the adoption of this development condition, this standard will be addressed.

Par. 4 states that all facilities shall be so located and so designed that the operation thereof will not seriously affect adjacent residential areas, particularly with respect to noise levels. As previously discussed, SEA 85-D-033 was previously approved to permit the installation of acoustical barriers on the subject site to mitigate noise impacts on the adjacent residential areas. In addition, this application proposes to install a track cover box over a significant portion of the existing track to further mitigate noise from rail car wheels. Furthermore, there is existing mature vegetation between the adjacent residential development and the location of the proposed service and inspection annex building, traction power substation and additional storage tracks which will screen the proposed use from the residences. Therefore, staff believes this standard has been met.

Par. 5, 6 7 concern uses associated with aircraft and are thus not applicable to this application.

Par. 8 states, before establishment, all uses, including modifications or alterations to existing uses, except regional non-rail transit facilities and electrically-powered regional rail transit facilities operated by WMATA, shall be subject to the provisions of Article 17, Site Plans. Regional non-rail transit facilities and electrically-powered regional rail transit facilities operated by WMATA shall be established in conformance with the provisions of the agreement between WMATA and the County. Staff has included the Memorandum of Agreement and Record of Decision governing the Metrorail extension project and thus, staff finds this standard satisfied.

9-405 Additional Standards for Electrically-Powered Regional Transit Facilities

Par. 1 states that electrically-powered regional rail transit facilities shall not have to comply with the minimum lot size requirements of the district in which located. This application proposes site improvements to the existing WFC Rail Yard; however, no changes are proposed to the lot size previously approved for the site. Therefore, staff believes that this standard has been satisfied.

Par. 2 states that notwithstanding Par. 1 of Sect. 404 above, parking structures associated with electrically-powered regional rail transit facilities shall comply with the bulk regulations of the zoning district in which located. There are no parking structures proposed with this application; therefore this standard is not applicable.

Summary of Zoning Ordinance Provisions

All applicable standards have been satisfied with the plat and the proposed development conditions.

CONCLUSIONS AND RECOMMENDATIONS

Staff Conclusions

Staff finds this application for an electrically powered regional rail transit facility in harmony with the Comprehensive Plan and in conformance with the applicable Zoning Ordinance Provisions.

Recommendations

Staff recommends approval of SEA 85-D-033-02, subject to the draft development conditions contained in Appendix 1.

Staff recommends approval of the modification of the transitional screening and waiver of the barrier requirements along the northern property line in favor of that shown on the SEA Plat.

Staff recommends approval of a waiver of the Comprehensive Plan trail requirement along Idylwood Road.

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendations of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application.

APPENDICES

1. Draft Development Conditions
2. Affidavit
3. Statement of Justification
4. Clerk's Letter and Development Conditions (SE 85-D-033 & SEA 85-D-033)
5. Memorandum of Agreement/Letter to County Executive
6. Amended Record of Decision issued by the US Department of Transportation, Federal Transit Administration
7. Comprehensive Plan Text
8. Stormwater Management Analysis
9. Urban Forestry Management Division Analysis

APPENDICES (Continued)

10. Transportation Analysis
11. Fairfax County Park Authority Analysis
12. Sanitary Sewer Analysis
13. Commonwealth Transportation Board Resolution Regarding Limited Access Control Changes
14. WMATA Consolidated Plan, WFC Rail Yard, Pollutant Source Identification
15. Dulles Corridor Rapid Transit Project, Noise and Vibration Technical report
16. Applicable Zoning Ordinance Standards
17. Glossary

PROPOSED DEVELOPMENT CONDITIONS

SEA 85-D-033-02

April 1, 2009

If it is the intent of the Board of Supervisors to approve SEA 85-D-033-02 located at Tax Map 40-1 ((1)) 25B and 40-3 ((1)) 85, 86, 91A and 93B previously approved for WMATA facilities (now known as electrically-powered regional rail transit facilities) to permit site improvements pursuant to Sect. 3-104 and 3-204 of the Fairfax County Zoning Ordinance, staff recommends that the Board condition the approval by requiring conformance with the following development conditions, which supersede all previous conditions (those conditions carried forward from previous approval are marked with an asterisk*).

1. This Special Exception Amendment is granted for and runs with the land indicated in this application and is not transferable to other land.

2. This Special Exception Amendment is granted only for the purpose(s), structure(s) and/or use(s) indicated on the special exception plat approved with the application, as qualified by these development conditions.

3. Landscaping of the parking lot and around the building that is being built shall be provided and maintained as submitted with SE 85-D-033.*

4. Landscaping to soften the visual impact of the acoustical barrier shall be provided and maintained. The applicant shall coordinate with the Urban Forest Management Division (UFMD) to provide a landscape plan and to replace any vegetation shown on the landscape plan that dies.*

5. If the Washington Metropolitan Area Transit Authority (WMATA) ingress/egress access point at the end of McKay Street is not intended for future use, the access point shall be closed and a landscaped berm shall be provided in this location.*

6. Noise measurements shall be taken during the hours of peak activity on the site. The maximum noise level generated by this facility shall not exceed 55 dBA Ldn off site.*

7. All repair and mechanical work conducted on the subject site shall be performed in enclosed buildings.

8. Erosion and Sediment control plans shall be implemented as determined by DCR. The stricter of the state or Fairfax County standards shall be applied by the state reviewing body.

9. Prior to any construction associated with this application, the applicant shall submit documentation to the Department of Public Works and

Environmental Services (DPWES) that demonstrates that all required Virginia Department of Conservation and Recreation (DCR) approvals have been obtained for the subject site.

10. Prior to the issuance of a Building Permit for the Annex Building shown on the SEA Plat, a parking tabulation for the subject site shall be submitted to DPWES for review and approval, to demonstrate that adequate parking has been provided for the site.

11. All lighting shall conform to the provisions of Part 9 of Article 14 of the Zoning Ordinance. Outdoor lighting fixtures shall not exceed 30 feet in height, shall be of low glare design with cutoff optics and shall focus directly onto the subject property.

This approval, contingent on the above noted conditions, shall not relieve the applicant from compliance with the provisions of any applicable ordinances, regulations, or adopted standards. The applicant shall be responsible for obtaining the Non-Residential Use Permit through established procedures, and this Special Exception shall not be valid until this has been accomplished.

The approval of this special exception does not interfere with, abrogate or annul any easement, covenants, or other agreements between parties, as they may apply to the property subject to this application.

Pursuant to Section 9-015 of the Zoning Ordinance, this Special Exceptions shall automatically expire, without notice, thirty (30) months after the date of approval unless, at a minimum, the use has been established or construction of either the Drive-in Financial Institution or Drive-through Pharmacy has commenced and been diligently prosecuted. The Board of Supervisors may grant additional time to establish the use or to commence construction if a written request for additional time is filed with the Zoning Administrator prior to the date of expiration of the Special Exception. The request must specify the amount of additional time requested, the basis for the amount of time requested, and an explanation of why additional time is required.

SPECIAL EXCEPTION AFFIDAVIT

DATE: DEC 1 2008
(enter date affidavit is notarized)

I, Jonathan P. Rak, Esquire, do hereby state that I am an
(enter name of applicant or authorized agent)

(check one) [ ] applicant
[✓] applicant's authorized agent listed in Par. 1(a) below 1025484-

in Application No.(s): SEA 85-D-033-02
(enter County-assigned application number(s), e.g. SE 88-V-001)

and that, to the best of my knowledge and belief, the following information is true:

1(a). The following constitutes a listing of the names and addresses of all **APPLICANTS, TITLE OWNERS, CONTRACT PURCHASERS,** and **LESSEES** of the land described in the application,* and, if any of the foregoing is a **TRUSTEE,**** each **BENEFICIARY** of such trust, and all **ATTORNEYS** and **REAL ESTATE BROKERS,** and all **AGENTS** who have acted on behalf of any of the foregoing with respect to the application:

(**NOTE:** All relationships to the application listed above in **BOLD** print are to be disclosed. Multiple relationships may be listed together, e.g., **Attorney/Agent, Contract Purchaser/Lessee, Applicant/Title Owner**, etc. For a multiparcel application, list the Tax Map Number(s) of the parcel(s) for each owner(s) in the Relationship column.)

NAME (enter first name, middle initial, and last name)	**ADDRESS** (enter number, street, city, state, and zip code)	**RELATIONSHIP(S)** (enter applicable relationships listed in **BOLD** above)
The Virginia Department of Rail and Public Transportation Representative: Charles M. Badger	1313 East Main Street, Suite 300 P.O. Box 590 Richmond, VA 23218	Applicant with Metropolitan Washington Airports Authority (MWAA) on behalf of Washington Metropolitan Area Transit Authority (WMATA)
Washington Metropolitan Area Transit Authority (WMATA) Agents: Gary (nmi) Malaski John D. Thomas	600 - 5th Street, N.W. Washington, D.C. 20001	Title Owner of Tax Map Nos. 40-1-((1)) parcel 25B 40-3-((1)) parcels 85, 86, 91A, 93B
Dulles Transit Partners, LLC Agents: Frank G. Turpin Ernest S. Lee George B. Morschauser	1595 Spring Hill Road, Suite 600 Vienna, VA 22182	Engineer/Agent for Title Owner

(check if applicable) [✓] There are more relationships to be listed and Par. 1(a) is continued on a "Special Exception Attachment to Par. 1(a)" form.

* In the case of a condominium, the title owner, contract purchaser, or lessee of 10% or more of the units in the condominium.

** List as follows: Name of trustee, Trustee for (name of trust, if applicable), for the benefit of: (state name of each beneficiary).

Special Exception Attachment to Par. 1(a)

DATE: DEC 1 2008
(enter date affidavit is notarized)

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

1025486

(**NOTE**: All relationships to the application are to be disclosed. Multiple relationships may be listed together, e.g., **Attorney/Agent, Contract Purchaser/Lessee, Applicant/Title Owner**, etc. For a multiparcel application, list the Tax Map Number(s) of the parcel (s) for each owner(s) in the Relationship column.)

NAME (enter first name, middle initial, and last name)	**ADDRESS** (enter number, street, city, state, and zip code)	**RELATIONSHIP(S)** (enter applicable relationships listed in **BOLD** above)
McGuireWoods LLP Agents: Carson Lee Fifer, Jr. Joanna C. Frizzell David R. Gill Jonathan P. Rak Gregory A. Riegle Mark M. Viani Kenneth W. Wire Lisa M. Chiblow Lori R. Greenlief Sheri L. Hoy	1750 Tysons Boulevard, Suite 1800 McLean, VA 22102	Attorney/Agent Attorney/Agent Attorney/Agent Attorney/Agent Attorney/Agent Attorney/Agent Attorney/Agent Planner/Agent Planner/Agent Planner/Agent
Metropolitan Washington Airports Authority (MWAA) Agents: Charles S. Carnaggio Marcia S. McAllister James L. Van Zee	1593 Spring Hill Road, Suite 300 Vienna, VA 22182	Applicant with Virginia Department of Rail and Public Transportation on behalf of Washington Metropolitan Area Transit Authority (WMATA)
Dewberry & Davis LLS Agent: Lawrence A. McDermott	8401 Arlington Boulevard Fairfax, VA 22031	Engineer/Agent for Applicant

(check if applicable) [ ] There are more relationships to be listed and Par. 1(a) is continued further on a "Special Exception Attachment to Par. 1(a)" form.

SPECIAL EXCEPTION AFFIDAVIT

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number(s))

1(b). The following constitutes a listing*** of the **SHAREHOLDERS** of all corporations disclosed in this affidavit who own 10% or more of any class of stock issued by said corporation, and where such corporation has 10 or less shareholders, a listing of all of the shareholders:

(**NOTE**: Include **SOLE PROPRIETORSHIPS, LIMITED LIABILITY COMPANIES,** and **REAL ESTATE INVESTMENT TRUSTS** herein.)

CORPORATION INFORMATION

NAME & ADDRESS OF CORPORATION: (enter complete name and number, street, city, state, and zip code) The Virginia Department of Rail and Public Transportation
1595 Spring Hill Road, Suite 600
Vienna, VA 22182

DESCRIPTION OF CORPORATION: (check one statement)

[ ] There are 10 or less shareholders, and all of the shareholders are listed below.

[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.

[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF SHAREHOLDERS: (enter first name, middle initial and last name)
The Virginia Department of Rail and Public Transportation is a governmental authority, not a corporation

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued on a "Special Exception Affidavit Attachment 1(b)" form.

*** All listings which include partnerships, corporations, or trusts, to include the names of beneficiaries, must be broken down successively until: (a) only individual persons are listed or (b) the listing for a corporation having more than 10 shareholders has no shareholder owning 10% or more of any class of stock. ***In the case of an APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land that is a partnership, corporation, or trust, such successive breakdown must include a listing and further breakdown of all of its partners, of its shareholders as required above, and of beneficiaries of any trusts. Such successive breakdown must also include breakdowns of any partnership, corporation, or trust owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land. Limited liability companies and real estate investment trusts and their equivalents are treated as corporations, with members being deemed the equivalent of shareholders; managing members shall also be listed.*** Use footnote numbers to designate partnerships or corporations, which have further listings on an attachment page, and reference the same footnote numbers on the attachment page.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

102548 6

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

Washington Metropolitan Area Transit Authority (WMATA)
600 - 5th Street, N.W.
Washington, D.C. 20001

DESCRIPTION OF CORPORATION: (check one statement)

[ ] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

Washington Metropolitan Area Transit Authority (WMATA) is a governmental entity, not a corporation

---

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

Dulles Transit Partners, LLC
1595 Spring Hill Road, Suite 600
Vienna, VA 22182

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

Bechtel Infrastructure Corporation,
a Nevada corporation
Washington Group International, Inc.,
an Ohio corporation

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): _____
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

Bechtel Infrastructure Corporation, a Nevada corporation
5275 Westview Drive
Frederick, MD 21703

DESCRIPTION OF CORPORATION: (check one statement)

- [✓] There are 10 or less shareholders, and all of the shareholders are listed below.
- [ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- [ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

Bechtel Infrastructure Corporation is an indirect wholly owned subsidiary of Bechtel Group, Inc.

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Bechtel Group, Inc.
50 Beale Street
San Francisco, CA 94105-1895

DESCRIPTION OF CORPORATION: (check one statement)

- [ ] There are 10 or less shareholders, and all of the shareholders are listed below.
- [ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- [✓] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

102548

for Application No. (s): _____
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Washington Group International, Inc., an Ohio corporation
720 Park Boulevard
Boise, Idaho 83712

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

Washington Holdings, Inc. a Delaware corporation

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Washington Holdings, Inc., a Delaware corporation
720 Park Boulevard
Boise, ID 83712

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)
URS Holdings, Inc., a Delaware corporation

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

URS Holdings, Inc., a Delaware corporation
600 Montgomery Street, 26th Floor
San Francisco, CA 94111

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)
URS Corporation, a Delaware corporation

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
URS Corporation, a Delaware corporation
600 Montgomery Street, 26th Floor
San Francisco, CA 94111

DESCRIPTION OF CORPORATION: (check one statement)

[ ] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[✓] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): _____
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Dewberry & Davis LLC
8401 Arlington Boulevard
Fairfax, VA 22031

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)
The Dewberry Companies LC
Jaems L. Beight
Dennis M. Couture

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
The Dewbery Companies LC
8401 Arlington Boulevard
Fairfax, VA 22031

DESCRIPTION OF CORPORATION: (check one statement)

[✓] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)
Sidney O. Dewberry
Barry K. Dewberry
Karen S. Grand Pre
Michael S. Dewberry
Thomas L. Dewberry

(check if applicable) [✓] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

Special Exception Attachment to Par. 1(b)

DATE: DEC 1 2008
(enter date affidavit is notarized)

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

1025486

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Metroplitan Washington Airports Authority (MWAA)
1593 Spring Hill Road
Suite 300
Vienna, VA 22182

DESCRIPTION OF CORPORATION: (check one statement)

[ ] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

The Metropolitan Washington Airports Authority, a body corporate and politic, created by interstate compact between the Commonwealth of Virginia and the District of Columbia under Chapter 598 of the 1985 Acts of Virginia Assembly, as amended, codified at Va. Code §5.1-152 et seq. (2001), and by the District of Columbia Regional Airports Authority Act of 1985, as amended, codified at D.C. Code ann. §§9-901 et seq. (2001).

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

DESCRIPTION OF CORPORATION: (check one statement)

[ ] There are 10 or less shareholders, and all of the shareholders are listed below.
[ ] There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
[ ] There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

(check if applicable) [ ] There is more corporation information and Par. 1(b) is continued further on a "Special Exception Attachment to Par. 1(b)" form.

SPECIAL EXCEPTION AFFIDAVIT

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number(s))

1(c). The following constitutes a listing*** of all of the **PARTNERS,** both **GENERAL** and **LIMITED,** in any partnership disclosed in this affidavit:

PARTNERSHIP INFORMATION

PARTNERSHIP NAME & ADDRESS: (enter complete name, and number, street, city, state, and zip code)
McGuireWoods LLP
1750 Tysons Bouelvard, Suite 1800
McLean, VA 22102

(check if applicable) [✓] The above-listed partnership has no limited partners·

NAMES AND TITLE OF THE PARTNERS (enter first name, middle initial, last name, and title, e.g. **General Partner, Limited Partner, or General and Limited Partner**)

Equity Partners of McGuireWoods LLP

Alphonso, Gordon R.	Becker, Scott L.	Buchan, Jonathan E.
Anderson, Arthur E., II	Becket, Thomas L.	Busch, Stephen D.
Anderson, Corby C.	Beil, Marshall H.	Cabaniss, Thomas E.
Andre-Dumont, Hubert	Belcher, Dennis I.	Cacheris, Kimberly Q.
Bagley, Terrence M.	Bell, Craig D.	Cairns, Scott S.
Barger, Brian D.	Bilik, R. Eric	Capwell, Jeffrey R.
Baril, Mary Dalton	Boland, J. William	Carter, Joseph C., III
Barnum, John W.	Brenner, Irving M.	Cason, Alan C.
Barr, John S.	Brooks, Edwin E.	Chaffin, Rebecca S.
Beane, John C.	Brown, Thomas C., Jr.	Cobb, John H.

(check if applicable) [✓] There is more partnership information and Par. 1(c) is continued on a "Special Exception Affidavit Attachment to Par. 1(c)" form.

*** All listings which include partnerships, corporations, or trusts, to include the names of beneficiaries, must be broken down successively until: (a) only individual persons are listed or (b) the listing for a corporation having more than 10 shareholders has no shareholder owning 10% or more of any class of stock. ***In the case of an APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land that is a partnership, corporation, or trust, such successive breakdown must include a listing and further breakdown of all of its partners, of its shareholders as required above, and of beneficiaries of any trusts. Such successive breakdown must also include breakdowns of any partnership, corporation, or trust owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land. Limited liability companies and real estate investment trusts and their equivalents are treated as corporations, with members being deemed the equivalent of shareholders; managing members shall also be listed.*** Use footnote numbers to designate partnerships or corporations, which have further listings on an attachment page, and reference the same footnote numbers on the attachment page.

Special Exception Attachment to Par. 1(c)

DATE: DEC 1 2008
(enter date affidavit is notarized)

102548-6

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

PARTNERSHIP NAME & ADDRESS: (enter complete name & number, street, city, state & zip code)

McGuireWoods LLP
1750 Tysons Bouelvard, Suite 1800
McLean, VA 22102

(check if applicable) [✓] The above-listed partnership has no limited partners.

NAMES AND TITLES OF THE PARTNERS: (enter first name, middle initial, last name, and title, e.g., **General Partner, Limited Partner, or General and Limited Partner**)

Cogbill, John V., III
Cordell, Stephen L.
Covington, Peter J.
Cramer, Robert W.
Cromwell, Richard J.
Culbertson, Craig R.
Culbreth, James H., Jr.
Cullen, Richard (nmi)
Cutchins, Clifford A., IV
de Cannart d'Hamale, Emmanuel
De Ridder, Patrick A.
Dickerman, Dorothea W.
Dillon, Lee Ann
DiMattia, Michael J.
Dimitri, James C.
Dorman, Keith A.
Douglass, W. Birch, III
Downing, Scott P.
Dyke, James Webster, Jr.
Edwards, Elizabeth F.
Evans, David E.
Ey, Douglas W., Jr.
Feller, Howard (nmi)
Fennebresque, John C.
Fifer, Carson Lee, Jr.
Foley, Douglas M.
Fox, Charles D. IV
France, Bonnie M.
Freedlander, Mark E.
Freye, Gloria L.
Fuhr, Joy C.
Germaise, Susan L.
Getchell, E. Duncan, Jr.
Gibson, Donald J., Jr.
Glassman, Margaret M.
Glickson, Scott L.
Gold, Stephen (nmi)
Goldstein, Philip (nmi)
Goodall, Larry M.
Gordon, Alan B.
Grandis, Leslie A.
Grant, Richard S.
Greenberg, Richard T.
Grieb, John T.
Harmon, Jonathan P.
Harmon, T. Craig
Harmon, Yvette (nmi)
Hartsell, David L.
Hayden, Patrick L.
Hayes, Dion W.
Heberton, George H.
Horne, Patrick T.
Isaf, Fred T.
Iselin, Benjamin B.
Jackson, J. Brian
Jarashow, Richard L.
Jeffcoat, Brenton D.
Johnston, Barbara Christie
Kanazawa, Sidney (nmi)
Katsantonis, Joanne (nmi)
Keenan, Mark L.
Kennedy, Wade M.
King, Donald E.
King, Sally Doubet
Kittrell, Steven D.
Kratz, Timothy H.
Krueger, Kurt J.
Kutrow, Bradley R.
La Fratta, Mark J.
Lias-Booker, Ava E.
Lieberman, Richard E.
Little, Nancy R.
Long, William M.
Manning, Amy B.
Marianes, William B.
Marks, Robert G.
Marshall, Gary S.
Marshall, Harrison L., Jr.
Marsico, Leonard J.
Martin, Cecil E., III
Martin, George Keith
Martinez, Peter W.
Mason, Richard J.
Mathews, Eugene E. III

(check if applicable) [✓] There is more partnership information and Par. 1(c) is continued further on a "Special Exception Attachment to Par. 1(c)" form.

Special Exception Attachment to Par. 1(c)

DATE: DEC 1 2008
(enter date affidavit is notarized)

1025486

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

PARTNERSHIP NAME & ADDRESS: (enter complete name & number, street, city, state & zip code)

McGuireWoods LLP
1750 Tysons Bouelvard, Suite 1800
McLean, VA 22102

(check if applicable) [✓] The above-listed partnership has no limited partners.

NAMES AND TITLES OF THE PARTNERS: (enter first name, middle initial, last name, and title, e.g., **General Partner, Limited Partner, or General and Limited Partner**)

Mayberry, William C.
McArver, R. Dennis
McCallum, Steven C.
McDonald, John G.
McElligott, James P.
McElroy, Robert G.
McFarland, Robert W.
McGoogan, E. Graham, Jr.
McIntyre, Charles Wm.
McLean, James D.
McRill, Emery B.
Menges, Charles L.
Menson, Richard L.
Michels, John J., Jr.
Middlebrooks, James. G.
Milton, Christine R.
Muckenfuss, Robert A.
Murphy, Sean F.
Nesbit, Christopher S.
Newman, William A.
Nunn, Daniel B., Jr.
Oakey, David N.
O'Grady, Clive R. G.
O'Grady, John B.
O'Hare, James P.
Oostdyk, Scott C.
Padgett, John D.
Pankey, David H.
Parker, Brian K.
Pilkington, Kathy L.
Plotkin, Robert S.
Potts, William F., Jr.
Pryor, Robert H.
Pusateri, David P.
Rak, Jonathan P.
Rappaport, Richard J.
Reid, Joseph K., III
Ricciardi, James P.
Richardson, David L.
Riegle, Gregory A.
Rifken, Lawrence E.
Riley, James B., Jr.
Riopelle, Brian C.
Roberts, Manley W.
Robinson, Stephen W.
Rogers, Marvin L.
Rohman, Thomas P.
Rosen, Gregg M.
Russell, Deborah M.
Rust, Dana L.
Samuels, Lawrence R.
Satterwhite, Rodney A.
Scheurer, Philip C.
Schewel, Michael J.
Schill, Gilbert E., Jr.
Schmidt, Gordon W.
Sellers, Jane Whitt
Shelley, Patrick M.
Simmons, L. D., II
Simmons, Robert W.
Sipprelle, Keith A.
Skinner, Halcyon E.
Slone, Daniel K.
Smith, Stuart (nmi)
Spahn, Thomas E.
Spitz, Joel H.
Stallings, Thomas J.
Steen, Bruce M.
Stein, Marta A.
Stone, Jacquelyn E.
Summers, W. Dennis
Suzumoto, Mark K.
Swan, David I.
Swartz, Charles R.
Tarry, Samuel L., Jr.
Thornhill, James A.
Tirone, Joseph G.
Van der Mersch, Xavier G.
Van Etten, David B.
Vaughn, Scott P.
Vick, Howard C., Jr.
Viola, Richard W.
Wade, H. Landis, Jr.
Walker, Howard W.

(check if applicable) [✓] There is more partnership information and Par. 1(c) is continued further on a "Special Exception Attachment to Par. 1(c)" form.

Special Exception Attachment to Par. 1(c)

DATE: DEC 1 2008
(enter date affidavit is notarized)

102548 b

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

PARTNERSHIP NAME & ADDRESS: (enter complete name & number, street, city, state & zip code)

McGuireWoods LLP
1750 Tysons Bouelvard, Suite 1800
McLean, VA 22102

(check if applicable) [✓] The above-listed partnership has no limited partners.

NAMES AND TITLES OF THE PARTNERS: (enter first name, middle initial, last name, and title, e.g., **General Partner, Limited Partner, or General and Limited Partner**)

Walker, John Tracy, IV
Walsh, James H.
Watts, Stephen H., II
Wells, David M.
Werlin, Leslie M.
Westwood, Scott E.
White, Harry R., III
Whittemore, Anne Marie
Williams, Steven R.
Williamson, Mark D.
Wilson, Ernest G.
Wilson, James M.
Wood, R. Craig
Young, Kevin J.
Younger, W. Carter
Zirkle, Warren E.

(check if applicable) [ ] There is more partnership information and Par. 1(c) is continued further on a "Special Exception Attachment to Par. 1(c)" form.

SPECIAL EXCEPTION AFFIDAVIT

DATE: DEC 1 2008
(enter date affidavit is notarized)

102548G

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number(s))

1(d). One of the following boxes **must** be checked:

[ ] In addition to the names listed in Paragraphs 1(a), 1(b), and 1(c) above, the following is a listing of any and all other individuals who own in the aggregate (directly and as a shareholder, partner, and beneficiary of a trust) 10% or more of the **APPLICANT, TITLE OWNER, CONTRACT PURCHASER,** or **LESSEE*** of the land:

[✓] Other than the names listed in Paragraphs 1(a), 1(b), and 1(c) above, no individual owns in the aggregate (directly and as a shareholder, partner, and beneficiary of a trust) 10% or more of the **APPLICANT, TITLE OWNER, CONTRACT PURCHASER,** or **LESSEE*** of the land.

2. That no member of the Fairfax County Board of Supervisors, Planning Commission, or any member of his or her immediate household owns or has any financial interest in the subject land either individually, by ownership of stock in a corporation owning such land, or through an interest in a partnership owning such land.

EXCEPT AS FOLLOWS: (**NOTE**: If answer is none, enter "**NONE**" on the line below.)

NONE

(check if applicable) [ ] There are more interests to be listed and Par. 2 is continued on a "Special Exception Attachment to Par. 2" form.

Application No.(s): SEA 85-D-033-02

(county-assigned application number(s), to be entered by County Staff)

SPECIAL EXCEPTION AFFIDAVIT

DATE: DEC 1 2008

(enter date affidavit is notarized)

1025486

3. That within the twelve-month period prior to the public hearing of this application, no member of the Fairfax County Board of Supervisors, Planning Commission, or any member of his or her immediate household, either directly or by way of partnership in which any of them is a partner, employee, agent, or attorney, or through a partner of any of them, or through a corporation in which any of them is an officer, director, employee, agent, or attorney or holds 10% or more of the outstanding bonds or shares of stock of a particular class, has, or has had any business or financial relationship, other than any ordinary depositor or customer relationship with or by a retail establishment, public utility, or bank, including any gift or donation having a value of more than $100, singularly or in the aggregate, with any of those listed in Par. 1 above.
EXCEPT AS FOLLOWS: (**NOTE**: If answer is none, enter "**NONE**" on line below.)

Supervisor Catherine Hudgins is a Principal Director for the Washington Metropolitan Area Transit Authority (WMATA).

Supervisor Jeffrey McKay is an Alternate Director for the Washington Metropolitan Area Transit Authority (WMATA).

NOTE: Business or financial relationships of the type described in this paragraph that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings. See Par. 4 below.)

(check if applicable) [✓] There are more disclosures to be listed and Par. 3 is continued on a "Special Exception Attachment to Par. 3" form.

4. **That the information contained in this affidavit is complete, that all partnerships, corporations, and trusts owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land have been listed and broken down, and that prior to each and every public hearing on this matter, I will reexamine this affidavit and provide any changed or supplemental information, including business or financial relationships of the type described in Paragraph 3 above, that arise on or after the date of this application.**

WITNESS the following signature:

(check one) [ ] Applicant [✓] Applicant's Authorized Agent

Jonathan P. Rak, Esquire

(type or print first name, middle initial, last name, and & title of signee)

Subscribed and sworn to before me this 1st day of December 2008, in the ~~State~~/Comm. of Virginia, County/~~City~~ of Fairfax.

Grace E. Chae
Notary Public

My commission expires: 5/31/2012

Grace E. Chae
Commonwealth of Virginia
Notary Public
Commission No. 7172971
My Commission Expires 05/31/2012

1025486

Special Exception Attachment to Par. 3

DATE: DEC 1 2008
(enter date affidavit is notarized)

for Application No. (s): SEA 85-D-033-02
(enter County-assigned application number (s))

David R. Gill (McGuireWoods LLP) donated $100 to Supervisor Jeff McKay.

Gregory A. Riegle (McGuireWoods LLP) donated in exess of $100 to Supervisor Jeff McKay.

James W. Dyke, Jr. (McGuireWoods LLP) donated in excess of $100 to Gerry Connolly for Congress.

Gregory A. Riegle (McGuireWoods LLP) donated in excess of $100 to Gerry Connolly for Congress.

McGuireWoods Federal PAC donated in excess of $100 to Gerry Connolly for Congress.

(check if applicable) [ ] There are more disclosures to the listed for Par. 3, and Par. 3 is continued further on a "Special Exception Attachment to Par. 3" form.

APPENDIX 3

Dulles Corridor Metrorail Project
Special Exception Amendment Application
West Falls Church Service & Inspection Yard

STATEMENT OF USE

June 5, 2008

Description of Special Exception Request

With rail transit through the Dulles Corridor on the horizon, some changes are necessary to afford a seamless connection to the existing Metrorail system. West Falls Church Service & Inspection Yard (the WFC Yard) is one of the storage and service yards for the existing system and is envisioned to accommodate train storage and service for the Wiehle Avenue Extension, the first phase of the Dulles Corridor Metrorail Project. This application has been filed by the Metropolitan Washington Airports Authority (MWAA) in coordination with the Virginia Department of Rail and Public Transportation (DRPT) on behalf of and with the consent of the property owner, Washington Metropolitan Area Transit Authority (WMATA), who will operate this extension of the existing rail system.

The West Falls Church Service & Inspection Yard is currently under special exception, originally granted in 1985 and amended in 1986. Existing structures and uses in the yard include a service and inspection shop, a yard operation building, a plant maintenance building, two tie breaker stations, a traction power substation, a service building, a fueling facility as well as track storage for 148 rail cars.

Proposed improvements to the West Falls Church Service & Inspection Yard are concentrated in the northeastern portion of the site as depicted on Sheets 2 and 3 of the special exception plat. No changes are proposed to the West Falls Church – VT/UVA Metrorail Station which is located nearby or to the parking areas and garage associated with the station. The proposed improvements include:

- **A Connection from the Yard to New Tracks of the Wiehle Avenue Extension:** To facilitate rail vehicles entering and departing the yard directly from or onto the Wiehle Avenue Extension, a new yard lead track is necessary. This new track connection will tie in to the existing loop track within the yard and extend underground to a surface portal in the median of the Dulles Connector Road where it will then tie in to mainline tracks.

- **Additional Storage Tracks**: A mix of 4, 6 and 8-car trains will be used for operation of the Wiehle Avenue Extension. Additional storage tracks for these trains are necessary to accommodate overnight storage, cleaning and inspection services. Five new storage tracks accommodating up to 40 rail cars are proposed in an area within the yard already encircled by the existing loop track. Covered platforms are to be provided at the terminus of each new storage track. The existing covered walkway will be extended to connect to the new covered platforms to allow drivers and workers to walk from the trains to the yard operations building.

- **Service and Inspection Annex Building:** A 23,000 square foot shop annex building is proposed to be constructed adjacent to the new storage tracks for service and inspection of rail cars. The shop annex will be a one floor structure approximately 30 feet in height and include basic office provisions and restrooms in addition to the shop area. This alternative was selected over expanding the existing service and inspection shop in order to avoid construction of a retaining wall adjacent to I-66, reconstruction of the service roadway along the south edge of the yard and interference with ongoing operations. The new shop annex will contain two stub end tracks. An adjacent parking area with 21 additional parking spaces for employees is also proposed.

- **Traction Power Substation:** A new traction power substation (TPSS) for yard power is proposed adjacent to the new service and inspection annex building. It is contained within a 2,800 square foot building enclosure and is approximately 20 feet high. Traction power substations convert the power supplied by the electric company into 750V direct current power usable for the rail system. Electrical equipment will be contained within the TPSS building as is typical elsewhere on the Metrorail system; the TPSS transformers will be located outside, within the building's fenced courtyard. The TPSS is unmanned with maintenance work performed only occasionally.

- **Track Cover Box:** A structure is proposed to cover the new yard lead track and a 1,038 foot long portion of the existing yard loop track. The structure will cover the new yard lead track from the point of its tie in to the yard loop track until it is underground.

- **Stormwater Management Facility:** A new stormwater management facility to serve the proposed development is shown in the northeastern area of the site. It has been sized to include drainage from a planned substation to be constructed in the future by Dominion Virginia Power. This new stormwater management facility is independent of existing stormwater facilities. Access will be provided by a new road connecting to the Dulles Connector Road.

- **Dominion Virginia Power Substation:** Although not a part of these improvements, the Special Exception Plat indicates an area reserved for future use by Dominion Virginia Power for a substation. This facility would require a separate Special Exception Application and, as appropriate, 2232 approval which would be filed by Dominion Virginia Power.

Pertinent Data

The following information is provided as required by the Fairfax County Zoning Ordinance, Section 9-011 Submission Requirements, Paragraph 7:

A. Type of Operation. West Falls Church Service & Inspection Yard, service and storage of rail cars.

B. Hours of Operation. The yard operates 24 hours per day, 7 days a week.

C. Daily Patronage. Not applicable

D. Proposed number of employees. The current number of employees based at the yard will increase by approximately 40.

E. Estimate of traffic impact. Since the employees operate on shifts and the additional 40 employees will be spread over those shifts, additional traffic impact will be minimal.

F. Vicinity of area to be served. This yard services a portion of the existing Metrorail system (there are other service yards in the system) and will serve the Wiehle Avenue Extension.

G. Description of building and façade. Design of the buildings has not been completed and the exterior finishes will be typical of existing structures in the yard. Buildings will not be visible to adjoining residences. The exterior of the track cover box will be a fluted metal siding finished in a neutral color.

H. Listing of hazardous or toxic substances on site. Potential pollutant sources and current hazardous materials stored at the site are identified in the WMATA Consolidated Plan, Pollutant Source Identification, which is included as Attachment 1. WMATA manages these products and associated waste in accordance with state and federal laws.

I. Conformity of proposed use. The proposed changes conform to the provisions of all applicable ordinances, regulations, adopted standards and any applicable conditions.

Discussion of Zoning Ordinance Compliance

Section 2-517, Electrically-Powered Regional Rail Transit Facilities:

With respect to the Zoning Ordinance Amendment pertaining to regional rail transit facilities, the West Falls Church Service & Inspection Yard, in and of itself, would fall under the special exception category as it is listed as an element of a regional rail transit facility. The facility additions described above, while they are accessory uses, are within 200 feet of a regional rail transit facility, so Special Exception approval is necessary for construction of these elements.

Section 9-403, Additional Submission Requirements:

1. Review and approval through the National Environmental Policy Act (NEPA) process was required for the entire expansion of the Metrorail system. The Federal Transit Administration, the lead federal agency in the review, issued a Record of Decision in March 2005 documenting that the expansion was successfully reviewed and approved through requirements of the NEPA process. An amended Record of Decision (amended ROD) was issued in November 2006 that addressed refinements made during preliminary engineering. A copy of the amended ROD is included as Attachment 2.

2. See Number 1 above.

3. As part of the NEPA process and the required public hearings, Draft and Final Environmental Impact Statements (DEIS, FEIS) were prepared. Noise abatement was addressed as a technical report appended to the FEIS and is referenced here to comply with this submission requirement. The Noise and Vibration Technical Report is included as Attachment 3.

4. Not applicable

Section 9-404, Standards for All Category 4 Uses:

1. Not applicable

2. Not applicable

3. All maintenance, repair and mechanical work will be performed in enclosed buildings.

4. See above reference to noise abatement (Section 9-403, Item 3). In addition, a sound wall was installed pursuant to the approval of SEA 85-D-033. Additional sound control measures are proposed with this application (track covering) to attenuate noise deriving from rail car wheels.

5. Not applicable

6. Not applicable

7. Not applicable

8. Because the proposed facilities are on WMATA property and Fairfax County permits are required, compliance with the existing agreement established between Fairfax County and WMATA will be maintained.

Section 9-405, Additional Standards for Electrically-Powered Regional Rail Transit Facilities

1. We acknowledge that this facility does not have to comply with the minimum lot size requirements for the R-1 and R-2 Districts.

2. No parking structures are proposed with this application.

Section 9-006, General Standards

1. The proposed use at this location is in harmony with the adopted Comprehensive Plan. The Plan map shows the property planned for public facilities, government and institutional use. Language within both the West Falls Church Transit Station Area section and the M2 Pimmit Community Planning Sector of the McLean Planning District within Area II, acknowledges the location of West Falls Church Storage & Inspection Yard. The proposed changes will not affect the use's conformance with this language, nor the Plan designation.

2. The proposed changes are in harmony with the general purpose and intent of the applicable zoning district regulations as discussed above. Regional rail transit facilities are a permitted use within both the R-1 and R-2 Districts with Special Exception approval.

3. The proposed changes for rail facilities will not adversely affect neighboring properties and will not hinder or discourage the appropriate development and use of adjacent or nearby land and/or buildings or impair the value thereof. There are basically two neighborhoods which border on the area of the site where changes are proposed: SouthHampton and Glenmont. Both neighborhoods are accessed off of Idylwood Road. The Glenmont subdivision is well screened from the proposed changes by roughly 80 feet of vegetation. The SouthHampton subdivision is located directly adjacent to the area of proposed changes. Again, mature vegetation and a sound wall exist between the homes and the location of the proposed shop annex, new TPSS and additional storage tracks. There is also a substantial elevation grade difference which limits visibility. The proposed stormwater management (SWM) facility is located in an area currently occupied by a 100 foot wide Dominion Virginia Power easement containing high voltage overhead transmission lines. The area contains some low level vegetation and other trees which have been topped to preserve clearance from the power lines. This SWM area would be seen by the residents but the appearance of the dry pond with the additional vegetation proposed should not pose a negative visual impact. The proposed track cover box over existing and proposed track may improve noise abatement already afforded on the site by the existing sound wall. The yard lighting fixtures to be installed adjacent to the new storage tracks will match existing lighting fixtures and heights installed elsewhere in the yard. The new fixtures will be installed on 30-foot high poles and will be low glare with cutoff optics.

4. There is no pedestrian traffic associated with this use. Vehicular traffic includes only the employees and occasional permitted visitors to the gated facility. The pattern and volume of traffic movement will not change with this amendment application.

5. The existing vegetation satisfies requirements of Article 13. Additional landscaping will be provided if deemed necessary during review of the application. Proposed landscaping has been submitted as part of this amendment application.

6. 43 percent open space is provided on the site. Open space has been calculated assuming the planned Dominion Virginia Power substation is constructed on the area reserved for it.

7. Parking for employees was established with the approval of the original Special Exception. There are 135 parking spaces provided on site. Experience has determined that this is an adequate number for the present use. An additional 21 parking spaces are proposed for employees working in the new shop annex building. These additional spaces would be provided adjacent to the new shop annex. There is one loading ramp provided at the existing shop building which is adequate to serve the proposed use as well. The proposed improvements will provide adequate utility and drainage facilities to satisfy parking and loading requirements.

8. No new signs are proposed.

ATTACHMENTS

1. WMATA Consolidated Plan, West Falls Church Rail Yard, Chapter 4, Pollutant Source Identification, November 30, 2001

2. Amended Record of Decision issued by the US Department of Transportation, Federal Transit Administration, November 17, 2006

3. Dulles Corridor Rapid Transit Project, Noise and Vibration Technical Report, November 2004

APPENDIX 4

COMMONWEALTH OF VIRGINIA

COUNTY OF FAIRFAX

4100 CHAIN BRIDGE ROAD
FAIRFAX, VIRGINIA 22030

August 7, 1985

John S. Egbert
Assistant General Manager
Department of Design, Construction
and Facilities Maintenance
600 Fifth Street, N.W.
Washington, D.C. 20001

Re: Special Exception
Number SE 85-D-033

Dear Mr. Egbert:

At a regular meeting of the Board of Supervisors held on July 29, 1985, the Board approved Special Exception Number SE 85-D-033, in the name of Washington Metropolitan Area Transit Authority (WMATA), located as Tax Map 40-1((1)) 25B and 40-3((1)) 85, 86, and 93B for addition of maintenance building to the existing WMATA facilities pursuant to Sections 3-104 and 2-104 of the Fairfax County Zoning Ordinance, by requiring conformance with the following development conditions:

1. This Special Exception is granted for and runs with the land indicated in this application and is not transferable to other land.

2. This Special Exception is granted for the purpose(s), structure(s) and/or use(s) indicated on the Special Exception Plat approved with the application, as qualified by these development conditions.

3. Landscaping of the parking lot and around the building will be provided as shown on the Preliminary Site Plan submitted with the application.

This approval, contingent on the above noted conditions, shall not relieve the applicant from compliance with the provisions of any applicable ordinances, regulations, or adopted standards. The applicant shall be himself responsible for obtaining the required Non-Residential Use Permit through established procedures, and this Special Exception shall not be valid until this has been accomplished.

Under Section 9-015 of the Zoning Ordinance, this Special Exception shall automatically expire, without notice, eighteen (18) months after the approval date of the Special Exception unless the activity authorized has been established, or unless construction has commenced, and is diligently pursued, or unless additional time is approved by the Board of Supervisors because of the occurrence of conditions unforeseen at the time of the approval of this Special Exception. A request for additional time shall be justified in writing, and must be filed with the Zoning Administrator prior to the expiration date.

If you have any questions concerning this Special Exception, please give me a call.

Very truly yours,

Ethel W Register

Ethel Wilcox Register, CMC
Clerk to the Board of Supervisors

EWR/lc

cc: Samuel A. Patteson, Jr.
Supervisor of Assessments
✓ Gilbert R. Knowlton, Deputy
Zoning Administrator
Wallace S. Covington, Jr., Chief
Permit, Plan Review Branch
Richard D. Faubion, Director
Zoning Evaluation Division
Ted Austell, III
Executive Assistant to the County Executive

COMMONWEALTH OF VIRGINIA

COUNTY OF FAIRFAX

4100 CHAIN BRIDGE ROAD
FAIRFAX, VIRGINIA 22030

October 7, 1986

Mr. Homer Chen
Washington Metropolitan Area
Transit Authority - WMATA
600 Fifth Street, Northwest
Washington, D. C. 20001

Re: Special Exception Amendment
Number SEA 85-D-033-1

Dear Mr. Chen:

At a regular meeting of the Board of Supervisors held on September 29, 1986, the Board approved Special Exception Amendment Number SEA 85-D-033-1, in the name of Washington Metropolitan Area Transit Authority - WMATA, located at Tax Map 40-1 ((1)) 25B and 40-3 ((1)) 85, 86, and 93B for addition of acoustical barriers pursuant to Sections 3-104 and 3-204 of the Fairfax County Zoning Ordinance, by requiring conformance with the following development conditions:

1. This Special Exception Amendment is granted for and runs with the land indicated in this application and is not transferable to other land.

2. This Special Exception Amendment is granted only for the purpose(s), structure(s) and/or use(s) indicated on the Special Exception Amendment Plat approved with the application, as qualified by these development conditions.

3. This Special Exception Amendment is subject to the provisions of Article 17, Site Plans. Any plan submitted pursuant to this Special Exception Amendment shall be in substantial conformance with the approved Special Exception Amendment Plat and these conditions.

4. Landscaping of the parking lot and around the building that is being built shall be provided as submitted with SE 85-D-033.

5. Landscaping to soften the visual impact of the barrier shall be provided. The applicant shall coordinate with the Department of Environmental Management and Office of Comprehensive Planning to provide a landscape plan.

6. If the Washington Metropolitan Area Transit Authority (WMATA) ingress/egress access point at the end of McKay Street is not intended for future use, the access point shall be closed and a landscaped berm shall be provided in this location.

7. Noise measurements shall be taken during the hours of peak activity on the site. The maximum noise level generated by this facility shall not exceed 55 dBA Ldn off-site.

8. Prior to beginning construction, the applicant will consult with the Lemon Road Citizens Association concerning the final design of the barriers.

9. Under Section 9-015 of the Zoning Ordinance, this Special Exception Amendment shall automatically expire, without notice, six (6) months after the approval date of the Special Exception Amendment, unless construction of the acoustical barriers has been completed, or unless additional time is approved by the Board of Supervisors because of the occurrence of conditions unforeseen at the time of approval of this Special Exception Amendment. A request for additional time shall be justified in writing, and must be filed with the Zoning Administrator prior to the expiration date.

10. WMATA will add $50,000 of additional landscaping as approved by the WMATA Board for additional buffering.

11. A reasonable extension of the noise wall will be permitted without the requirement of a Special Exception Amendment.

This approval, contingent on the above noted conditions, shall not relieve the applicant from compliance with the provisions of any applicable ordinances, regulations, or adopted standards. The applicant shall be himself responsible for obtaining the required Non-Residential Use Permit through established procedures, and this Special Exception Amendment shall not be valid until this has been accomplished.

If you have any questions concerning this Special Exception Amendment, please give me a call.

Very truly yours,

Ethel W. Register, CMC, Agency Director
Office of The Clerk to the Board

EWR/ns

cc: Lurty C. Houff, Jr.
Real Estate Division
Gilbert R. Knowlton, Deputy
Zoning Administrator
Donald D. Smith
Permit, Plan Review Branch
Barbara A. Byron, Director
Zoning Evaluation Division

COPY

COOPERATIVE AGREEMENT
BETWEEN
THE METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
AND THE COUNTY OF FAIRFAX, VIRGINIA

THIS COOPERATIVE AGREEMENT RELATING TO THE CONSTRUCTION OF METRORAIL IN THE DULLES AIRPORT CORRIDOR ("Agreement") is hereby entered into as of July 19, 2007, by and between the Metropolitan Washington Airports Authority ("Airports Authority") and the County of Fairfax, Virginia ("Fairfax").

Recitals

Whereas, Fairfax, the County of Loudoun, Virginia ("Loudoun"), the Commonwealth of Virginia ("Commonwealth"), and the Airports Authority wish to proceed to enhance transportation service in Tysons Corner and the Dulles Airport Corridor; and

Whereas, Fairfax, Loudoun, the Airports Authority, and the Commonwealth have approved a project consisting of an extension of Metrorail measuring approximately 23 miles and beginning from the existing Metrorail Orange Line near the West Falls Church Station, through Tysons Corner, along the Dulles Corridor from Tysons Corner to the boundary of Fairfax and Loudoun, into the Washington Dulles International Airport, and terminating at Route 772 in Loudoun, as described more fully in the Agreement to Fund the Capital Cost of Construction of Metrorail in the Dulles Corridor ("Funding Agreement") to be entered into by Loudoun, Fairfax, and the Airports Authority (hereinafter the project description and all Concurrent Non-Project Activities set forth in Exhibit A to the Funding Agreement are collectively referred to in this Agreement as the "Project"); and

Whereas, in accordance with the National Environmental Policy Act ("NEPA"), an Environmental Impact Statement for the Project has been completed and the Federal Transit Administration ("FTA") issued a Record of Decision in March 2005 and July 2005 and an amended Record of Decision on November 18, 2006; and

Whereas, the Commonwealth, Fairfax, Loudoun, and the Airports Authority assessed transportation alternatives in accordance with the process recommended by the FTA, which included feasibility studies, alternatives analysis, and environmental analysis in accordance with NEPA; and

Whereas, the public was involved throughout the alternatives analysis and NEPA processes and in the selection of a locally preferred alternative ("LPA") developed as part of the Dulles Corridor Rapid Transit Project's Environmental Impact Statement process, to extend Metrorail by means of the Project; and

Whereas, for purposes of obtaining one or more federal grants, construction of the Project has been divided into two phases, with Phase 1 of the Project ("Phase 1") described generally in the LPA and more particularly in the Supplemental Draft Environmental Impact Statement of October 2003 as that portion of the Project extending from the Metrorail Orange Line near the West Falls Church Station to and including the proposed Wiehle Avenue Station, and Phase 2 of the Project ("Phase 2") described generally as that portion of the Project west of the proposed Wiehle Avenue Station to and including the Dulles Airport Station and continuing thereafter to the terminus of the Project at Route 772 in Loudoun; and

Whereas, the Commonwealth originally acted as the federal grant applicant and recipient and had direct responsibility for and oversight of the preliminary engineering for the Project, scope of work, schedule, budget, and associated tasks; and

Whereas, effective upon the transfer from the Commonwealth to the Airports Authority of the operations and maintenance responsibilities of the Dulles Toll Road (the "Transfer"), primary responsibility for the implementation of the Project will be transferred from the Commonwealth to the Airports Authority. Beginning with the Transfer, the Airports Authority will provide day-to-day management of the construction of the Project, which includes, but is not limited to: financial planning and financing, right-of-way acquisition, environmental mitigation, intergovernmental agreements, permitting and utility coordination, public involvement, design, construction, and construction management until completion, inspection, and acceptance of the Project by the Washington Metropolitan Area Transit Authority ("WMATA"), and warranty implementation; and

Whereas, the Airports Authority will apply to the FTA as the Project sponsor to receive an FTA grant to implement the Project; and

Whereas, the Commonwealth will assist the Airports Authority with right-of-way acquisition, site plan review and inspections, issuance of building permits, stormwater management, and the regulation of Project activity in the floodplain and/or a resource protection area as more fully described in this Agreement and as confirmed in a letter dated June 14, 2007, from the Secretary of Transportation for the Commonwealth to the County Executive for Fairfax, which letter is attached hereto as Attachment A; and

Whereas, Fairfax, Loudoun, the Commonwealth, and the Airports Authority are committed to design and construct the Project to meet the cost-effectiveness criteria established by the FTA while complying with all federal, state, and local laws, ordinances, and regulations; and

Whereas, recognizing that the funding for the Project has been addressed in a separate Funding Agreement, this Agreement is intended to memorialize the understandings of the parties concerning other issues relating to the Project, including project coordination, property acquisition, compliance with existing regulatory processes for the

Project, insurance coverage, indemnity, and certain other issues not directly related to funding; and

WHEREAS, Fairfax has participated in the preparation of the Project's Phase 1 Preliminary Engineering by reviewing and providing comments on the 50%, 95%, and 100% Preliminary Engineering design package.

NOW THEREFORE, the Airports Authority and Fairfax agree as follows:

DEFINITIONS

"ARS" shall mean the adopted regional system for Metrorail in the Metropolitan Washington area, which is currently comprised of 106 miles of Metrorail track and operated by the Washington Metropolitan Area Transit Authority, and any additions made to the system by the WMATA Board of Directors.

"Agreement" shall mean this Cooperative Agreement, as well as any appendices, exhibits, or subsequent amendments.

"Airports Authority" shall mean the Metropolitan Washington Airports Authority, its various departments and agencies, and its officials and agents.

"Airports Authority Property" shall mean the real property that is owned by the Airports Authority or by the United States of America and leased to the Airports Authority, which is used for the Washington Dulles International Airport, the Washington Dulles International Airport Access Highway, and the Dulles Toll Road, excluding any real property that is acquired by the Airports Authority for purposes of constructing the Project.

"Contractor" shall mean any firm(s) engaged by the Airports Authority to perform design, development, preliminary and final engineering, design-build, or construction work for the benefit of the Project, and shall include any and all subcontractors, agents, and successors-in-interest.

"Days" shall mean business days, excluding all holidays recognized by the Airports Authority and/or Fairfax.

"DCR" shall mean the Department of Conservation and Recreation for the Commonwealth of Virginia.

"DGS" shall mean the Department of General Services for the Commonwealth of Virginia.

"DRPT" shall mean the Department of Rail and Public Transportation for the Commonwealth of Virginia.

"Fairfax" shall mean the County of Fairfax, a political subdivision of the Commonwealth of Virginia, its various departments and agencies and its officials and agents.

"Fairfax County Code" shall mean the Code of the County of Fairfax, Virginia, as amended from time to time.

"Fairfax County Zoning Ordinance" shall mean The Zoning Ordinance of the County of Fairfax, Virginia, as amended from time to time.

"Fairfax Facilities" shall mean existing Fairfax-owned facilities and infrastructure as well as those facilities designed for and constructed as part of the Project to be owned and/or maintained by Fairfax. The term "Fairfax Facilities" shall not include Fairfax – owned, vacant, real property.

"FHWA" shall mean the Federal Highway Administration.

"Funding Partners" shall mean, solely for purposes of this Agreement, the Commonwealth, Fairfax, Loudoun, and the Airports Authority.

"Metropolitan Washington Airports Authority Dulles Corridor Enterprise Fund" shall mean the fund bearing this name that is more fully described in Resolution No. 07-16 entitled "Financial Administration of the Dulles Toll Road and Dulles Corridor Metrorail Project," as adopted by the Metropolitan Washington Airports Authority Board on June 6, 2007. A copy of such resolution is attached hereto and incorporated herein by reference as Attachment B.

"Project" shall mean the approximately 23-mile Metrorail extension referenced above, as more fully described in Exhibit A to the Funding Agreement between the Airports Authority, Fairfax, and Loudoun, including without limitation all project and Concurrent Non-Project Activities identified in Exhibit A to the Funding Agreement.

"Project Facilities" shall mean all rail transit and associated rail transit facilities designed for and constructed as part of the Project.

"VDOT" shall mean the Virginia Department of Transportation, its various departments and agencies, and its officials and agents.

"VDOT Facilities" shall mean existing VDOT-owned facilities and infrastructure including, but not limited to, roadways, pavement markings, rights-of-way, traffic signals and associated equipment, highway signs, toll facilities, structures, drainage facilities, and related facilities, pedestrian and bicycling facilities, as well as those facilities designed for and constructed as part of the Project to be owned and/or maintained by VDOT.

"WMATA" shall mean the Washington Metropolitan Area Transit Authority, its various departments and agencies, and its officials and agents.

ARTICLE 1
PROJECT COORDINATION AND DESIGN REVIEW

Section 1.1 The Airports Authority shall serve as the federal grant recipient and is responsible for the day-to-day management of the Project. The Airports Authority shall be responsible for the completion of preliminary and final engineering for the Project, design-build activities, and associated project development activities, including financial planning, right-of-way acquisition, environmental mitigation, utility coordination and relocation, and permitting. The Airports Authority also is responsible for coordinating the engineering, design, and construction of the Project with the Funding Partners, including Fairfax, as set forth more fully below.

Section 1.2 Fairfax has assigned a project coordinator to support the Airports Authority and the other Funding Partners in the implementation of the Project. Fairfax's project coordinator shall serve as the Airports Authority's first point of contact for Fairfax in coordinating issues relating to the Project, and the Fairfax project coordinator shall assist in managing coordination with all Fairfax offices. The Fairfax project coordinator will facilitate the participation of Fairfax staff in Project-related reviews and meetings and will make every reasonable effort to ensure that Fairfax staff provides timely input and decisions. The Airports Authority also will assign a project coordinator to work with and provide support to Fairfax for the implementation of the Project until final acceptance of the Project Facilities by WMATA. The Airports Authority project coordinator will facilitate the participation of Fairfax staff in Project-related reviews and meetings and shall facilitate the timely transmission of information to Fairfax to allow Fairfax sufficient time to exercise its rights and responsibilities under Section 1.3.

Section 1.3 The parties acknowledge that the Airports Authority and Fairfax have mutually agreed upon 100% preliminary engineering drawings for Phase 1 of the Project. The parties further acknowledge that the agreed upon design and scope of Phase 1 of the Project is detailed in the Memorandum of Understanding between the Airports Authority and Dulles Transit Partners that was approved by the Airports Authority on June 6, 2007, and in the exhibits and attachments to the Memorandum of Understanding (including without limitation the design-build contract and the list of specifications for the Phase 1 of the Project that are attached to the Memorandum of Understanding in a document entitled "Division 1") (hereinafter such documents are collectively referred to as the "Phase 1 Approved Plans"). The Airports Authority shall obtain the advance written approval of Fairfax prior to making any changes to the design, scope, or extent of the Project Facilities that are detailed in the Phase 1 Approved Plans. In the absence of Fairfax's advance written approval of such proposed changes, the Airports Authority shall construct the Project strictly in accordance with the design, scope, and extent of the Project Facilities that are set forth in the Phase 1 Approved Plans.

The parties further acknowledge that they have not yet agreed upon the design, scope, and extent of Phase 2 of the Project. To facilitate Fairfax's review of the Project's design for Phase 2, the Airports Authority will arrange for formal review of the Project's design for Phase 2 at key preliminary engineering and design-build milestones. Design drawings will include drawings depicting the proposed Project alignment; line, track, and systems; and stations and facilities. Landscape, stormwater management, and erosion and sediment control plans shall be included with the design drawings for Phase 2 of the Project to facilitate Fairfax's thorough review of the proposed Phase 2 Project Facilities. The Airports Authority will timely provide to Fairfax copies of drawings or electronic files sufficient to permit Fairfax's thorough review of the proposed design of the Project Facilities for Phase 2, and Fairfax will provide comments at the end of the review period to the Airports Authority in an effort to reach a consensus about the proposed design and scope of Phase 2 of the Project. In addition to the formal design review described above, as necessary, the Airports Authority will facilitate periodic "over-the-shoulder" reviews by Fairfax of specific Project Facility design issues for Phase 2 of the Project as they arise. If the Airports Authority and Fairfax are able to reach a consensus about the design and scope of the Project Facilities for Phase 2 of the Project, and Fairfax has committed to funding a share of the costs of Phase 2 of the Project based upon an agreed upon design for Phase 2, then the Airports Authority shall obtain the advance written approval of Fairfax prior to making any changes to the design, scope, and extent of the Project Facilities that were approved by Fairfax as part of its commitment to assist in funding Phase 2 of the Project. In the absence of Fairfax's advance written approval, the Airports Authority shall construct the Project strictly in accordance with the design, scope, and extent of the Project Facilities that Fairfax agreed to in committing its share of the funding for Phase 2 of the Project.

The Airports Authority will timely provide Fairfax with copies of drawings or electronic files for all Supplemental Engineering Design packages, final engineering drawings, and final site plans, which will further refine the agreed upon 100% preliminary engineering drawings for each phase of the Project, so that Fairfax may thoroughly review such drawings and plans. Fairfax shall, at the end of a reasonable review period of not less than 15 business days, provide comments upon the Supplemental Engineering Design packages, final engineering drawings, and/or final site plans to the Airports Authority. The Airports Authority shall meet with and otherwise coordinate the Supplemental Engineering Design packages, final engineering drawings, and final site plans with Fairfax for all portions of the Project. As part of this collaborative process, the Airports Authority shall respond in writing to each of the comments made by Fairfax, such response to indicate either that Fairfax's comments were incorporated into the drawings or plans, or to the extent that certain comments were not incorporated, the Airport Authority's response shall give a detailed explanation of why such comments were not incorporated into the plans or drawings as requested. To the extent that this collaborative process does not resolve Fairfax's comments upon the Supplemental Engineering Design packages, final engineering drawings, and final site plans, such issues shall be resolved by the Funding Partners. Notwithstanding the foregoing, the Airports Authority must obtain the advance written approval of Fairfax for all

Supplemental Engineering design packages, preliminary and final engineering drawings, and all final site plans that affect Fairfax Facilities and/or Fairfax-owned land.

Section 1.4 At all stages of Project construction and establishment, the Airports Authority shall give notice of its construction activities for the Project to Fairfax's project coordinator, who will assist in coordinating with each Fairfax agency affected by the Project's activities. Such coordination shall include, without limitation, efforts to minimize the effects of nighttime construction and construction noise, as well as the development of traffic managements plans during Project construction as set forth more fully in Article 5, below. The Airports Authority will seek waivers of Fairfax's Noise Ordinance restrictions from Fairfax as may be required by the needs of the Project, which shall be governed by the Fairfax County Code provisions in effect at the time of the waiver request.

Section 1.5 The Airports Authority shall maintain a set of up-to-date "final design" drawings (including contractor modifications) which shall be available for review by Fairfax during the progress of construction of the Project. Upon completion of each phase of the Project, the Airports Authority shall furnish Fairfax with reproducible "as built" drawings showing all Project Facilities as installed. Such "as built" drawings shall be signed by a representative of the Contractor for the Project, certifying that the "as-built" conditions for all Project Facilities are accurately reflected on the "as built" drawings.

Section 1.6 The Airports Authority will provide Fairfax with updated Project schedules on a monthly basis. Similarly, Fairfax will provide the Airports Authority with updates regarding its Project activities, as applicable, on a monthly basis.

Section 1.7 The parties recognize that Fairfax intends to perform or permit other or additional work, and to contract with other persons to do so, on or near the Project. The Airports Authority shall require the Contractor to make commercially reasonable efforts to cooperate with Fairfax to the extent necessary for the performance by Fairfax of its other projects, and shall direct all parties related to the Contractor to so cooperate. Similarly, Fairfax shall instruct its contractors to make commercially reasonable efforts to cooperate with the Airports Authority and the Contractor to the extent necessary for the construction of the Project and shall direct all parties related to its contractors to so cooperate. The Airports Authority and Fairfax shall instruct their respective contractors to make commercially reasonable efforts to conduct their work without interfering or hindering the progress of the work being performed by other such contractors. Potential projects currently contemplated by the parties include, but are not limited to, the Wiehle Avenue joint development proposal and the Capital Beltway (I-495) HOT Lanes Project, as well as other projects undertaken in the Dulles Airport Corridor by DRPT, VDOT, WMATA, and/or Fairfax.

Promptly after the effective date of this agreement, the Airports Authority and the Contractor shall use commercially reasonable efforts to enter into coordination agreements with the other persons or entities, including Fairfax, with current or

anticipated construction projects that are in proximity to the Project. The purpose of these coordination agreements is to coordinate the Project's construction schedule, as well as the construction schedules of other projects in proximity to the Project, so as to minimize potential interference with access to work sites and delays to the Project and to the other projects. The Airports Authority agrees to require the Contractor to attend and participate in coordination meetings as necessary to facilitate the negotiation and execution of such coordination agreements in an effort to avoid and/or mitigate cost and time impacts to the Project.

Section 1.8 The WMATA Manual of Design Criteria in effect as of the completion of 100% preliminary engineering shall apply to the design of the Phase 1 Project Facilities. The Phase 2 Project Facilities shall conform to the WMATA Manual of Design Criteria in effect as of the time of completion of 100% preliminary engineering, unless otherwise agreed by the parties. For any and all Project Facilities that qualify as "buildings," the relevant standards of the Airports Authority shall apply to all buildings located on Airports Authority Property. The relevant standards of the Virginia Uniform Statewide Building Code, as well as any and all other applicable Fairfax ordinances and regulations, shall apply to the portions of the Project located in Fairfax that are not on Airports Authority Property. Design and construction of all Project Facilities on VDOT's rights-of-way shall comply with the Virginia Uniform Statewide Building Code and any and all other applicable regulations and requirements of VDOT, other departments of the Commonwealth, and FHWA.

Section 1.9 The Airports Authority shall be responsible for obtaining the approval of WMATA and VDOT of all of the Project's design and construction plans that affect WMATA's property or operations and/or VDOT Facilities, including obtaining WMATA's approval of all Project Facilities for acceptance by WMATA into the ARS.

ARTICLE 2
LAND USE AND CONSTRUCTION PERMITTING APPROVALS

Section 2.1 The Airports Authority shall be responsible for obtaining all necessary regulatory approvals for the Project in order to expedite WMATA's acceptance of the completed Project Facilities into the ARS and to ensure that the Project complies with all federal, state, and local laws, ordinances, regulations, and other applicable requirements.

Section 2.2 DRPT, acting on behalf of WMATA, has obtained a determination from the Fairfax County Planning Commission that the general or approximate location, character, and extent of the Metrorail tracks and ancillary facilities associated with the Project (excluding the stations areas associated with the Project) are substantially in accordance with the adopted Comprehensive Plan of Fairfax County as required by Va. Code Ann. §15.2-2232 (2003) ("2232"). The Airports Authority, acting on behalf of WMATA, will obtain a determination from the Fairfax County Planning Commission as to whether the general or approximate location, character and extent of all other aspects of the Project (including without limitation the station areas) are substantially in

accordance with the Comprehensive Plan of Fairfax County as required by 2232. The Airports Authority additionally shall be responsible for obtaining the Fairfax County Planning Commission's approval of any and all amendments to previously-approved 2232 applications that may be required by the Project.

Section 2.3 The Airports Authority and DRPT, acting on behalf of WMATA, will apply for all special exceptions for the Project that are required by the Fairfax County Zoning Ordinance on a schedule that will allow sufficient time for Fairfax to process, and the Fairfax County Board of Supervisors to act on, such applications prior to the construction of the Project Facilities at issue in the application. The parties recognize that development conditions may be imposed as part of any approved special exception for the Project. Development conditions associated with any special exception approval for any part of the Project shall be incorporated into all appropriate design, construction, and "as built" plans for the Project, and the Airports Authority shall direct the Contractor to fully implement such development conditions during the construction of the Project.

Section 2.4 In order to ensure that any and all such development conditions are implemented and in place prior to occupancy, Fairfax shall notify DGS of all special exception development conditions imposed by the Fairfax County Board of Supervisors so that such conditions may be made a part of the approved site plans for the Project, as appropriate. The Airports Authority shall provide Fairfax with written confirmation from DGS verifying the extent to which such special exception development conditions were implemented as part of the final site plans for the Project. Such written verification shall be provided to Fairfax no later than the time the Airports Authority applies on behalf of WMATA for Non-Residential Use Permits for the Project in accordance with Section 2.7, below. To the extent that any or all of the special exception development conditions were not addressed by DGS during the process of carrying out its regulatory role for the Project, Fairfax shall be permitted access to all approved plans and shall be permitted to inspect the Project Facilities to verify that all special exception development conditions were satisfactorily implemented by the Project.

Section 2.5 The Airports Authority shall be responsible for reviewing and approving all site plans and issuing all building permits for Project Facilities located on Airports Authority Property. With respect to those portions of the Project that are located on property within Fairfax County that is not Airports Authority Property, the Airports Authority shall secure DGS's approval of all site plans and building permits that are required for the Project. The Airports Authority additionally shall secure DCR's approval of all stormwater management and erosion and sediment control plans associated with the Project to ensure that they fully comply with all applicable federal, state, and local laws, ordinances, regulations, and other requirements. The Airports Authority and Fairfax agree that DCR also shall serve as the regulatory authority for all land-disturbing and construction activity on property in Fairfax County pursuant to the Chesapeake Bay Preservation Act.

In the event that DGS and/or DCR decline for any reason to carry out its/their regulatory roles with respect to the portions of the Project that are located on property in Fairfax

County that is not Airports Authority Property, then the Airports Authority shall obtain Fairfax's advance written approval of all required plans and permits that are needed to conduct land-disturbing and construction activities on such property.

The Airports Authority shall not engage in and/or allow the Contractor to engage in any land-disturbing or construction activity on property in Fairfax County that is not Airports Authority Property unless the Airports Authority has first obtained all required permits from DGS, DCR, and/or Fairfax, as set forth herein.

Section 2.6 The Airports Authority shall require the Contractor to provide full and complete access to the Project Facilities at all times during construction so that Fairfax, DGS, and/or DCR may conduct inspections. Inspections shall be coordinated through the Airports Authority.

Section 2.7 Prior to occupancy of those Project Facilities in Fairfax County that are not on Airports Authority Property, the Airports Authority, acting on behalf of WMATA, will apply for and obtain the Fairfax County Zoning Administrator's approval of all required Non-Residential Use Permits ("Non-RUPs") for the Project in accordance with Fairfax County Zoning Ordinance §18-701. On or before the time the Airports Authority applies for such Non-RUPs on behalf of WMATA, the Airports Authority shall provide Fairfax with written verification from DGS, as appropriate, verifying the Project's compliance with all of the applicable requirements for issuance of Non-RUPs for the Project as set forth in Zoning Ordinance § 18-704. To the extent that DGS is unable to verify the Project's compliance with all of the applicable requirements for issuance of Non-RUPs for the Project, Fairfax shall be permitted access to all approved plans and shall be permitted to inspect the Project Facilities to ensure that all applicable requirements for issuance of Non-RUPs for the Project Facilities have been satisfied.

ARTICLE 3
PROPERTY ACQUISITION AND USE

Section 3.1 The Airports Authority is responsible for acquiring all rights-of-way and property rights necessary for the construction and operation of the Project. The Airports Authority shall acquire a sufficient property interest in all property in Fairfax that is not Airports Authority Property to allow the Airports Authority and/or WMATA to construct and operate the Project. All easements on Fairfax-owned property, if any, shall be obtained using uniform language approved by Fairfax that allows for construction and operation of Project Facilities and/or VDOT Facilities. Density/intensity credit may be utilized to acquire property to the extent permitted by Fairfax County Zoning Ordinance § 2-308.

Section 3.2 A right-of-entry to accommodate completion of the Project shall be requested by Airports Authority, and granted by Fairfax, for the Airports Authority's entry, construction, maintenance, and operation, if any, of Project Facilities on all Fairfax-owned properties. The right-of-entry agreement executed by and between the

Airports Authority and Fairfax is attached hereto and incorporated herein as Attachment C.

Section 3.3 Except as specified in Section 3.4, Fairfax shall transfer to WMATA, in fee simple and for no monetary consideration, all Fairfax property that is necessary for the operations and maintenance of Project Facilities, to include property presently owned by Fairfax and property proffered or dedicated to Fairfax for mass transit purposes but not yet acquired, as contained in the list of properties appended hereto as Attachment D (listed by location, Fairfax County Real Property Identification Map Tax Map Number, and acreage). Any and all other Fairfax property (including property presently owned by Fairfax and property proffered to Fairfax for mass transit purposes but not yet acquired) that is required by the Airports Authority for the construction of the Project shall be identified by the Airports Authority, and a list of such property shall be provided to Fairfax. In the case of Fairfax-owned property, Fairfax shall have 120 business days to review and act upon the Airports Authority's request to transfer such property to WMATA. In the case of land proffered to Fairfax for mass transit purposes, Fairfax shall have 240 business days to review and act upon the Airports Authority's request to transfer such property to WMATA.

Section 3.4 Fairfax intends to retain title to the land at the site of the existing Reston East Park & Ride (Parcel No. 017-4-01-0017A) and Fire Station #29 (Parcel No. 029-3-01-0057B), two parcels with existing Fairfax facilities thereon. For these two Fairfax-owned properties, and in accordance with Section 3.2 above, Fairfax agrees said right-of-entry is applicable and sufficient to allow entry, construction, maintenance, and operation of Project Facilities prior to and after WMATA's acceptance of the Project Facilities into the ARS.

Section 3.5 From commencement of the Project through completion, wherever permanent subsurface or temporary surface easements, or other temporary use of Fairfax-owned property or public rights-of-way are agreed to by the parties as necessary for the Project, Fairfax will grant a right-of-entry in accordance with Section 3.2, as necessary, and without monetary consideration.

ARTICLE 4
CONSTRUCTION ON FAIRFAX-OWNED PROPERTY

Section 4.1 The Airports Authority shall notify Fairfax in a timely manner of any current or future plans for construction on Fairfax-owned property that may be affected by the design or construction of the Project. The Airports Authority shall make arrangements with appropriate Fairfax staff involved with such plans to meet with the Airports Authority to discuss the possible effects on Fairfax-owned property. All current or future plans for Project construction on Fairfax-owned property must be approved by Fairfax in writing prior to implementation. To the extent that Fairfax has already approved in writing design drawings depicting the construction of Project Facilities on Fairfax-owned *vacant* land, further refinements of those plans shall not require additional written approval as long as all construction activity remains within the footprint of the approved design.

Construction on property located in Fairfax that is neither Fairfax-owned property nor Airports Authority Property also shall be coordinated with and approved by Fairfax in accordance with Article 1 of this Agreement.

Section 4.2 The Airports Authority shall secure and execute a right-of-entry agreement [Exhibit C] from Fairfax before commencing any Project activities on Fairfax-owned property. Entry into the right-of-entry agreement with Fairfax is required prior to the Airports Authority's relocation, modification, or construction of Fairfax facilities. Said relocation, modification or construction shall be in accordance with and subject to the restrictions herein set forth. The right of entry permit shall remain in place for the duration of the Project and shall not be revoked by Fairfax without cause.

Section 4.3 The Airports Authority shall perform such relocation, modification, or construction of Fairfax Facilities that may be required to accommodate Project Facilities in accordance with the plans prepared by Airports Authority and approved by Fairfax. Said Fairfax Facilities may include utilities such as sanitary sewer and storm sewer lines. Trees and landscaped areas located on property owned by Fairfax shall be preserved whenever practicable. Trees in the construction area, which are to remain, shall be protected in accordance with the County's requirements and standards. Trees that must be removed shall be replaced with trees of a species in like kind unless otherwise designated by the County. Replacement trees shall have a minimum of two and one-half (2 ½) to three inch caliper, and be guaranteed for a period of one year. Landscaped areas shall be restored to the original condition to the greatest extent practicable as described in the landscape plans for the Project.

ARTICLE 5
TRAFFIC MAINTENANCE

Section 5.1 The Airports Authority shall prepare Maintenance of Traffic ("MOT") plans reflecting the precise manner in which traffic will be controlled on roads that are affected by the construction of the Project. Such plans will show, among other things, the construction phasing, roads to be closed, detour routes, pedestrian walk areas, parcel access, signs, traffic signal modifications, and other pertinent information relating to traffic maintenance during the construction of the Project. The MOT plans shall be coordinated with and approved by Fairfax and VDOT prior to the commencement of construction. All MOT plans shall comply with all applicable federal regulations.

Section 5.2 The Airports Authority shall consult with and obtain VDOT approval prior to partial or complete closure of any Commonwealth-maintained roadways to vehicular and pedestrian traffic during the construction of the Project. The Airports Authority shall provide adequate detour routes as part of any such plans, to be coordinated with and approved by VDOT. The Airports Authority shall notify Fairfax, Fairfax Fire and Rescue Department, Fairfax Police Department, Fairfax Public Schools, Fairfax elected officials, VDOT, and the media at least ten business days in advance of the need to fully close a Commonwealth-maintained roadway.

Section 5.3 The Airports Authority shall consult with and obtain Fairfax approval prior to partial or complete closure of Fairfax-maintained roadways to vehicular and pedestrian traffic during the construction period as needed to construct the Project Facilities. The Airports Authority, with the assistance and approval of Fairfax, shall plan for and provide adequate detour routes. The Airports Authority shall give Fairfax, Fairfax Fire and Rescue Department, Fairfax Police Department, Fairfax Public Schools, Fairfax elected officials, VDOT, and the media at least ten business days in advance of the need to fully close a Fairfax-maintained roadway.

Section 5.4 All road closures required by the Project on property in Fairfax that is not Airports Authority Property shall comply with the requirements of Fairfax's road closure policies that have been adopted by the Fairfax County Board of Supervisors.

Section 5.5 To the extent reasonably possible, construction on roadways shall not occur during peak traffic hours to avoid any unreasonable disruption of the movement of pedestrian and vehicular traffic, except on portions of roadways closed by VDOT permit. The Airports Authority shall require its Contractor during construction of the Project to allow operating businesses sufficient access to their properties for pedestrians, vehicles, deliveries, and fire fighting and rescue equipment.

Section 5.6 Any and all signs, pavement markings, and barricades installed and maintained by the Contractor shall be in accordance with traffic control plans prepared by the Airports Authority, the 2003 edition of the Manual on Uniform Traffic Control Devices, and the Virginia Work Area Protection Manual, as applicable.

Section 5.7 In addition to the MOT Plan, the Airports Authority also will assist in developing a Transportation Management Plan ("TMP") (also known as a Congestion Management Plan) for all areas affected by the construction of the Project. The TMP shall be developed to assist in implementing strategies to reduce reliance on single occupancy vehicle travel in and around the Project construction area and generally to decrease the amount of vehicular travel to and from the construction zone. The TMP shall consist of the following elements, without limitation: (i) implementation of strategies and services to reduce the amount of single occupancy vehicles traveling to the construction area (including without limitation programs to promote ridesharing, teleworking/ telecommuting, public outreach and information, incident management by police and fire departments, and VDOT driver assistance); (ii) employer sponsored activities (including without limitation employer outreach, alternative work schedules, commuter benefits programs, and preferential parking for vanpools and car sharing); (iii) incident management (including without limitation strategically located driver assistance teams, wreckers, policing of traffic at major intersections, and maintaining response rates of fire and rescue teams); and (iv) communications teams that will develop communications plans to inform the public, employers, and employees of current construction activities for the Project and inform the public of alternative routes around the construction sites. The Airports Authority shall coordinate the Project's TMP with all

other TMPs developed for other transportation construction projects in the vicinity of the Project.

Section 5.8 The Airports Authority shall be responsible for coordinating with WMATA and Fairfax Connector for the rerouting of bus traffic necessitated by construction of the Project. These items will be addressed in the TMP, and the plan for addressing such issues must be agreed upon by Fairfax prior to the commencement of the Project's construction activities that will necessitate the rerouting of bus traffic.

ARTICLE 6
INSURANCE REQUIREMENTS

Section 6.1 The Airports Authority shall require its Contractor to be responsible for its work and every part thereof, and for all materials, tools, equipment, appliances, and property of any and all description used in connection therewith. The Airports Authority shall require its Contractor to assume all risk of direct and indirect damage or injury to the property or persons used or employed on or in connection with the work contracted for, and of all damage or injury to any person or property wherever located, resulting from any action, omission, commission, or operation under the contract.

Section 6.2 The Airports Authority shall require its Contractor to, during the continuance of all work under the contract, provide the following:

a. Maintain statutory Workers' Compensation and Employer's Liability insurance in limits of not less than $1,000,000 to protect the Contractor from any liability or damages for any injuries (including death and disability) to any and all of its employees, including any and all liability or damage that may arise by virtue of any statute or law in force within the Commonwealth of Virginia.

b. Maintain Commercial General Liability insurance in the minimum amount of $2,000,000 per occurrence/$4,000,000 annual aggregate to protect the Contractor, its subcontractors, and the interest of Fairfax, its officers and employees against any and all injuries to third parties, including bodily injury and personal injury, wherever located, resulting from any action or operation under the contract or in connection with the contracted work. The General Liability insurance shall also include the Broad Form Property Damage endorsement, in addition to coverages for explosion, collapse, and underground hazards, where required.

c. Maintain owned, non owned, and hired Automobile Liability insurance, in the minimum amount of $1,000,000 per occurrence/ aggregate, including property damage, covering all owned, non owned, borrowed, leased, or rented vehicles operated by the Contractor. In addition, all mobile equipment used by the Contractor in connection with

the contracted work, will be insured under either a standard Automobile Liability policy or a Commercial General Liability policy. The Garage Keeper's Liability coverage shall also be maintained where appropriate.

d. Builder's Risk Policy: The Airports Authority shall require its Contractor to provide Builder's Risk and Fire and Extended Coverage insurance to protect Fairfax and the Contractor and its subcontractors against loss caused by the perils insured in the amount of 100% of the insurable value of the contract. Such insurable value shall reflect any increases to the contract amount through change orders. Such policy shall be in Builder's Risk Completed Value forms, including the following:

1. Policies shall be written to include the names of Contractors and Fairfax and the words "as their interest may appear;"

2. All insurance shall be in effect on or before the date when construction work is to commence; and

3. All insurance shall be maintained in full force and effect until the final acceptance of the Project by the Airports Authority and WMATA.

e. The Airports Authority shall require its Contractor to maintain Excess Liability Insurance in the amount of not less than $298,000,000 per occurrence/aggregate.

f. The Airports Authority shall require the Contractor to maintain Railroad Protective Liability Insurance in the amount of not less than 5,000,000 per occurrence/$10,000,000 aggregate.

g. Liability insurance may be arranged by General Liability and Automobile Liability policies for the full limits required, or by a combination of underlying policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

h. Liability Insurance "Claims Made" basis: If the liability insurance purchased by the Contractor has been issued on a "claims made" basis, the Airports Authority shall require its Contractor to comply with the following additional conditions. The limits of liability and the extensions to be included as described previously in these provisions, remain the same. The Contractor must either:

1. Agree to provide certificates of insurance evidencing the above coverages for a period of two years after final payment for the contract. This certificate shall evidence a

"retroactive date" no later than the beginning of the Contractor's or sub-Contractor's work under this contract, or

2. Purchase the extended reporting period endorsement for the policy or policies in force during the term of this contract and evidence the purchase of this extended reporting period endorsement by means of a certificate of insurance or a copy of the endorsement itself.

i. Rating Requirements:

1. The Airports Authority shall require its Contractor to provide insurance issued by companies admitted within the Commonwealth of Virginia, with the Best's Key Rating of at least A:X.

2. European markets including those based in London, and the domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the Contractor's broker can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A:VI or better.

j. The Airports Authority shall require its Contractor to indemnify and hold harmless Fairfax, its officers, agents and all employees and volunteers, from any and all claims for bodily injury, personal injury, and/or property damage, including cost of investigation, all expenses of litigation, including reasonable attorney fees, and the cost of appeals arising out of any claims or suits which result from errors, omissions, or negligent acts of the Contractor, its subcontractors and their agents and employees.

k. The Airports Authority shall provide Fairfax with an original, signed Certificate of Insurance and such endorsements as prescribed herein.

l. The Airports Authority shall require its Contractor to secure and maintain all insurance certificates of its subcontractors, which shall be made available to Fairfax on demand.

m. The Airports Authority shall require its Contractor to provide on demand certified copies of all insurance policies related to the Contract within ten business days of demand by Fairfax. These certified copies will be sent to Fairfax from the Contractor's insurance agent or representative.

Section 6.3 No change, cancellation, or non-renewal shall be made in any insurance coverage without a 60-day written notice to Fairfax. The Airports Authority shall require its Contractor to furnish a new certificate to the Airports Authority prior to any change or cancellation date. In the event the Contractor fails to timely deliver a new and valid certificate to the Airports Authority, the Airports Authority shall exercise all contractual remedies available to it against the Contractor to secure the delivery of the new and valid certificate to the Airports Authority, including without limitation the withholding of all payments to the Contractor until the new certificate is furnished.

Section 6.4 Compliance by the Contractor and all subcontractors with the foregoing requirements as to carrying insurance shall not relieve the Contractor and all subcontractors of their liabilities provisions of the Contract.

Section 6.5 Contractual and other liability insurance provided under any contracts for this Project shall not contain a supervision, inspection, or engineering services exclusion that would preclude Fairfax from supervising and/or inspecting the project as to the end result. The Airports Authority shall require its Contractor to assume all on-the-job responsibilities as to the control of persons directly employed by it and/or by the subcontractors.

Section 6.6 Nothing contained in the specifications shall be construed as creating any contractual relationship between the Contractor or any subcontractor and Fairfax. The Contractor shall be as fully responsible to Fairfax for the acts and omissions of the subcontractors and of persons employed by them as it is for acts and omissions of person directly employed by it.

Section 6.7 Precaution shall be exercised at all times for the protection of persons (including employees) and property.

Section 6.8 The Airports Authority shall require its Contractor and all subcontractors to comply with the Occupational Safety and Health Act of 1970, Public Law 91-596, as it may apply to this Project.

Section 6.9 When Fairfax finds it necessary to occupy or use a portion or portions of the land area on which the Project is constructed prior to substantial completion of the Project, such occupancy shall commence only after a mutual agreement between Fairfax and the Airports Authority. In that event, the insurance company or companies providing the property insurance shall be request to provide an endorsement prior to the commencement of work. Consent of the Airports Authority and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

Section 6.10 The Airports Authority shall require its Contractor to name Fairfax, its officers and employees, as an "additional insured" and "loss payee" on the Automobile, General Liability, and Excess Liability policies and it shall be stated on the Insurance Certificate that this coverage "is primary to all other coverage Fairfax may possess."

Section 6.11 If an "ACORD" Insurance Certificate form is used by the Contractor's insurance agent, the Airports Authority shall require the deletion of the words, "endeavor to" and "... but failure to mail such notice shall impose no obligation or liability of any kind upon the company" in the "Cancellation" paragraph of the form.

ARTICLE 7
INDEMNIFICATION

Section 7.1 To the extent permitted by law, the Airports Authority shall indemnify and hold harmless Fairfax, its directors, officers, employees and agents from all liabilities, obligations, damages, penalties, claims, costs, charges, and expenses (including reasonable attorney's fees), of whatsoever kind and nature for injury, including personal injury or death of any person or persons (including without limitation employees of Fairfax), and for loss or damage to any property occurring in connection with or in any way arising out of the Project, including without limitation those liabilities, obligations, damages, penalties, claims, costs, charges, and expenses occurring in connection with or in any way arising from the use and occupancy of Fairfax-owned land and the performance of work associated with the construction of the Project on Fairfax-owned land and/or any acts in connection with activities to be performed as part of the construction of the Project on Fairfax-owned land resulting in whole or in part from the acts, errors, or omissions of the Airports Authority and/or the Contractor, or any employee, agent, or representative of the Airports Authority and/or the Contractor.

Section 7.2 The Airports Authority shall indemnify, defend, and hold harmless Fairfax, its agencies, directors, officers, employees, and agents against any and all claims, liabilities, losses, demands, damages, penalties, costs, charges, remedial costs, environmental claims, fees, or other expenses (including reasonable attorneys fees) related to, arising from or attributable to any effluent or other hazardous waste, residue, contaminated soil, or other similar material discharged from, removed from, or introduced on, about, or under Fairfax-owned property as a result of activities in connection with the construction of the Project on Fairfax-owned land.

Section 7.3 If any action or proceeding is brought against Fairfax that is covered by the terms of the indemnification set forth in this Article 7, then upon written notice from Fairfax to the Airports Authority, the Airports Authority shall, at its expense, resist or defend such action or proceeding by counsel approved by Fairfax in writing, such approval not to be unreasonably withheld, but no approval of counsel shall be required where the cause of action is resisted or defended by counsel of any insurance carrier obligated to resist or defend the same.

Section 7.4 The Airports Authority's obligations under this Article are limited:

a. To the extent of insurance under Article 6 of this Agreement, and

b. For a claim or a loss that is not insured under Article 6 of this Agreement, to funds of the Metropolitan Washington Airports Authority

Dulles Corridor Enterprise Fund as defined above and/or revenues from the Dulles Toll Road.

ARTICLE 8
NOTICES

Unless otherwise provided for in this Agreement, whenever necessary for one party to notify another party pursuant to this Agreement, this communication shall be in writing and delivered by independent commercial overnight courier or by facsimile transmission with a cover sheet and date and time stamp (provided an original is also sent by another method listed here), addressed as follows:

If to AIRPORTS AUTHORITY:

President and CEO
Metropolitan Washington Airports Authority
1 Aviation Circle
Washington, D.C. 20001-6000
Fax: 703.417.3917

With a copy to:

General Counsel
Metropolitan Washington Airports Authority
1 Aviation Circle
Washington, D.C. 20001-6000
Fax: 703.417.3917

If to FAIRFAX:

Fairfax County Executive
County of Fairfax, Virginia
12000 Government Center Parkway, Suite 552
Fairfax, VA 22035-0064
Fax: 703.324.3956

With a copy to:

Fairfax County Attorney
12000 Government Center Parkway, Suite 549
Fairfax, Virginia 22035-0064
Fax: 703.324.2665

ARTICLE 9
MISCELLANEOUS PROVISIONS

Section 9.1 This Agreement shall be binding on the parties, their respective agencies, employees, agents, and any successors-in-interest.

Section 9.2 This Agreement may not be assigned by either party unless the parties mutually agree to such an assignment in writing.

Section 9.3 This Agreement shall become effective upon its execution by Fairfax and the Airports Authority. It shall remain in effect as long as the Airports Authority is the Project sponsor until WMATA accepts the Project Facilities into the ARS; provided, however, that the provisions of Articles 6 and 7 of this Agreement shall survive any termination or cessation of this Agreement.

Section 9.4 This agreement may be altered, amended, or revoked only by an instrument in writing signed by each party hereto.

Section 9.5 No waiver of any term, covenant, or condition of this Agreement shall be valid unless in writing and signed by the parties.

Section 9.6 Nothing in this Agreement limits the authority of Airports Authority, the Commonwealth, or Fairfax to exercise its regulatory and police powers granted by law, including but not limited to their powers of condemnation with respect to all or any part of Project.

Section 9.7 This Agreement is intended by the parties to be construed as whole and indivisible and its meaning is to be ascertained from the entire instrument. All parts of the Agreement are to be given effect with equal dignity, including but not limited to the recitals at the beginning of this Agreement, and all such parts, including the recitals, are to be given full force and effect in construing this Agreement. No provision of any recital shall be construed as being controlled by or having less force than any other part of this Agreement because the provision is set forth in a recital.

Section 9.8 This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one in the same Agreement.

Section 9.9 This Agreement shall be governed by the laws of the Commonwealth of Virginia. Any and all litigation relating to this Agreement may be brought and/or maintained only in a Virginia court of competent jurisdiction.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date entered herein.

FOR AIRPORTS AUTHORITY:

James E. Bennett
Chief Executive Officer
Metropolitan Washington Airports Authority

DATE: 10 July 2007

FOR FAIRFAX:

Anthony H. Griffin
County Executive
County of Fairfax, Virginia

DATE: 7/10/07

COMMONWEALTH of VIRGINIA

Office of the Governor

Pierce R. Homer
Secretary of Transportation

P.O. Box 1475
Richmond, Virginia 23218

(804) 786-8032
Fax: (804) 786-6683
TTY: (800) 828-1120

June 14, 2007

Mr. Anthony H. Griffin
County Executive, Fairfax County
12000 Government Center Parkway, Suite 552
Fairfax, Virginia 22035

Dear Mr. Griffin:

The purpose of this letter is to state the Commonwealth's agreement, through a number of its agencies, to have a continuing role in the Dulles Corridor Metrorail Project (Project) following the anticipated transfer of the Project sponsor role from the Department of Rail and Public Transportation (DRPT) to the Metropolitan Washington Airports Authority (MWAA).

As the Project sponsor, MWAA will be the entity that is responsible for the implementation of the Dulles Corridor Metrorail Project. It shall be assisted with those responsibilities by DRPT, the Department of General Services (DGS), the Department of Conservation and Recreation (DCR), and the Virginia Department of Transportation (VDOT). MWAA will serve as the federal grant recipient and will be responsible for the completion of the financing, preliminary engineering, design-build activities, and associated project development activities including but not limited to: financial planning, right-of-way acquisition, environmental mitigation, utility coordination and relocation, permitting, intergovernmental agreements, and public involvement.

DRPT, which was responsible for overseeing the preparation of the majority of the preliminary engineering plans associated with this Project in accordance with all applicable state and federal standards, will continue to serve in a project coordination role for the Commonwealth. As part of this role, DRPT shall serve as a co-applicant on all special exception applications that are filed for the Project in accordance with Article 9 of the Zoning Ordinance for Fairfax County, Virginia (Fairfax County Zoning Ordinance). DGS shall conduct all required site plan reviews and inspections and shall be responsible for issuing all building permits that may be required for those portions of the Project that are located on land within Fairfax County, Virginia (Fairfax County), that is not owned by the federal government and/or MWAA. DCR shall be responsible for reviewing and

ATTACHMENT A

approving all stormwater management and erosion and sediment control plans for those portions of the Project that are located within Fairfax County that is not owned by the federal government and/or MWAA. Regardless of the ownership of land, the project must be registered under the General Permit for Stormwater Discharge from Construction Activity with DCR. In addition, DCR shall be the regulatory authority for all land-disturbing and construction activity in Chesapeake Bay Preservation areas under the provisions of the Chesapeake Bay Preservation Act. Both DGS and DCR shall apply the stricter of the state or Fairfax County standards, where applicable, in reviewing plans and issuing permits.

Fairfax County shall inform DGS of any special exception development conditions imposed by the Fairfax County Board of Supervisors so that they be made a part of the approved site plans, as appropriate. DGS shall notify Fairfax County, on or before the time that MWAA applies for Non-Residential Use Permits on behalf of WMATA, of the extent to which such special exception development conditions were implemented as part of the final site plans for the Project. To the extent that any or all of the special exception development conditions were not addressed by DGS during the process of carrying out its regulatory role for the Project, Fairfax County will be permitted access to all approved plans and shall be permitted to inspect the Project facilities to verify that all special exception conditions were satisfactorily implemented by the Project.

Additionally, DGS, as appropriate, shall verify the Project's compliance with all applicable requirements for issuance of a Non-Residential Use Permit, as set forth in Fairfax County Zoning Ordinance § 18-704. To the extent that DGS is unable to verify the Project's compliance with all of the applicable requirements for issuance of Non-Residential Use Permit(s), Fairfax County shall be permitted access to all approved plans and shall be permitted to inspect the Project facilities to verify that all applicable requirements for issuance of Non-Residential Use Permits for the Project facilities have been satisfied.

Ongoing stormwater pond maintenance shall be performed based on the ownership of the ponds. Fairfax County will retain responsibility for ponds it currently maintains, WMATA will maintain all ponds located on property it currently owns or will own as a result of this Project, and all other ponds created for the project will be maintained by MWAA.

VDOT will assist MWAA with design reviews, use of VDOT right-of-way, property acquisition, utility relocation, construction permitting, construction and final acceptance, traffic maintenance, and project-related roadway improvements, as will be specifically set out in the MWAA-VDOT Cooperative Agreement. More specific information on the roles and responsibilities of each agency will be available in the Project's "Project Management Plan" and in the Cooperative Agreement entered into between Fairfax County and MWAA.

After all construction and start-up related contracts have been performed, MWAA intends to transfer the Project's transit line, facilities, and systems to WMATA for operation and maintenance and for incorporation into the Adopted Regional System. MWAA anticipates having no permanent property interests other than the property interests that MWAA possessed prior to the Project, as permanent property interests in the Project will be held by either WMATA or VDOT, as applicable, in the name of the Commonwealth.

I hope this letter clarifies the anticipated continuing role of the Commonwealth. If you require any further information, please contact DRPT's Director, Matthew Tucker, at (804) 786-1051.

Sincerely,

Pierce R. Homer

Pierce R. Homer

Copy: The Honorable Viola Baskerville, Secretary of Administration
The Honorable Preston Bryant, Secretary of Natural Resources

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

RESOLUTION NO. 07-16

Financial Administration
of the
Dulles Toll Road
and
Dulles Corridor Metrorail Project

WHEREAS, The Chairman and the President and Chief Executive Officer on December 29, 2006 executed the Master Transfer Agreement Relating to the Dulles Toll Road and the Dulles Corridor Metrorail Project as well as the Dulles Toll Road Permit and Operating Agreement, consistent with the authorization to do so in Resolution No. 06-34;

WHEREAS, Implementation of these Agreements with the Virginia Department of Transportation will provide the Authority with control over the Dulles Toll Road for fifty years, making its revenues available to pay a substantial portion of the costs of constructing the Metrorail extension from West Falls Church to Route 772 in Loudoun County;

WHEREAS, The principal source of Toll Road revenues, available as soon as the Authority assumes responsibility for the Toll Road, will be from tolls, to be set by Authority regulation at a level to generate funds sufficient to operate and maintain the Toll Road and other transportation improvements in the Dulles Corridor and to support any debt service requirements necessary to construct the Dulles Corridor Metrorail Project;

WHEREAS, The Authority has since June 2006 met twice a month as the Committee of the Whole to receive briefings on the progress of Dulles Corridor activities and to review the documents that must be executed in the Authority's name;

WHEREAS, The Agreements reflect the Authority's determination to operate and maintain the Toll Road and construct the Metrorail extension with financing separate from all other activities conducted upon the Metropolitan Washington Airports properties; and

WHEREAS, Accounting measures must be taken to assure that revenues and expenditures for the Toll Road and Metrorail project are kept separate from airport revenues and expenditures, now, therefore, be it

RESOLVED, That the President and Chief Executive Officer is authorized and directed to establish a fund to be known as the "Metropolitan Washington Airports Authority Dulles Corridor Enterprise Fund" in order to account for the performance of activities related to the operation and maintenance of the Dulles Toll Road, the construction of the Dulles Corridor Metrorail Project, and other transportation improvements in the Dulles Corridor;

2. That the Dulles Corridor Enterprise Fund shall be separate from all other funds of the Authority;

3. That the Dulles Corridor Enterprise Fund shall be used to account for the operation, maintenance and improvement of the Dulles Toll Road; the acquisition, construction and financing of the Dulles Corridor Metrorail Project; the assets transferred to the Authority relating to the Dulles Toll Road and the Dulles Corridor Metrorail Project; the employment of consulting engineers, attorneys, accountants, construction and financial experts, superintendents, managers, and other employees and agents as may be necessary, as well as their compensation and benefits; the issuance of revenue bonds, notes or other financing instruments payable solely from the fees and revenues pledged for their payment, and the refunding of those bonds; any payments, appropriations, grants, gifts, loans, advances and other funds, properties and services as may be transferred or made available to the Authority by the United States or any other public or private entity or individual; and any and all other items related to the Dulles Toll Road or the Dulles Corridor Metrorail Project, as appropriate, necessary or convenient;

4. That any payment for services, goods and employees as required under the Permit and Operating Agreement and other agreements relating to the Dulles Toll Road and the Dulles Corridor Metrorail Project may be made only from the Dulles Corridor Enterprise Fund Revenues and, to the extent that such services, goods and employees are paid from Authority funds other than the Dulles Corridor Enterprise Fund, the other funds shall be reimbursed for these payments from Dulles Corridor Enterprise Revenues, computed and based upon the actual direct or allocated cost incurred by the Authority for providing such services;

5. That the Authority will, from time to time, issue in its own name, in accordance with its own statutory authority and existing financing practices, Dulles Toll Road revenue bonds, notes and other financing instruments, consistent with the Permit and Operating Agreement, through appropriate authorizing resolutions, payable solely from revenues derived from tolls, fees and other charges on the Dulles Toll Road, from refunding bonds or as otherwise specified in a financing instrument;

6. That in issuing such bonds and other forms of indebtedness (public or private), the Authority will enter into such financing documents, create such liens, and make such covenants, pledges, transfers, hypothecations, and assignments as it may deem necessary or desirable (i) to fulfill its obligations under the Permit and Operating Agreement and (ii) to secure and provide for the payment of such bonds or other obligations, including the creation of reserves therefor;

7. That the sole source of funds for the Dulles Corridor Enterprise Fund shall be the revenues derived from the use and operation of the Dulles Toll Road, proceeds from the sale of revenue bonds, grants, loans, and other funds as provided from time to time by Resolution;

8. That expenditures from the Dulles Corridor Enterprise Fund shall be for costs related to the administration, management, operation, maintenance, and improvement of the Dulles Toll Road, and other transportation improvements in the Dulles Corridor; costs related to construction, maintenance and improvement of the Dulles Corridor Metrorail Project, including acquisition of land related to the same; establishment of reasonable reserves related thereto, payments of the principal of, interest and premium due upon, and other expenses related to the

issuance and servicing of bonds or other financial obligations relating to the Dulles Toll Road and the Dulles Corridor Metrorail Project; costs and expenses of transit operations in the Dulles Corridor; and payment of surplus revenue to the Commonwealth of Virginia for allocation for transportation programs and projects within the Dulles Corridor, and shall be used only for the purposes and in the priorities set forth in the Permit and Operating Agreement;

9. That the President and Chief Executive Officer shall submit an annual budget for the Dulles Corridor Enterprise Fund concurrently with the current annual budget consistent with the Permit and Operating Agreement;

10. That accounting for the Dulles Corridor Enterprise Fund shall conform to "Generally Accepted Accounting Principles" of the Government Accounting Standards Board, and shall be reported by the calendar year;

11. That in accordance with the Permit and Operating Agreement, all funds and accounts of the Dulles Corridor Enterprise Fund shall be held separate and apart from all other funds and accounts of the Authority, and the revenues and expenses of the Dulles Toll Road and the Dulles Corridor Metrorail Project shall not be commingled with any other revenues or expenses of the Authority;

12. That all revenues of the Dulles Corridor Enterprise Fund shall be held in accounts with a financial institution under arrangements that, to the extent reasonably practicable, preclude such funds from being an asset subject to claims of creditors of the Authority other than holders of bonds and other Dulles Corridor Enterprise Fund financial obligations and holders of claims otherwise related to the Dulles Toll Road or the Dulles Corridor Metrorail Project;

13. That recourse against the Dulles Corridor Enterprise Fund shall be limited exclusively to the Authority's interest in the Dulles Toll Road in accordance with the terms of the Permit and Operating Agreement, and there shall not be any recourse from any action arising out of operation of the Dulles Toll Road or the Metrorail Project against the Authority's interest in any other facility, property, fund or account, including assets used in and revenues derived from the Authority's operation of the Airports;

14. That in addition to the indemnification provided under Resolution No. 01-19, recourse may not be had for any claim against the Dulles Corridor Enterprise Fund against any member, officer, agent or employee, past, present or future, of the Authority, or any successor body, under any constitutional provision, statute, or rule of law, or by the enforcement of any assessment or penalty or by any legal or equitable proceeding or otherwise; and

15. That the Dulles Corridor Enterprise Fund shall remain in existence until terminated by the Authority or by operation of law, at which time any and all assets of the Fund, immediately and without further action, shall be deemed to be and shall be assets of the Authority or such other enterprise as provided by the Authority, or shall otherwise be disbursed in a manner not inconsistent with the Master Transfer Agreement and the Permit and Operating Agreement.

Adopted June 6, 2007

Gregory Wolfe, Secretary

RIGHT-OF-ENTRY - DULLES CORRIDOR METRORAIL PROJECT

RIGHT OF WAY- Property of the Board of Supervisors Fairfax County

Tax Map No. 030-3-28-B3
029-4-05-B1
029-4-05-A1
029-4-05-D
029-4-05-E
029-4-05-C1
029-3-01-0005
029-1-01-0035A
029-1-01-0057B
028-1-21-A
016-1-01-0011B
017-4-01-0017A
(Additional parcels may be added)

The Facilities Management Department (Grantor) hereby grants to_____ (Grantee), its agents, and assigns permission to enter upon the subject properties for the purpose of constructing the Dulles Corridor Metrorail Project within the areas shown on the plans.

Grantee shall have quiet and peaceable possession, use, and enjoyment of the aforesaid right of entry, the parcels applicable thereto, and rights and privileges hereby granted. Said right of quiet and peaceable possession, use, and enjoyment shall apply to all properties listed hereon with the following exceptions: Tax Map Nos. 029-3((1))0057-B (Fire and Rescue Station No. 29); 017-4((1))0017-A (Wiehle Avenue Parking Garage); and 016-1((1))0011-B (Soccer Fields). On these three parcels, Grantee shall coordinate construction activity with the County-authorized activities occurring thereon and accommodate such activities in a manner mutually agreeable to Grantor and Grantee.

Grantor reserves all rights, title and interest in and to the right of way to be occupied by _____ until further transfer of title to the appropriate entity is determined.

BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA

BY_____
TITLE_____
DATE_____

The foregoing instrument was acknowledged before me this ____day of _____, 2007, by_____.

My Commission expires_____

_____
NOTARY PUBLIC

ATTACHMENT C

ATTACHMENT D

	Station Outbound Track	Project Phase	(Fairfax) PIN Number (Loudoun)	Property Interest Identified By	Segment	Purpose	Property Location	Known As	Owner	Contact	Mailing Address	Tenant	Current Zoning	[illegible]	Total Land Area
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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005	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
011	925+00	1	029-4-10-0004B	DTP 9-16-05	Rt 123	Aerial Guideway Route 123	North Side of Route 123	Tysons Galleria; Vacant Land	Tysons II Land Co., LLC	Peter Rosen, Owner Rep Dawn Munson for entry 703-848-8870	Attn: Robert K. Tanenbaum 11501 Huff Court Kensington, MD 20895	Vacant Land	Planned Development Commercial PDC	Portion required for Metrorail	84,483 sq ft 1.9380 acres
012	929+00	1	029-4-10-0004A	DTP 4-19-05	Rt 123	Aerial Guideway Route 123	North Side of Route 123	Tysons Galleria; Vacant Land	Tysons II Land Co., LLC	Peter Rosen, Owner Rep Dawn Munson for entry 703-848-8870	Attn: Robert K. Tanenbaum 11501 Huff Court Kensington, MD 20895	Vacant Land	Planned Development Commercial PDC	Portion required for Metrorail	244,195 sq ft 5.6060 acres
013	933+00	1	029-4-01-0035A	FEIS Acquisition List	T123 Station	Tysons Central 123 Station - Pedestrian Bridge & South Entrance Pavilion	1961 Chain Bridge Road	Tysons Corner Center	Tysons Corner Property Holdings LLC	Kathy Hanson, Owner Rep Kevin Marasgala, Ops Mgr 703-893-9400	1961 Chain Bridge Road Suite 105 McLean, VA 22102	Portion to be acquired is vacant but adjacent to parking garage.	Commercial (with Resid/Apt Zoning)		3,292,382 sq f 74.8833 acres
014	934+00	1	029-4-10-0005A	FEIS Acquisition List	T123 Station	Tysons Central 123 Station Platform, TPSS 4 and North Entrance Pavilion Construction Staging	North Side of Route 123	Tysons Galleria; Vacant Land	Tysons II Land Co., LLC	Peter Rosen, Owner Rep Dawn Munson for entry 703-848-8870	Attn: Robert K. Tanenbaum 11501 Huff Court Kensington, MD 20895	Vacant Land	Planned Development Commercial PDC	Portion required for Metrorail	160,231 sq ft 3.6784 acres
015	940+00	1	029-4-10-0005B	FEIS Acquisition List	Rt 123	Transition into Tunnel Construction Staging	North Side of Route 123	Tysons Galleria; Vacant Land	Tysons II Land Co., LLC	Peter Rosen, Owner Rep Dawn Munson for entry 703-848-8870	Attn: Robert K. Tanenbaum 11501 Huff Court Kensington, MD 20895	Vacant Land	Planned Development Commercial PDC	Portion required for Metrorail	153,105 sq ft 3.5148 acres
046	0942+00	1	029-4-10-0005C	FEIS Acquisition List	Rt 123	Tunnel Portal and Tunnel Construction Staging	North Side of Route 123	Tysons Galleria; Vacant Land	Tysons II Land Co., LLC	Peter Rosen, Owner Rep Dawn Munson for entry 703-848-8870	Attn: Robert K. Tanenbaum 11501 Huff Court Kensington, MD 20895	Vacant Land	Planned Development Commercial PDC	Portion required for Metrorail	203,892 sq ft 4.6782 acres
[illegible]	[illegible]	1	[illegible]	FEIS Acquisition List	[illegible]	[illegible]	[illegible]	[illegible]	Board of Supervisors, [illegible] County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] of Supervisors, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	FEIS Acquisition	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Outbound Track	Phase	PIN Number (Loudoun)	Identified By	Segment	Purpose	Property Location	Relation Alt	Owner	Contact	Mailing Address	Tenant	Current Zoning	Proffer	Land Area
088	1008+00	1	029-3-01-0001E	DTP Update 1-08-05	TW Station	Eastbound Route 7	9540 Leesburg Pike	HBL Mercedes	George Andreas, Trustee, Ursula Andreas, Trustee, for AAL Associates, LLC		PO Box 1788 Middleburg, VA 20118 8731 Comm Street McLean, VA 22101	HBL Mercedes	Regional Retail C-7		148,439 sq ft 3.4088 acres
089	1008+00	1	029-3-01-0001F	DTP Update 1-08-05	Rt 7	Eastbound Route 7	South side of Route 7	Front of HBL Mercedes	George Andreas, Trustee, Ursula Andreas, Trustee, for AAL Associates, LLC		PO Box 1788 Middleburg, VA 20118 8731 Comm Street McLean, VA 22101	HBL	Regional Retail C-7	Not yet conveyed	2,289 sq ft 0.0523 acres
822	1008+00	1	029-3-28-6001	PBS Acquisition List	Rt 7	Eastbound Route 7	9801 Westwood Center Drive	HBL Pre-Owned Cars	Jamels Tysons Westwood, LLC		702 H Street, N.W., Suite 400 Washington DC 20001	HBL	Regional Retail C-7	Proffers	105,076 sq ft 2.4123 acres
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
216	1539+00	2	018-4-01-0018B	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
217	1540+00	2	018-1-23-0008A	PBS Acquisition List		Route 28 Station - South Entrance Pavilion	South Side of Horse Pen Road	Site of South Side Station Facilities; Vacant	WRIT Dulles Station, LLC		c/o Washington Real Estate Investment Trust 6110 Executive Blvd, Suite 800 Rockville, MD 20852		Planned Development Commercial PDC		228,326 sq ft 5.2763 acres
	1542+00	2	018-4-05-0008A	PBS Acquisition List		Route 28 Station - South Entrance	South Side of Horse Pen Road	Site of South Side Station Facilities; Vacant	Dulles Development LLC c/o Crescon Partners		485 Spring Mill Place Suite 100 Herndon, VA 20170		Planned Development Commercial PDC		305,178 sq ft 7.008 acres

AMENDED
RECORD OF DECISION

by the Federal Transit Administration

Dulles Corridor Metrorail Project
Fairfax and Loudoun Counties, Virginia

DECISION

The Federal Transit Administration (FTA), in accordance with 23 CFR part 771, the regulation that governs the Federal environmental review process for transportation projects funded by the FTA, has decided that the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended, have been satisfied for the Dulles Corridor Metrorail Project. The Project, a planned extension of the Washington Metropolitan Area Transit Authority (WMATA) regional Metrorail system in Fairfax and Loudoun Counties, Virginia, will include 23.1 miles of electrically-powered rapid rail transit operating in an exclusive right-of-way with at-grade, aerial, and subway sections, 11 new stations, parking facilities, new and improved yard and shop facilities, rail vehicles, fare collection equipment, communications and train control systems, and ancillary facilities for the distribution of electrical power and stormwater management.

This FTA Record of Decision (ROD) applies to the Locally Preferred Alternative ("the Project"), as described in the Project's December 2004 *Final Environmental Impact Statement and Section 4(f) Evaluation* (Final EIS) and modified in the February 2006 *Preliminary Engineering Design Refinements Environmental Assessment*. This Amended ROD replaces the FTA Record of Decision previously issued in March 2005. The Project sponsor,[1] the Virginia Department of Rail and Public Transportation (DRPT), seeks financial assistance from FTA for the first phase of the Project (the Extension to Wiehle Avenue), which will extend from the existing Metrorail Orange Line near the West Falls Church Station and terminate at Wiehle Avenue in Reston. The second phase of the project (the Extension to Dulles Airport/Route 772) will extend west from Wiehle Avenue to Dulles International Airport and eastern Loudoun County. Once constructed and accepted by WMATA, each phase of the Project will be operated as part of the regional Metrorail system.

In addition to FTA, the Federal Aviation Administration (FAA) participated in the Project's NEPA review as a cooperating agency because construction of the Project requires the use of airport property and FAA's approval of the change in the Airport Layout Plan.

[1] Up to now, the Virginia Department of Rail and Public Transportation (DRPT) has been the sponsoring agency and the presumed recipient of any grant provided by FTA. However, the Metropolitan Washington Airports Authority (MWAA) is working with DRPT and FTA to take over as the Project sponsor, and if this change occurs, MWAA will become the recipient of any FTA grant already in place or awarded after such a transition. As a condition of any grant, FTA will require that the Project sponsor construct the Project in accordance with the environmental record referenced herein. (The Washington Metropolitan Area Transit Authority (WMATA) is not a Project sponsor, but is serving as technical manager to the Project since WMATA will assume ownership and operation of the Project after it is constructed.)

BACKGROUND

The Dulles Corridor, located in Northern Virginia, west of the nation's capital, is home to several of the Washington metropolitan region's most dynamic and rapidly growing activity centers. Extending from the vicinity of West Falls Church Metrorail Station in Fairfax County, Virginia, to Route 772 in Loudoun County, Virginia, the 23.1-mile corridor includes the high-density office buildings and regional shopping centers of Tysons Corner; the residences, shopping centers, and suburban office complexes of the Reston-Herndon area; the rapidly growing Washington Dulles International Airport (Dulles Airport); and an emerging residential and employment center in eastern Loudoun County.

With the Dulles Corridor's increasing attractiveness as a place to live and work, travel in the corridor has been steadily growing over the past 15 years. This increasing travel demand has strained the capacity of the existing transportation network, causing delays and increasing travel times between activity centers within the corridor and the region. The central and eastern portions of the corridor currently experience some of the region's worst traffic congestion.

Over the next 25 years, continued development of the corridor as a regional employment destination and the maturation of residential communities and commercial areas within the corridor are expected to far outpace the growth of the region as a whole. Parallel increases in travel demand are projected to exceed the capacity of the corridor's already overburdened transportation system, resulting in severely congested conditions on numerous routes, further degradation of air quality, and a threat to the valued quality of life in the Dulles Corridor.

Planned roadway enhancements in the corridor are not expected to relieve the current levels of congestion and the ability to further expand roadway capacity beyond currently planned improvements is constrained by right-of-way limitations and federal air quality standards. For these reasons, alternative transportation improvements in the Dulles Corridor that would increase capacity and improve mobility without further expanding roadways, such as a high-quality, high-capacity rapid transit line, have long been the focus of public and private sector studies.

Rapid transit in the Dulles Corridor was initially explored in the 1950s as part of the planning of Dulles Airport. At that time, it was decided to reserve the median of the Dulles International Airport Access Highway (DIAAH), previously known as the Dulles Airport Access Road, for future transit access to the airport. In the late 1960s the need for transit in the corridor was evaluated during the planning of the regional Metrorail system. While Metrorail's original Adopted Regional System did not include a connection to Dulles Airport, extending rapid transit service to the airport has remained a local and regional goal.

In the 1990s, providing a rapid transit connection to Dulles Airport was evaluated in the *Dulles Corridor Transportation Study* (1997) and the *Supplement to the Dulles Corridor Transportation Study* (1999). The former, a Major Investment Study (MIS), recommended developing a rail line between the Metrorail Orange Line and Route 772 primarily using the median of the DIAAH.

The MIS Supplement in 1999 recommended developing this rail line through a phased implementation program that would begin with enhanced express bus services, then use bus rapid transit (BRT) technology to institute rapid transit service in the Dulles Corridor as quickly as possible. BRT is an emerging transit mode in which buses are used to provide high-quality service akin to a rapid rail system. The BRT line would then be converted to rail use over time.

The recommended transit alternatives for the Dulles Corridor were evaluated in the *Dulles Corridor Rapid Transit Project Draft Environmental Impact Statement and Section 4(f) Evaluation* (Draft EIS) published in June 2002. The results of the evaluation assisted the Commonwealth of Virginia, MWAA, WMATA, FTA, FAA, local and regional decision-makers, and the public in understanding the potential effects of the alternatives under consideration for the project. Based on the analysis contained in the Draft EIS, public comments received on the document, and agency coordination, in late 2002 an extension of the WMATA Metrorail from the existing Orange Line to Route 772 in Loudoun County was selected as the Locally Preferred Alternative (LPA) for the project by both the Commonwealth Transportation Board (CTB) and the WMATA Board of Directors. Like the alternative recommended in the 1997 MIS, the rail line would primarily use the median of the DIAAH, leaving the highway to directly serve Tysons Corner and Dulles Airport. However, unlike the recommendations of the MIS Supplement, the selected LPA was not proposed to be developed through a phased implementation program that included BRT as an interim step to rail.

Following the publication of the Draft EIS and selection of the Metrorail Alternative as the LPA, additional agency and public coordination resulted in revisions to the selected LPA. The potential effects of these changes—which included design modifications to the preferred alignment and facilities, adjustment of opening years, and scheduling construction of the project in two phases—were documented in the *Dulles Corridor Rapid Transit Project Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation* (Supplemental Draft EIS) published in October 2003. Although many of the merits and potential impacts of the proposed LPA were similar to those presented in the Draft EIS, the Supplemental Draft EIS allowed decision makers to fully and explicitly examine the effects of the revised LPA compared to the Metrorail Alternative evaluated in the Draft EIS and a No Build Alternative. Based on the analysis contained in the Supplemental Draft EIS, public comments received on the document, and agency coordination, in March 2004 the CTB approved the revision of the LPA to incorporate the elements required for phased construction and the design refinements outlined in the Supplemental Draft EIS and recommended in its Public Hearings Report. In April 2004, the WMATA Board of Directors approved the revision of the LPA. The Transportation Planning Board of the Metropolitan Washington Council of Governments included the LPA in the 2005 Constrained Long-Range Transportation Plan for metropolitan Washington, D.C.

The Final EIS was developed to respond to comments and issues raised during the circulation of the Draft EIS and the Supplemental Draft EIS and to provide more detailed information on the design of proposed mitigation measures for unavoidable adverse impacts associated with the Project. The Final EIS was published in December 2004.

In February 2006, an Environmental Assessment (the 2006 EA) was prepared to assess the environmental impacts of modifications that were made to the design of the Project's initial construction phase during preliminary engineering (PE). These design refinements came about after the publication of the Final EIS and issuance of the original FTA Record of Decision in March 2005.

BASIS FOR DECISION

FTA's decision is based on information contained in the Draft EIS (June 2002), the Supplemental Draft EIS (October 2003), the Final EIS (December 2004), and the Preliminary Engineering Design Refinements Environmental Assessment (February 2006), which together constitute the detailed statement on environmental impacts required by NEPA and the Federal transit statutes (49 USC 5324(b)). The statement identifies the Preferred Alternative and includes a review of the purpose and need for the Project, its goals and objectives, consideration of alternatives, environmental impacts, and measures to minimize harm. FTA has reviewed this statement and notes that the Metrorail Alternative was selected over other alternatives considered because it:

- provided better access to corridor activity centers;
- provided better access to other regional activity centers
- did not require a mode transfer to access the regional Metrorail system;
- provided shorter travel times for trips within the corridor;
- provided the greatest increase in person throughput capacity in the corridor;
- attracted the highest number of total riders and new riders;
- better supported the comprehensive planning efforts of Fairfax and Loudoun counties;
- allowed for more transit-oriented development to be focused in station areas;
- increased the overall mobility within the corridor, the counties, and the region;
- conformed with regional air quality plans; and
- had the highest level of public and agency support.

The FAA has determined that the use of airport property for the Project is consistent with the terms of Section VII.G of FAA's *Policy and Procedures Concerning the Use of Airport Revenue* (64 FR 7696-7723). Public transit access to Dulles International Airport was envisioned in the airport's original Master Plan, and the Project will not affect airport operations. The median of the airport access highway was initially reserved for a future rail line when the airport was constructed in the early 1960s. In 1985, when the Master Plan was updated, FAA recommended that the median of airport access highway continue to be reserved for a future transit line and anticipated that this would likely be an expansion of the region's Metrorail system. On airport property, the rail line will be located either underground or along existing roadways; the station at the main terminal will be located underground. Other related facilities will be located in an airport buffer zone on land that would not otherwise be used for airport

development. The improved mobility and access provided by the Project will benefit the airport's operator, tenants, and air passengers.

ALTERNATIVES CONSIDERED

Numerous alternatives were evaluated throughout the various stages of the environmental review phase of the Project. Consistent with the Project's evaluation methodology, the effectiveness of each alternative was assessed based on social, environmental, economic, and transportation factors. The evaluation process applied increasingly detailed and comprehensive measures of effectiveness to a decreasing number of alternatives. This process allowed decision-makers to identify similarities, differences, and trade-offs between each alternative, and to carry forward those alternatives that were determined to best achieve the following:

- Improve transportation service;
- Increase transit ridership;
- Support future development;
- Support environmental quality;
- Provide cost-effective, achievable transportation choices; and
- Serve diverse populations.

The formal NEPA review process began with the Notice of Intent, which was published on June 26, 2000, and a series of scoping meetings, which were held July 25-27, 2000. The initial set of alternatives considered for the Project included various rapid transit modes, alignments, station locations, and ancillary facilities. These alternatives were based on recommendations from the *Dulles Corridor Transportation Study* (1997), the *Supplement to the Dulles Corridor Transportation Study* (1999), and the comments received during the scoping meetings. These initial alternatives were then subjected to a two-phase screening process to determine which should be advanced for more detailed evaluation in the Draft EIS. For the initial screening process, most measures were qualitative. Criteria included consistency with land use plans, order of magnitude capital costs, access to activity centers within the Dulles Corridor and the region, and compatibility with existing infrastructure, among others. Alternatives carried forward from initial screening were subjected to a more rigorous evaluation in intermediate screening. In this phase of evaluation, many of the criteria applied during initial screening were measured more quantitatively. Alternatives that performed well were advanced for more detailed evaluation in the Draft EIS. The results of the screening evaluation are documented in detail in the Project's *Final Alternatives Analysis Report* (May 2001). Additional alternatives evaluated are documented in the *Final Alternatives Analysis Report Addendum* (December 2004.)

Draft Environmental Impact Statement

The Draft EIS evaluated the potential effects of several alternative transit improvements for the Dulles Corridor. In addition to a No Build Alternative, four Build Alternatives that primarily ran

along the Dulles Connector Road, the DIAAH, and the Dulles Greenway were evaluated. The alternatives included:

- **No Build (Baseline) Alternative.** The No Build Alternative represented the "no-action alternative" required by the Council of Environmental Quality's (CEQ's) regulations for implementing NEPA, and provided a baseline for comparison against which the other alternatives were evaluated in the Draft EIS. The No Build Alternative included existing highway and public transportation infrastructure in the Dulles Corridor, and transportation system improvements, aside from the Project, that were included in the Washington metropolitan region's constrained long-range transportation plan and planned for implementation by 2025.
- **Bus Rapid Transit (BRT) Alternative.** BRT is a bus-based transit system that operates like a rail system. Passengers on BRT are provided rail-like amenities such as off-board fare collection, level boarding, enhanced stations, and platforms. Because it often takes advantage of pre-existing roadway facilities, BRT is generally a lower-cost transit technology than rail. Three alignment options were considered for the BRT Alternative in the Draft EIS.
- **Metrorail Alternative.** Metrorail is the region's rapid rail system. It is powered by an electrified third rail and operates in exclusive rights-of-way. By using multiple-car trains, Metrorail is capable of moving high volumes of passengers. Key features of the Metrorail system include fixed stations, dedicated rights-of-way, advanced fare collection, relatively simple transfers between different lines, and multiple-door boarding from level platforms. For the Metrorail Alternative, four alignment options were considered in Tysons Corner, and three sites were considered for a Metrorail Service & Inspection (S&I) Yard in Loudoun County.
- **BRT/Metrorail Alternative.** This alternative combined the BRT and Metrorail alternatives. Metrorail would be constructed in the eastern part of the Dulles Corridor as far as Tysons Corner, and BRT would be constructed in the western part of the corridor to Route 772 in Loudoun County.
- **Phased Implementation Alternative.** This alternative combined the other three Build Alternatives into a program of rapid transit improvements that would be implemented in stages (BRT, then BRT/Metrorail, then Metrorail). This approach would allow decision-makers to begin to address the travel needs in the corridor with rapid transit in the near term, while allowing for future development of rail.

Each of the Build Alternatives included several stations located in the median of the DIAAH, which were similar to stations on the existing Metrorail system. The BRT stations were designed to allow future conversion to rail stations. The alternatives also included the development of station and ancillary facilities such as parking and bus transfer facilities, a bus maintenance and storage facility, a rail service and inspection yard (S&I Yard), rail traction power substations and tie-breaker stations, and stormwater management facilities.

Supplemental Draft Environmental Impact Statement

Based on subsequent public and agency coordination after the completion of the Draft EIS and after an LPA was recommended and selected, the Project sponsor identified a series of modifications to the project to resolve outstanding design issues, reduce environmental and community impacts, and allow for construction of the project in two phases. The Supplemental Draft EIS was prepared to assist decision-makers and the public in understanding the effects of the proposed modifications to the selected LPA. A comparative evaluation was presented for the following alternatives:

- **No Build Alternative.** The No Build Alternative for the Supplemental Draft EIS was the same as the Baseline Alternative defined in the Draft EIS. The alternative included existing transportation infrastructure and services, as well as improvements included in the region's constrained long-range plan and planned to be implemented by 2025. The No Build Alternative provided a baseline for comparison against which the other alternatives were evaluated.
- **Metrorail Alternative (T6/Y15).** This alternative was the Metrorail Alternative evaluated in the Draft EIS and originally selected as the LPA (with Alignment T6 through Tysons Corner and a new S&I Yard at Site 15). The alternative generally followed an alignment between the Metrorail Orange Line near West Falls Church Station and Route 772 in Loudoun County, using the median of the Dulles Connector Road, the DIAAH, and the Dulles Greenway. It included 11 new stations and ancillary facilities, such as a new Metrorail S&I Yard, traction power substations, tie-breaker stations, and stormwater management ponds. The Metrorail Alternative (T6/Y15) was included in the Supplemental Draft EIS to facilitate understanding of the changes in effects associated with the proposed modifications to the LPA.
- **Proposed LPA.** The proposed LPA was similar to the Metrorail Alternative (T6/Y15) in terms of alignment, stations, facilities, and operating characteristics. The primary difference between the two alternatives was that the LPA was to be implemented in two phases. For the Wiehle Avenue Extension, Metrorail would be constructed from the Metrorail Orange Line through Tysons Corner to Wiehle Avenue, with interim express bus service in the western portion of the corridor until rail service could be extended. The Wiehle Avenue Extension was anticipated to open in 2011 with the full LPA opening in 2015. The impacts associated with operating the Wiehle Avenue station temporarily as an end-of-line station were evaluated. Other differences between the proposed LPA and the Metrorail Alternative (T6/Y15) included additional improvements at West Falls Church S&I Yard to accommodate operation of the Wiehle Avenue Extension prior to construction of the remainder of the LPA; adjustments to alignment plans and profiles for a variety of purposes including to reduce potential noise impacts, visual impacts, costs, and to improve operational efficiency; and design modifications of station site plans and ancillary facilities to address operational changes and to respond to concerns of local jurisdictions and landowners.

Final Environmental Impact Statement

The Final EIS was developed to respond to comments and issues raised during the circulation of the Draft EIS and the Supplemental Draft EIS and to provide more detailed information on the design of proposed mitigation measures for unavoidable impacts associated with the Project. The Final EIS presented an evaluation of the following alternatives:

- **No Build Alternative.** The No Build Alternative for the Final EIS is similar to the No Build Alternative defined in the Supplemental Draft EIS, but updated to reflect current conditions. The alternative includes existing transportation infrastructure and services, as well as improvements included in the region's constrained long-range plan and planned to be implemented by 2025. The No Build Alternative provides a baseline for comparison against which the other alternatives were evaluated.
- **Wiehle Avenue Extension.** The initial construction phase of the LPA was evaluated as a stand-alone alternative in the Final EIS. This alternative includes the first 11.6 miles of the Project from the existing Metrorail Orange Line near West Falls Church through Tysons Corner to Wiehle Avenue. The Wiehle Avenue Extension follows the Dulles Connector Road, Routes 123 and 7 in Tysons Corner, and the Dulles International Airport Access Highway (DIAAH). It includes 5 new stations, additional commuter parking, improvements to the existing Metrorail Service and Inspection Yard at West Falls Church, and required ancillary facilities. Express bus service would be provided by local transit operators between Wiehle Avenue and the western portion of the corridor.
- LPA. The LPA in the Final EIS is the entire 23.1-mile Metrorail extension, which is the subject of this Record of Decision. The LPA extends along the Dulles Connector Road, Routes 123 and 7, the DIAAH, and the Dulles Greenway between the Metrorail Orange Line and Route 772 in Loudoun County. It includes direct Metrorail service to Tysons Corner and Dulles Airport. The LPA includes 11 new stations, additional commuter parking, a new Metrorail Service & Inspection Yard on Dulles Airport property, improvements to the existing West Falls Church Service and Inspection Yard, and required ancillary facilities such as traction power substations, tie-breaker stations, and stormwater management ponds. The LPA would be constructed in two phases, the first phase being the Wiehle Avenue Extension described above, and the second phase being the further extension from Wiehle Avenue through the Airport to the terminus at Route 772 on the Dulles Greenway. Express bus service would be provided by local transit operators between Wiehle Avenue and the western portion of the corridor until Metrorail is extended to Route 772. This alternative, as modified by the Preliminary Engineering Design Refinements Environmental Assessment (2006 EA), discussed below, is the subject of this Amended Record of Decision.

Preliminary Engineering Design Refinements Environmental Assessment (2006 EA)

In early 2006, an Environmental Assessment (2006 EA) was prepared to assess the environmental impacts of modifications that were made to the design of the Project's initial

construction phase during preliminary engineering (PE). These design refinements came about after the publication of the Final EIS and issuance of the original FTA Record of Decision in March 2005. The 2006 EA presented an evaluation of the following two alternatives of limited scope, with variations primarily in the Tysons Corner area:

- **Final EIS Wiehle Avenue Extension.** This alternative is identical to initial phase of the LPA evaluated in detail in the Final EIS.

- **PE Wiehle Avenue Extension.** This alternative reflects the design refinements made during preliminary engineering (PE), including: a shift of the alignment from the southern edge to the median of Route 7 and reconfiguration of the roadway travel lanes, narrower track centers (outside station areas), simplified aerial guideway structures and architectural treatments, alternative station designs, and a revised connection with the existing Metrorail Orange Line. The tunnel portion of the Route 7 alignment would be shortened in length from approximately 5,000 feet to 3,000 feet, and the underground Tysons Central 7 Station would be replaced with an at-grade station in the Route 7 median. In addition, the site of the Dulles Storage and Inspection (S&I) Yard that was originally envisioned as an element only of Phase 2 of the Project would be used for soil fill and disposal during construction of the Wiehle Avenue Extension (Phase 1).

Two changes proposed in the 2006 EA have not been incorporated into the Project. The 2006 EA proposed to store and maintain the Project's additional rail vehicles at existing WMATA storage and maintenance facilities and to forgo the expansion of the West Falls Church Storage and Inspection (S&I) Yard. That change has not been accepted and the expansion of the West Falls Church S&I Yard, as described in the FEIS, will proceed and remains an element of the Project that is the subject of this Amended ROD. The 2006 EA also proposed to forgo some elevators at Phase 1 stations, especially in the Tyson's Corner area, to reduce the Project's cost. Numerous public comments opposing this change (see Attachment B) were received during the comment period for the 2006 EA, and in response to those comments, FTA and the Project sponsor have decided to retain those elevators.

On the basis of the 2006 EA, FTA has found that the PE design refinements would result in no significant changes in impacts and no new significant impacts from those evaluated in the Final EIS.

ENVIRONMENTAL IMPACTS AND MEASURES TO MINIMIZE HARM

The Project's effects on the existing social, environmental, economic, and transportation conditions in the Dulles Corridor were assessed in the Final EIS and the subsequent 2006 EA. Because most of the Metrorail extension would be built along existing roadways or within the medians of highways (e.g., the Dulles Connector Road, the DIAAH, and the Dulles Greenway), the anticipated environmental and community impacts are limited, in spite of the length and complexity of the Project.

FTA notes the following environmental impacts of the Project in reaching a decision:

- **Property Acquisition.** Construction of the Project and its facilities will require the acquisition of approximately 22 acres of privately-owned commercial property and 4 acres of privately owned residential property. One commercial business, an automotive repair facility, will be displaced to accommodate Project facilities. A portion of a self-storage business will also be acquired, but the business will be able to continue operations. There will be no residential displacements. Additional private property and business displacements will be required temporarily to accommodate construction activities or maintain traffic during construction. All property acquisitions and relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended, and its implementing regulation at 49 CFR part 24.

  Another 159 acres of government-owned or controlled property will also be used for the Project's line and track, stations, rail yard, and ancillary facilities. This includes the acquisition of property interests in the median and other parts of the Dulles International Airport Access Highway and Dulles Connector Road, and in parts of the Dulles Airport property itself, including the site of the Service & Inspection Yard and portions of eight parcels that are currently leased to commercial entities. The U.S. Department of Transportation (U.S. DOT) owns the Access Highway, the Connector Road and the Dulles Airport property. The Metropolitan Washington Airports Authority (MWAA) leases the property from the U.S. DOT (the current lease extends through the year 2067) and has sublet certain commercial parcels to private businesses. If necessary, the Project sponsor will seek conveyance of property interests or easements on the Access Highway, Connector Road, and Airport needed for the Project's construction and operation from MWAA and the U.S. DOT. The acquired property interest will be adequate to ensure the Project sponsor's continuing control of the Project facilities throughout the useful life of the Project.

- **Land Use.** The Project is expected to have positive effects on commercial and residential properties located near transit stations, and contribute to more sustainable and transit-supportive economic development by focusing higher-density residential and commercial land uses around the station areas.

- **Historic and Archaeological Resources.** The effects of the Project on historic and archaeological resources have been assessed in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC §470f), and its implementing regulations (36 CFR 800). The Project will have an adverse effect on the Dulles Airport Historic District by altering the historic views of the main terminal for travelers approaching via the DIAAH. The Project will have no effects on known archaeological resources. The measures to be taken to avoid, minimize and mitigate the adverse effects on this historic resource and on any archaeological resources that may be encountered during construction activities are set forth in the Section 106 Memorandum of Agreement (MOA) among FTA, DRPT, and the Virginia Department of

Historic Resources. A copy of the signed MOA is included herein as Attachment C. FTA will require compliance with the MOA by the Project sponsor, even if the lead sponsoring agency changes.

- **Wetlands.** The Project will affect approximately 5 acres of wetlands, which are primarily located in the vicinity of the Service and Inspection Yard on Dulles Airport property. Practicable mitigation measures are described in the Final EIS and summarized herein in Attachment A.
- **Noise and Vibration.** Without noise mitigation, operation of the Project was predicted to exceed FTA noise impact criteria at many sensitive receptors along the alignment, primarily residences along the Dulles Connector Road. During preliminary engineering, additional noise analyses were conducted to confirm mitigation requirements. Track edge barriers (parapets) will be installed to reduce the noise levels from Metrorail train passbys along all aerial sections of the track. For at-grade locations where noise levels at sensitive receptors are predicted to exceed FTA criteria, track edge barriers will also be installed as described in Attachment A. During construction, noise and vibration levels from construction activities may temporarily impact nearby sensitive receptors.
- **Traffic and Transportation.** The Project will result in changes to traffic conditions as people change their travel patterns to access the new transit stations, affecting some of the neighborhoods that surround certain stations. Although they would experience such traffic-related effects, these neighborhoods would also directly benefit from the mobility and accessibility that the transit improvements would bring. The Project includes roadway improvements needed for vehicular access to stations or facilities and additional roadway improvements to address opening year traffic congestion in the vicinity of the new Metrorail stations.
- Construction of the Project will impede access to residences or to building entrances or to the parking area of businesses. It may also necessitate temporary relocation of parking either for safety reasons or if property is needed for construction staging areas. Construction-related disruptions to access will generally be short-term and temporary.

Throughout the process of developing and evaluating alternatives and coordinating with the public and other stakeholders, the Project sponsor and FTA made considerable effort to incorporate measures to minimize the Project's potential social, environmental, economic and transportation impacts. The Final EIS and 2006 EA provide a description of the mitigation measures that are now incorporated into the Project to avoid and minimize adverse impacts. FTA will ensure that the Project sponsor designs and builds the Project in accordance with the mitigation measures contained in the Final EIS and 2006 EA and summarized in Attachment A. In addition, FTA will require that the Project sponsor establishes a mitigation-monitoring program to ensure adequate communication of mitigation and design commitments to the teams working on final design and construction, and to provide a means for the Project sponsor and FTA to track the progress in accomplishing the mitigation commitments. FTA will monitor

implementation of mitigation measures through quarterly reviews during design and construction or other appropriate means.

PUBLIC COORDINATION AND COMMENTS

During the preparation of the Draft EIS and the Supplemental Draft EIS, a comprehensive public involvement program was conducted to provide citizens, businesses, and organizations with an interest in the Project the opportunity to keep informed of project developments, to participate in project planning and to provide recommendations to decision-makers for the selection of the LPA. In order to facilitate public participation in project planning and design, several different outreach techniques were employed to reach a wide range of participants. These included a variety of information dissemination outlets and interactive techniques in addition to meetings and coordination and public hearings as described below.

Public Outreach

A number of different techniques and activities were conducted over the course of the environmental review process in order to ensure that the public remained informed of project developments and were provided the opportunity to comment throughout project planning and design. Major activities conducted for the project included a call-in line, mailing list, newsletter, update bulletins, comment forms, website, and email address, as well as the distribution of project materials through the project kiosk and information center, libraries and community centers. Other outreach techniques included representation at community fairs and festivals, and presentations to communities and businesses.

Public Coordination Meetings and Hearings

As required by Federal transit laws [49 USC §5323(b) and §5324(b)], public coordination meetings and public hearings were held. Notices of public hearings were also provided. Meetings were held with the general public and stakeholders on an as-needed basis to understand issues of concern; to inform them on the development and evaluation of potential alternatives, and to discuss the selection of the LPA. Public meetings held to support the development of the project included public scoping meetings, public information meetings, stakeholder meetings, and public hearings on the Draft EIS and the Supplemental Draft EIS, as well as a post-hearing conference as detailed in Chapter 11 of the Final EIS. Additional meetings and a public hearing were held during preliminary engineering to review and seek comment on the proposed design refinements presented in the 2006 EA.

To maintain public and stakeholder support for the project, the Project sponsor will continue public outreach efforts throughout preliminary engineering, final design and construction. The focus of these outreach activities will be to keep the public, stakeholders, and affected property owners informed about the project's progress. Continuing outreach efforts will include participation in community outreach activities and public information meetings and events, circulation of project newsletters, brochures, and fact sheets, project website updates, and development of presentations or meeting materials for interested parties.

Comments on the Final EIS and 2006 EA

The Notice of Availability of the Final EIS was published in the Federal Register on December 23, 2004. During the Final EIS circulation period, comment letters were received from one Federal agency, the District of Columbia, and one interest group. Responses to the comments received on the Final EIS were provided in the original ROD of March 2005. Responses to comments received on the 2006 EA are contained in Attachment B of this Amended ROD.

DETERMINATIONS AND FINDINGS

On the basis of the determinations made in compliance with relevant portions of federal law, the FTA finds that the Project, as described as the Final EIS and 2006 EA, and including the mitigation measures identified in those documents and summarized in this ROD, satisfies the requirements of the National Environmental Policy Act of 1969, 49 USC 5301(e) and 5324(b), , the Clean Air Act of 1970, and the Department of Transportation Act of 1966 (all as amended) and complies with Executive Orders 11988, 11990, and 12898, as specified below.

Environmental Protection (49 USC Section 5301(e) and 5324(b))

The environmental record for the Project includes the previously referenced Draft EIS (June 2002), the Supplemental Draft EIS (October 2003), the Final EIS (December 2004), and the PE Design Refinements EA (February 2006), and all attachments thereto. Cumulatively, these documents represent the detailed statement required by both NEPA and the Federal transit laws, 49 USC Sections 5301(e) and 5324(b), regarding:

- the environmental impacts of the proposed Project;
- adverse environmental effects that cannot be avoided;
- alternatives to the proposed Project; and
- irreversible and irretrievable impacts on the environment.

On the basis of the evaluation of social, economic, and environmental impacts presented in the Final EIS and 2006 EA, and the written and oral comments offered by the public and other agencies, FTA has determined, in accordance with 49 USC 5324(b), that:

- An adequate opportunity was afforded for the presentation of views by all parties with a significant economic, social, or environmental interest in the Project;
- Fair consideration has been given to the preservation and enhancement of the environment and to the interest of the community in which the proposed Project is to be located; and
- All reasonable steps have been taken to minimize the adverse environmental effects of the Project, and where adverse environmental effects remain, no feasible and prudent alternative to the effects exist.

Conformity with Air Quality Plans

The Clean Air Act of 1970, as amended, requires that Federally-funded transportation projects in air quality nonattainment and maintenance areas conform to the State Implementation Plan (SIP) for eliminating or reducing the severity and number of violations of the national ambient air quality standards (NAAQS). The regulation of the U.S. Environmental Protection Agency implementing this provision of the Clean Air Act (40 CFR Parts 51 and 93) establishes criteria for demonstrating that a transportation project is in conformity with the goals of the SIP. The Washington metropolitan area in which the Dulles Corridor Metrorail Project is located is classified as an ozone non-attainment area. The Project is therefore subject to the conformity requirements of the EPA regulation. The primary project-level conformity requirements of the EPA regulation dictate that the project comes from a conforming regional transportation plan and program and that the project not cause or contribute to any localized violation of the NAAQS.

The Project is included in the 2005 Constrained Long-Range Plan (CLRP), a plan that has been duly adopted by the Metropolitan Washington Council of Governments (MWCOG) Transportation Planning Board and has been found by MWCOG to conform to the relevant State Implementation Plans (SIPs) (i.e., those of Virginia, Maryland, and the District of Columbia). FHWA and FTA have reviewed and concurred in that conformity determination for the CLRP. Near-term project activities are included in the FY 2005–2010 Transportation Improvement Program (TIP) adopted by MWCOG. The TIP has also been found by MWCOG, FHWA, and FTA to conform with air quality plans for the area. In addition, micro-scale air quality analyses in the Final EIS indicate that no localized violations of the National Ambient Air Quality Standards will result from implementation of the Project. Therefore, FTA finds that the Project conforms to air quality plans for the area.

Section 4(f) Determination

Section 4(f) of the Department of Transportation (DOT) Act of 1966 (49 USC 303) affords special protection to parks, recreation areas, wildlife refuges, and historic sites, by prohibiting use of such properties for a transportation project unless there is no feasible and prudent alternative to such use and the project includes all possible planning to minimize the harm to the protected resource. Based on the evaluation conducted and coordination with the U.S. Department of the Interior, the Project would result in a permanent physical use of one section 4(f) resource, the Dulles International Airport Historic District and the potential permanent physical use of another section 4(f) resource, the Hunter Mill Road Proposed Historic District, depending on that district's final boundaries.

The Dulles International Airport Historic District will be affected by the placement of the Project alignment within the median of the DIAAH and by the addition of inbound and outbound portals within the district boundaries. This would result in a use of a contributing element to the district (the historic viewshed) and require the physical use of property within the historic district boundaries. The median of the DIAAH was historically reserved for a transit guideway to the

Airport. FTA has determined that there is no prudent and feasible alternative to the use of the Dulles International Airport Historic District that would serve the purpose of the project of providing high-capacity transit service to the Airport. FTA has further determined that the Project includes all possible planning to minimize harm to the Dulles International Airport Historic District, as detailed in the Section 106 MOA and the Final EIS.

The rail alignment, stormwater management ponds, and traction power substations may fall within the Hunter Mill Road Proposed Historic District, whose exact boundaries have not been established, The Project facilities within the likely boundaries of the historic district would not use any contributing element of the historic district. Minor proximity impacts identified would not substantially impair the historic features of the protected resources. Construction activities will not result in additional permanent impacts to the Section 4(f) resource. FTA has determined that there is no feasible and prudent alternative to the use of the Hunter Mill Road Proposed Historic District and that the Project includes all possible planning to minimize harm, as detailed in the Section 106 MOA and the Final EIS.

Floodplain Finding

Executive Order 11988, "Floodplain Management and Protection," and U.S. DOT Order 5620.2 state that FTA may not approve an alternative involving a significant floodplain encroachment unless FTA can make a finding that the proposed encroachment is the only practicable alternative. The major purposes of Executive Order 11988 are to avoid Federal support for floodplain development; to prevent uneconomic, hazardous, or incompatible use of floodplains; to restore and preserve the natural and beneficial floodplain values; and to be consistent with the standards and criteria of the National Flood Insurance Program.

Based on a review of the Federal Emergency Management Agency maps, the Project will cross portions of the 100-year base floodplains of several streams along the alignment, including Pimmit Run, Scotts Run, Difficult Run, Horsepen Run, and Broad Run. The Project will span these streams parallel to existing roadway structures, thereby minimizing impacts to floodplains. The placement of new piers to span these streams will not increase the surface elevation of the 100-year flood at any location by more than one foot, nor will the Project increase the risks of off-site flooding. All Project facilities located within floodplains will be designed to comply with Federal, State, and local regulations and the Project sponsor will comply with all applicable regulations or ordinances governing construction in floodplains.

FTA finds that the Project's encroachment on floodplains has been minimized to the extent practicable and that the remaining encroachments represent the only practicable alternative. During final design and construction, the Project sponsor will continue to explore design measures to reduce floodplain encroachments even further.

Wetlands Finding

Executive Order 11990, "Protection of Wetlands," directs federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

The Project will destroy approximately 5 acres of wetlands. The Project sponsor will provide compensatory mitigation for these unavoidable wetland impacts. A 1:1 replacement ratio for impacts to the approximately 1 acre of emergent wetlands, and a 2:1 replacement ratio for impacts to the approximately 4 acres of forested wetlands will be used. Because on-site mitigation is not allowable on airport property due to potential wildlife interference with airport operations, an off-site location for mitigation will be used. Permanent impacts will be mitigated through the purchase of credits at an existing regional wetland bank, if available. Otherwise, an appropriate wetlands mitigation site of a size consistent with the replacement ratios above will be found and developed into wetlands in accordance with conditions on a Section 404 permit expected to be issued by the U.S. Army Corps of Engineers (COE). The Section 404 Permit is required by the COE and a Virginia Water Protection Permit will also be required from the Virginia Department Environmental Quality (VDEQ).

Impacts to wetlands during construction activities will be minimized through the use of Best Management Practices recommended by state and regional agencies, such as pollution control devices, installation and maintenance of runoff diversion structures and secondary containment structures. All temporarily disturbed wetland areas will be restored to pre-construction conditions by re-vegetating these areas with the appropriate cover type, as required by applicable permits.

FTA finds that the wetland impacts of the Project have been minimized to the extent practicable, and that there is no practicable alternative to construction in the wetlands and that all practicable measures to minimize harm to the wetlands have been included in the Project. During final design, the Project sponsor will coordinate with COE and VDEQ to obtain the necessary permits and will continue to consider measures to reduce permanent and temporary wetland impacts even further.

Environmental Justice

Executive Order 12898, "Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations"), provides, in relevant part, that FTA identify and address "disproportionately high and adverse human health or environmental effects" of federally-funded mass transit projects on minority populations and low-income populations, and that FTA "conduct its programs, policies, and activities in a manner that ensures that such programs, policies, and activities do not have the effect of subjecting persons...to discrimination...because of their race, color, or national origin."

On the basis of the evaluation in the Final EIS and 2006 EA, FTA has determined that the adverse health and environmental effects of the Project will not be disproportionately borne by minority or low-income populations, and furthermore, that all persons within the study area will enjoy improved mobility as a result of the Project.

Susan Borinsky

Susan Borinsky
Regional Administrator
Federal Transit Administration
Region III

Nov. 17, 2006
Date

M2 PIMMIT COMMUNITY PLANNING SECTOR

CHARACTER

This sector is bounded by Magarity Road, the Dulles Airport Access Road (DAAR)/I-66 right-of-way to the Arlington and Falls Church boundaries, and by Leesburg Pike (Route 7). The Magarity Road/Lisle Avenue intersection in the western corner of the sector is part of the Tysons Corner Area.

A portion of the West Falls Church Transit Station Area is included in this planning sector. Discussion of the transit station area is found in the section of the Plan entitled "West Falls Church Transit Station Area." The remainder of the sector is a stable residential area which is comprised of long-established, single-family residential neighborhoods.

The one area where there are significant vacant tracts remaining is along Idylwood Road, north of the West Falls Church-VT/UVA Metro station, primarily on the west side of Idylwood Road from Hillside Drive to Friendship Lane. A low residential density compatible with the rest of the community should be retained despite any development pressures which may be generated by the presence of the West Falls Church Metro Station.

Commercial activities within the sector are limited. The Tysons Station Shopping Center provides convenience shopping and is proximate to the West Fall Church Metro site. Two buildings have been constructed next to St. Luke's Methodist Church and another office complex is located across Route 7 from St. Luke's Church. Additional local-serving shopping may be needed to meet future growth.

Sandstone markers were erected in 1791 when the boundaries of the District of Columbia were first determined. The original area of the District was ten miles square, and 40 markers were placed on one-mile intervals along the boundary. Remains of the stones have all been recovered and are under the protection of the Daughters of the American Revolution. There are seven boundary stones along the Fairfax County boundary, one being located within this sector. These stones are listed in the Fairfax County Inventory of Historic Sites, the Virginia Landmarks Register and the National Register of Historic Places. A list and map of heritage resources are included in the McLean Planning District Overview section, Figures 4 and 5.

Generally this sector is intensely developed with few areas of undisturbed space. However, even in the residential neighborhood of Pimmit Hills, prehistoric artifacts in excess of 2,000 years old have been reported. Therefore, it is possible that significant heritage resources can be found elsewhere within this sector. The Pimmit Hills neighborhood represents one of the early post-World War II Veterans Administration financed housing communities.

Ellison Heights Community Improvement Area

On November 26, 1990, the Board of Supervisors adopted the Ellison Heights Community Improvement Plan to preserve and upgrade this neighborhood by installing curbs and gutters, and making sidewalk, road, and storm drainage improvements. Homeowners participated in the design of the improvements and shared in the cost of some facilities. The area is bordered by Haycock Road on the northwest and includes residential properties along Highland Avenue on the northeast boundary, with the City of Falls Church on the south forming the remaining boundary.

CONCEPT FOR FUTURE DEVELOPMENT

Most of this sector is recommended as Suburban Neighborhoods under the Concept for Future Development. It contains predominantly single-family residential uses at 2-3 and 3-4 dwelling units per acre. Commercial and institutional uses are limited to the West Falls Church Transit Station Area and the already developed northeast side of Route 7.

RECOMMENDATIONS

Land Use

A portion of the West Falls Church Transit Station Area is located in this planning sector. Recommendations for this area are found in the section of the Plan entitled 'West Falls Church Transit Station Area."

The Pimmit sector is largely developed as single-family residential neighborhoods. Infill development in that sector should be of a compatible use, type and intensity in accordance with the guidance provided by the Policy Plan under Land Use Objectives 8 and 14.

Where substantial parcel consolidation is specified, it is intended that such consolidations will provide for projects that function in a well-designed, efficient manner and provide for the development of unconsolidated parcels in conformance with the Area Plan.

Figure 19 indicates the geographic location of land use recommendations for this sector. Where recommendations are not shown on the General Locator Map, it is so noted.

1. To preserve the stable residential portions of the sector, infill should be residential in nature and compatible with existing development. Specifically,

   a. Low density residential infill should be continued northwest of Idylwood Road, between Route 7 and Great Falls Street, to preserve the character of the neighborhood, which is planned for development at 2-3 dwelling units per acre. [Not shown]

   b. The single-family residences with access to Route 7, adjacent to the Reddfield community and northwest of Idylwood Road, are planned for residential use at 2-3 dwelling units per acre. A service road should connect to Idylwood Road as far away from Route 7 as possible (see Figure 20). Buffering should be included along Route 7 as well as between new development and the Reddfield community. [Not shown]

2. The area located southeast of Idylwood Road, west of the Dulles Airport Access Road and north of the West Falls Church Transit Station Area, is planned for 2-3 dwelling units per acre with the exception of Mount Royal Park which is located to the west of the single-family housing. The single-family dwellings should have landscaped buffering from noise and non-residential uses with appropriate pedestrian and vehicular access.

Transportation

Transportation recommendations for this sector are shown on Figure 20. In some instances, site-specific transportation recommendations are included in the land use recommendations section. The figures show access orientation, circulation plans, interchange impact areas and generalized

County of Fairfax, Virginia

MEMORANDUM

DATE: DEC 11 2008

TO: St. Clair D. Williams, Staff Coordinator
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Qayyum Khan, Senior Stormwater Engineer
Stormwater and Geotechnical Section
Environmental and Site Review Division
Department of Public Works and Environmental Services

SUBJECT: Special Exemption Amendment Application, SEA 85-D-033-02, MWAA Plan Date July 16 2008, LDS Project #1468-ZONA-001-1, Tax Map #040-1-01-0025B, 040-3-01-0085, 0086, 0091A and 0093, Dranesville District

We have reviewed the subject application and offer the following comments related to Stormwater Management (SWM):

Chesapeake Bay Preservation Ordinance (CBPO)
There is Resource Protection Area (RPA) on north east of this site. Phosphorus removal efficiency of 40% is required. The applicant proposes part of stormwater detention and BMP facilities within the RPA. Stormwater management facilities are not allowed in RPA (See CBPO, Section 118-2-1(e)). Any Encroachment in the RPA requires approval of an exception – See CBPO, Section 118-6-9. The outfall into the RPA will need a WQIA (CBPO, Section 118-2-1(a)).

Floodplain
There is no floodplain on the site.

Downstream Drainage Complaints
There is no drainage complaint.

SWM
The applicant proposes to provide underground detention pipes and a pond that will also meet the BMP requirements. The pond is designed with a sediment forebay. The SWM facilities shall be privately maintained and the owners will be required to execute a stormwater maintenance agreement with the County.

Department of Public Works and Environmental Services
Land Development Services, Environmental and Site Review Division
12055 Government Center Parkway, Suite 535
Fairfax, Virginia 22035-5503
Phone 703-324-1720 • TTY 711 • FAX 703-324-8359

Site Outfall
Narrative for outfall has been provided.

If further assistance is desired, please contact me at 703-324-1720.

QK/mw

cc: Craig Carinci, Director, Stormwater Planning Division, DPWES
Zoning Application File

County of Fairfax, Virginia

MEMORANDUM

January 7, 2009

TO: St. Clair Williams, Staff Coordinator
Zoning Evaluation Division, DPZ

FROM: Craig Herwig, Urban Forester II
Forest Conservation Branch, DPWES

SUBJECT: West Falls Church Yard - Dulles Corridor Metro, SEA 85-D-033-02

RE: Request for assistance dated December 4, 2008

This review is based on the Special Exception Amendment (SEA) 85-D-033-02 stamped "Received, Department of Planning and Zoning, July 24, 2008". A site visit was conducted on December 23, 2008.

1. **Comment:** It does not appear preliminary tree cover calculations have been provided and it is unclear how the required tree cover will be met for this site.

   Recommendation: The Applicant should provide preliminary tree cover calculations to demonstrate how the required tree cover will be met on this site.

2. **Comment:** The extent of clearing and grading necessary to construct the proposed annex building, yard traction power substation and the stormwater management area is unclear.

   Recommendation: The applicant should provide preliminary limits of clearing and grading associated with the construction of the above facilities to provide a better understanding of the extent of land disturbing and tree removal activities. Recommendations for potential tree save areas may be made once the proposed limits are provided.

3. **Comment:** A transitional screening and barrier is required for the portion of the site shown on the SEA adjacent to the South Hampton and Glenmont subdivisions. No transitional screen and barrier modification waiver has been supplied with this application.

Department of Public Works and Environmental Services
Land Development Services, Urban Forest Management Division
12055 Government Center Parkway, Suite 518
Fairfax, Virginia 22035-5503
Phone 703-324-1770, TTY: 703-324-1877, Fax: 703-803-7769
www.fairfaxcounty.gov/dpwes

Recommendation: A transitional screening type 3 and barrier D, E, or F should be provided adjacent the single family homes in the South Hampton and Glenmont subdivisions or a transitional screen and barrier modification/waiver request with a detailed justification in conformance with Section 13-204 of the Zoning Ordinance should be provided as part of the SEA.

4. **Comment:** The 'large deciduous', 'large evergreen', and 'small evergreen' tree classifications identified in the legend are unclear.

   Recommendation: Trees proposed to be planted should be identified as Category I, II, III, or IV evergreen trees and/or Category I, II, III, or IV deciduous trees.

5. **Comment:** It is not clear how the Applicant proposes to landscape this site.

   Recommendation: A landscape plan should be submitted that shows a variety of suitable native and desirable tree species, of various sizes, planted throughout the site. To receive additional tree cover credit, native and desirable trees should comprise at least 90% of all trees listed on site. Tree species and planting locations that are effective for energy conservation can also receive additional tree cover credit. See PFM sections 12-0501.5B and 12-0501.10D.

6. **Comment:** It does not appear interior parking lot landscaping calculations have been provided and it is unclear how the interior parking lot landscaping requirements will be met.

   Recommendation: All calculations and illustrations for interior parking lot landscaping should be provided on the landscape plan. Interior parking lot landscaping shall be calculated using the 10-year canopy cover. To receive credit for the trees counted toward meeting the interior parking lot landscaping requirement, the "areas to be counted" should be shaded and each tree counted toward meeting the requirement should be marked with a symbol indicating its use as a tree providing shade to the area to be counted.

7. **Comment:** It appears that a portion of the proposed stormwater management area is located within a Resource Protection Area (RPA) at the northern portion of the site.

   Recommendation: The portion of the RPA shown within the proposed stormwater management area should be supplemented with vegetation to achieve the density as described in CBPO 188-3-3(F). The RPA planting plan is to be included with the final site development plan.

8. **Comment:** Given the nature of the tree cover on this site, and depending upon the ultimate development configuration provided, several proffers will be instrumental in assuring adequate tree preservation and protection throughout the development process.

   Recommendation: Recommend the following proffer language to ensure effective tree preservation:

   Tree Preservation: "The applicant shall submit a Tree Preservation plan as part of the first and all subsequent site plan submissions. The preservation plan shall be prepared by a professional with experience in the preparation of tree preservation plans, such as a certified arborist or landscape architect, and shall be subject to the review and approval of the Urban Forest Management Division, DPWES.

   The tree preservation plan shall consist of a tree survey that includes the location, species, size, crown spread and condition rating percentage of all trees 10 inches in diameter and greater, and 25 feet to either side of the limits of clearing and grading shown on the SEA for the entire site. The tree preservation plan shall provide for the preservation of those areas shown for tree preservation, those areas outside of the limits of clearing and grading shown on the SEA and those additional areas in which trees can be preserved as a result of final engineering. The condition analysis ratings shall be prepared using methods outlined in the latest edition of the Guide for Plant Appraisal published by the International Society of Arboriculture. Specific tree preservation activities that will maximize the survivability of any tree identified to be preserved, such as: crown pruning, root pruning, mulching, fertilization, and others as necessary, shall be included in the plan."

   Tree Preservation Walk-Through. "The Applicant shall retain the services of a certified arborist or landscape architect, and shall have the limits of clearing and grading marked with a continuous line of flagging prior to the walk-through meeting. During the tree-preservation walk-through meeting, the Applicant's certified arborist or landscape architect shall walk the limits of clearing and grading with an UFMD, DPWES, representative to determine where adjustments to the clearing limits can be made to increase the area of tree preservation and/or to increase the survivability of trees at the edge of the limits of clearing and grading, and such adjustment shall be implemented. Trees that are identified as dead or dying may be removed as part of the clearing operation. Any tree that is so designated shall be removed using a chain saw and such removal shall be accomplished in a manner that avoids damage to surrounding trees and associated understory vegetation. If a stump must be removed, this shall be done using a stump-grinding machine in a manner causing as little disturbance as possible to adjacent trees and associated understory vegetation and soil conditions."

Limits of Clearing and Grading. "The Applicant shall conform strictly to the limits of clearing and grading as shown on the SEA, subject to allowances specified in these proffered conditions and for the installation of utilities and/or trails as determined necessary by the Director of DPWES, as described herein. If it is determined necessary to install utilities and/or trails in areas protected by the limits of clearing and grading as shown on the SEA, they shall be located in the least disruptive manner necessary as determined by the UFMD, DPWES. A replanting plan shall be developed and implemented, subject to approval by the UFMD, DPWES, for any areas protected by the limits of clearing and grading that must be disturbed for such trails or utilities."

Tree Preservation Fencing: "All trees shown to be preserved on the tree preservation plan shall be protected by tree protection fence. Tree protection fencing in the form of four (4) foot high, fourteen (14) gauge welded wire attached to six (6) foot steel posts driven eighteen (18) inches into the ground and placed no further than ten (10) feet apart or, super silt fence to the extent that required trenching for super silt fence does not sever or wound compression roots which can lead to structural failure and/or uprooting of trees shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets, as may be modified by the "Root Pruning" proffer below.

All tree protection fencing shall be installed after the tree preservation walk-through meeting but prior to any clearing and grading activities, including the demolition of any existing structures. The installation of all tree protection fencing shall be performed under the direct supervision of a certified arborist, and accomplished in a manner that does not harm existing vegetation that is to be preserved. Three (3) days prior to the commencement of any clearing, grading or demolition activities, but subsequent to the installation of the tree protection devices, the UFMD, DPWES, shall be notified and given the opportunity to inspect the site to ensure that all tree protection devices have been correctly installed. If it is determined that the fencing has not been installed correctly, no grading or construction activities shall occur until the fencing is installed correctly, as determined by the UFMD, DPWES."

Root Pruning. "The Applicant shall root prune, as needed to comply with the tree preservation requirements of these proffers. All treatments shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the subdivision plan submission. The details for these treatments shall be reviewed and approved by the UFMD, DPWES, accomplished in a manner that protects affected and adjacent vegetation to be preserved, and may include, but not be limited to the following:

- Root pruning shall be done with a trencher or vibratory plow to a depth of 18 inches.
- Root pruning shall take place prior to any clearing and grading, or demolition of structures.

- Root pruning shall be conducted with the supervision of a certified arborist.
- An UFMD, DPWES, representative shall be informed when all root pruning and tree protection fence installation is complete."

Demolition of Existing Structures. "The demolition of all existing features and structures within areas protected by the limits of clearing and grading areas shown on the SEA shall be done by hand without heavy equipment and conducted in a manner that does not impact individual trees and/or groups of trees that are to be preserved as reviewed and approved by the UFMD, DPWES."

Site Monitoring. "During any clearing or tree/vegetation/structure removal on the Applicant Property, a representative of the Applicant shall be present to monitor the process and ensure that the activities are conducted as proffered and as approved by the UFMD. The Applicant shall retain the services of a certified arborist or landscape architect to monitor all construction and demolition work and tree preservation efforts in order to ensure conformance with all tree preservation proffers, and UFMD approvals. The monitoring schedule shall be described and detailed in the Landscaping and Tree Preservation Plan, and reviewed and approved by the UFMD, DPWES."

Please feel free to contact me at 703-324-1770 if you have any questions or concerns.

CSH/
UFMID #: 142782

cc: RA File
DPZ File

Department of Public Works and Environmental Services
Land Development Services, Urban Forest Management Division
12055 Government Center Parkway, Suite 518
Fairfax, Virginia 22035-5503
Phone 703-324-1770, TTY: 703-324-1877, Fax: 703-803-7769
www.fairfaxcounty.gov/dpwes

County of Fairfax, Virginia

MEMORANDUM

DATE: March 9, 2009

TO: Regina Coyle, Director
Zoning Evaluation Division, DPZ

FROM: Angela Kadar Rodeheaver, Chief
Site Analysis Section, DOT

FILE: 3-5 (SE 85-D-033)

SUBJECT: SEA 85-D-033-2; Metropolitan Washington Airports Authority
Land Identification Maps: 40-1 ((1)) 25B
40-3 ((1)) 85, 86, 91A, 93

This department has reviewed the subject Special Exception request. We have no objection to its approval.

AKR/MAD

Fairfax County Department of Transportation
12055 Government Center Parkway, Suite 1034
Fairfax, VA 22035-5500
Phone: (703) 324-1100 TTY: (703) 324-1102
Fax: (703) 324 1450
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FAIRFAX COUNTY PARK AUTHORITY

MEMORANDUM

TO: Regina M. Coyle, Director
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Sandy Stallman, Branch Manager,
Planning and Development Division

DATE: December 17, 2008

SUBJECT: SEA 85-D-033-02, Dulles Metro – West Falls Church
Tax Map Number: 40-3 ((1)) 85-86, 91A, 93B; 40-1 ((1)) 25B

The Park Authority staff has reviewed the above referenced plan. Based on that review, staff has determined that this application bears no adverse impact on land or resources of the Park Authority.

FCPA Reviewer: AG
DPZ Coordinator: SCW

Copy: Cindy Walsh, Acting Director, Resource Management Division
Chron Binder
File Copy

County of Fairfax, Virginia

MEMORANDUM

DATE: February 13, 2009

TO: Staff Coordinator
Zoning Evaluation Division
Department of Planning & Zoning

FROM: Lana Tran (Tel: 703 324-5008)
Wastewater Planning & Monitoring Division
Department of Public Works & Environmental Services

SUBJECT: Sanitary Sewer Analysis Report

REFERENCE: Application No. SEA 85-D-033-02

Tax Map No. 040-1-/01/ /0025B, 040-3-/01/ /0085, 0086,0091A, 0093

The following information is submitted in response to your request for a sanitary sewer analysis for above referenced application:

1. The application property is located in the Pimmit Run (G-1) watershed. It would be sewered into the Blue Plains Treatment Plant.

2. Based upon current and committed flow, there is excess capacity in the Blue Plains Treatment Plant at this time. For purposes of this report, committed flow shall be deemed that for which fees have been paid, building permits have been issued, or priority reservations have been established by the Board of Supervisors. No commitment can be made, however, as to the availability of treatment capacity for the development of the subject property. Availability of treatment capacity will depend upon the current rate of construction and the timing for development of this site.

3. An existing 10 inch line located on the property is adequate for the proposed use at this time.

4. The following table indicates the condition of all related sewer facilities and the total effect of this application.

	Existing Use +Application		Existing Use + Application Previous Rezonings		Existing Use + Application + Comp Plan	
Sewer Network	Adeq.	Inadeq.	Adeq.	Inadeq.	Adeq.	Inadeq.
Collector	X	____	X	____	X	
Submain	X	____	X	____	X	
Main/Trunk	X	____	X	____	X	
Interceptor	____	____	____	____		
Outfall	____	____	____	____		

5. Other pertinent information or comments:

Department of Public Works and Environmental Services
Wastewater Planning & Monitoring Division
12000 Government Center Parkway, Suite 358
Fairfax, VA 22035-0052
Phone: 703-324-5030, Fax: 703-324-3946

COMMONWEALTH of VIRGINIA

Commonwealth Transportation Board

Pierce R. Homer
Chairman

1401 East Broad Street - Policy Division - CTB Section - #1106
Richmond, Virginia 23219

(804) 786-1830
Fax: (804) 225-4700

Agenda item # 3-C

RESOLUTION
OF THE
COMMONWEALTH TRANSPORTATION BOARD

April 19, 2007

MOTION

Made By: Mr. Koelemay Seconded By: Mrs. Connally
Action: Motion Carried, Unanimously

Title: Limited Access Control Changes
Route 267, Fairfax County

WHEREAS, Route 267, between Interstate 66 and Interstate 495, in Fairfax County, was designed and built as Federal Highway Project 34-5(6) by the United States Department of Transportation, Federal Aviation Administration (FAA), and was designated as a Limited Access Highway as a design feature of the project; and

WHEREAS, in connection with a section of Route 267, which is located between the aforesaid locations, the Virginia Department of Highways and Transportation, predecessor to the Virginia Department of Transportation (VDOT), acquired certain maintenance and operations responsibilities for said Route as part of an Agreement executed on July 6, 1981, between VDOT and FAA; and

WHEREAS, in accordance with said maintenance responsibilities the number and location of points of public access and egress, both to and from the said Route will not be altered by VDOT without the written concurrence of the FAA; and

WHEREAS, the United States of America, acting by and through the Secretary of Transportation, leased the land rights to the Metropolitan Washington Airports Authority (MWAA) by lease dated March 2, 1987, therefore, assuming the activities formerly of the FAA; and

WHEREAS, due to continued design refinement of the Dulles Metrorail Project, the land on the west side of the west right of way and limited access fence lines of the said Route 267 EBL, as shown on the plans for said Federal Highway Project and additionally depicted on the Department of Rail and Public Transportation (DRPT)

drawing number SK-K99-Redfield. has been identified by the DRPT, Dominion Virginia Power (DVP), and VDOT for the location of an entrance for an access road from Route 267 EBL for the sole uses of DRPT to maintain a storm water management facility, and DVP to maintain a substation; and

WHEREAS, DPRT, DVP, and VDOT have identified and requested a limited access control change of approximately 74 feet, more or less, on the west side of the Route 267 EBL west right of way and limited access fence lines (approximately 37 feet, more or less, on either side of approximate Station 1007+00), as shown on the aforesaid plans, and drawing to accommodate ingress, egress, with right in and right out only turning movements, being a gated non-signalized entrance without additional lanes on Route 267, with safety improvements, as required; and

WHEREAS, VDOT has determined that the proposed limited access control change of approximately 74 feet, more or less, on the west side of the Route 267 EBL west right of way and limited access fence lines (approximately 37 feet, more or less, on either side of approximate Station 1007+00), as shown on the aforesaid plans, and drawing, and being a restricted use, gated, non-signalized entrance with no additional lanes, allowing right in and right out only turning movements, as required, is appropriate for said proposed entrance to include any safety improvements as required, from a design standpoint subject to further review and approval; and

WHEREAS, use of said access for other than emergency purposes or required maintenance of the aforesaid facilities shall not be permitted, and the parties agree to and shall keep the gate locked at all times except when DRPT, DVP, and VDOT personnel are present, and use of this property for access to any other properties is strictly prohibited; and

WHEREAS, VDOT has determined that the said proposed limited access control change for the restricted use entrance, as defined, is appropriate from a safety and traffic control standpoint subject to additional review or approval as may be required; and

WHEREAS, all right of way, engineering, construction, and necessary safety improvements shall meet all VDOT standards and requirements; and

WHEREAS, VDOT staff has determined there will be no adverse environmental impacts; and

WHEREAS, all costs of engineering and construction, including all necessary safety improvements, gates and locking devices, will be borne by DRPT and DVP; and

WHEREAS, the installation and maintenance of the gate and locking device(s) shall be the responsibility of DRPT and DVP, with the means to operate the gate locking devices provided to VDOT free of charge and in perpetuity by DRPT and/or DVP; and

WHEREAS, the proposed limited access control change is in compliance with the Commonwealth Transportation Board Policy; and

WHEREAS, upon completion and acceptance of the proposed entrance and changes by VDOT, all work, roadway construction, improvements and equipment will become the property of the FAA with land rights and maintenance responsibilities within Route 267 remaining as previously defined.

NOW, THEREFORE, BE IT RESOLVED, in accordance with the provisions of Section 33.1-58 of the *Code of Virginia* (1950), as amended, the CTB hereby conditionally approves the said limited access control change for public street purposes as set forth, pending the approval of the location of the point of access and egress by MWAA, and subject to the above referred to conditions. The Commonwealth Transportation Commissioner is hereby authorized to execute any and all documents needed to comply with this resolution.

###

CONSOLIDATED PLAN

HAZARDOUS MATERIALS MANAGEMENT PLAN
HAZARDOUS WASTE CONTINGENCY PLAN
SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN
STORMWATER POLLUTION PREVENTION PLAN

WEST FALLS CHURCH RAIL YARD

7251 IDYLWOOD ROAD
FALLS CHURCH, VIRGINIA 22043

November 30, 2001

Washington Metropolitan Area Transit Authority

Prepared for:

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
3101 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

Prepared by:

VERSAR, INC.
6850 VERSAR CENTER
SPRINGFIELD, VIRGINIA 22151

4.0 POLLUTANT SOURCE IDENTIFICATION

Potential pollutant sources at the West Falls Church Rail Yard include bulk oil and chemical storage locations. The estimated annual usage of these materials is presented in Table 4-1. Locations of potential pollutant sources are shown on the figures contained in Appendix C. Each of these potential sources are discussed below.

4.1 Bulk Oil and Chemical Storage and Use

Normal operations at the S&I Shop and the PLNT Field Base require that a number of petroleum products be readily accessible for maintenance and service activities. The petroleum products include fuel, automatic transmission fluid, engine oil, grease, and other lubricants for rail and service equipment. Heating oil is also stored to fuel the PLNT Field Base heating system. Other chemicals stored in bulk quantities include antifreeze and rail car wash chemicals.

Raw petroleum products are stored either in underground tanks, aboveground storage tanks, or in 55- or 35-gallon drums in storage or work areas. The following subsections describe the storage areas.

4.1.1 Underground Storage Tanks

Diesel fuel, gasoline, and heating oil are purchased in bulk quantities and are stored in underground storage tanks (USTs) at the West Falls Church Rail Yard. An inventory of the USTs at West Falls Church Rail Yard is presented in Table 4-2, and tank locations are presented in Figure C-1 in Appendix C.

4.1.2 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are used at the West Falls Church Rail Yard for storage of used oil, propylene glycol, and diesel fuel. Table 4-3 presents an inventory of the ASTs found on site and the tank locations are presented in Figure C-1 in Appendix C.

4.1.3 Aboveground Storage Areas

Several areas are used for chemical, petroleum, and hazardous waste storage. These storage areas and inventory at the time of the site inspection are listed in Tables 4-4 and 4-5, and are discussed below.

TABLE 4-1
ESTIMATED ANNUAL PRODUCT USAGE
WEST FALLS CHURCH RAIL YARD

Product	Usage
Diesel Fuel	12,000 gallons
Gasoline	45,000 gallons
Antifreeze	2,000 gallons
Grease	1,000 pounds
Heating Oil	6,600 gallons
Gear Oil	2,400 gallons
Hydraulic Oil	300 gallons
ARCA-Shock® Detergent	1,500 gallons
Sodium Hypochlorite	<55 gallons
Hydrochloric Acid	220 gallons
Sodium Hydroxide	220 gallons

TABLE 4-2
UNDERGROUND STORAGE TANK INVENTORY

Tank No.	Location	Installation Date	Tank Capacity (gal)	Tank Material	Piping Material	Tank Contents	Leak Detection	Corrosion Protection	Spill/ Overfill Prevention
1	Near PLNT Building	1984	12,000	Fiberglass	Fiberglass	Diesel	Yes	Yes	Yes
2	Near PLNT Building	1984	6,000	Fiberglass	Fiberglass	Gasoline	Yes	Yes	Yes
3	Near PLNT Building	1998	2,500	Steel	Flexible plastic	Heating Oil	Yes	Yes	Yes

TABLE 4-3
ABOVEGROUND STORAGE TANK INVENTORY

Tank No.	Location	Tank Capacity (gal)	Tank Material	Piping Material	Tank Contents	Spill Containment
1	S&I Shop Basement	2,500	Steel	Steel	Used Oil	Concrete Vault
2	Near PLNT Field Base	5,000	Steel	Steel	Propylene Glycol	Steel Basin
3	Near PLNT Field Base	5,000	Steel	Steel	Propylene Glycol	Steel Basin
4	Near S&I Building	1,000	Steel	Steel	Diesel Fuel	Steel Basin
5	S&I Basement	900	Steel	PVC	Arca Shock Mix	Steel Basin
6	S&I Basement	350	Plastic Tote	–	Arca Shock	Spill Pallet

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
Traction Power Substation	60		Batteries		No
Tie Breaker Building No. 1	60		Batteries		No
PLNT Building Flammable Cabinet No. 1	5	5-gallon safety can	Diesel fuel	Flammable cabinet	No
	1	5-gallon bucket	Floor wax	Flammable cabinet	No
	1	5-gallon safety can	Parts cleaner	Flammable cabinet	No
PLNT Building Flammable Cabinet No. 2	9	5-gallon safety can	Diesel fuel	Flammable cabinet	No
PLNT Building Flammable Cabinet No. 3	4	5-gallon safety can	Diesel fuel	Flammable cabinet	No
	2	5-gallon safety can	Gasoline	Flammable cabinet	No
PLNT Building Flammable Cabinet No. 4	12	5-gallon safety can	Gasoline	Flammable cabinet	No
PLNT Building Flammable Cabinet No. 5	2	5-gallon safety can	Diesel fuel	Flammable cabinet	No
	1	5-gallon safety can	Gasoline	Flammable cabinet	No
PLNT Building Small Engine Repair (GMAC) Drum Area No. 1	2	55-gallon drum	Oil	Spill pallet	No
	1	35-gallon drum	Grease	Spill pallet	No
PLNT Building Small Engine Repair	2	Cylinder	Oxygen		No
	1	Cylinder	Acetylene		No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
PLNT Building Small Engine Repair Drum Area No. 2	1	55-gallon drum	Windshield washer fluid	Flammable cabinet	No
	2	55-gallon drum	Concrete cleaner	Flammable cabinet	No
	1	35-gallon drum	Water treatment chemical	Flammable cabinet	No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
PLNT Building Flammable Cabinet No. 6	3	5-gallon bucket	Oil	Flammable cabinet	No
	2		Batteries	Flammable cabinet	No
	2	1-quart	Paint	Flammable cabinet	No
	4	12-oz spray can	Paint	Flammable cabinet	No
	2	5-gallon bucket	Windshield washer fluid	Flammable cabinet	No
PLNT Building Flammable Cabinet No. 7	9	1-gallon jug	Oil	Flammable cabinet	No
	8	24-oz	Nozzle shield	Flammable cabinet	No
	4	1-quart	Cutting fluid	Flammable cabinet	No
	2	14-oz spray can	Spray cleaners	Flammable cabinet	No
PLNT Building Engine Repair Area	1	55-gallon drum	Concrete cleaner		No
	22	1-gallon	Transmission fluid		No
	10	12-oz spray can	Spray paint		No
	2	1-gallon	Oil		No
	2	1-gallon	Cleaners		No
PLNT Building GMAC Landscape Storage Bay	1	5-gallon	Grass paint		No
	2	1-gallon	Glass cleaner		No
	1	1-gallon	Bleach		No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
PLNT Building GMAC Custodial Storage Bay	33	1-gallon	Cleaners		No
	12	1-gallon	Bleach		No
	21	1-gallon	Glass cleaner		No
	18	1-gallon	Metal polisher		No
	7	5-gallon bucket	Wax		No
	25	1-gallon	Ammonia		No
	2	1-quart	Deodorizer		No
	20	20-oz. spray can	Spray cleaners		No
Outside PLNT Building Hazardous Waste Storage Shed No. 1	4		Waste batteries	Flammable cabinet	No
	6	55-gallon drum	Waste ballasts/capacitors	Flammable cabinet	No
	2	55-gallon drum	Waste oil	Flammable cabinet	No
	1	5-gallon	Waste oil	Flammable cabinet	No
Exterior Storage Area (Adjacent to Hazardous Waste Storage Shed)	3	5-gallon	Water treatment chemical		Yes
	5	1-gallon	Cleaners		Yes
	1	55-gallon drum	R7930 005 concrete cleaner		Yes
Outside PLNT Building Non-Hazardous Waste Storage Shed No. 2	2	55-gallon drum	Used chiller oil	Flammable cabinet	No
	1	55-gallon drum	Trichlorofluoromethane	Flammable cabinet	No
	6	5-gallon	Used oil	Flammable cabinet	No
Exterior (West side of PLNT Bldg), Flammable Cabinet No. 8	3	4-gallon sprayers	Glycol	Flammable cabinet	No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
PLNT Storage	4	5-gallon safety can	Diesel		No
	3	5-gallon	NO-OX-ID "E" battery grease		No
PLNT Building Power Department Storage Bay	1	1-gallon	Citric cleaner		No
	2	1-gallon	Oil		No
Yard Operations Building Basement	4	Cylinder	Halon		No
Tie Breaker Building No. 2	60		Batteries		No
S&I Building PLEM	1	5-gallon	Oil		No
	1	1-gallon	Paint		No
	24	1-gallon	Coil cleaner		No
S&I Train Wash Drum Area 1	2	55-gallon drum	Cleaner		No
	1	55-gallon drum	Carpet shampoo		No
S&I Inspection Pit Cylinder Area 1	1	Cylinder	Freon		No
	1	Cylinder	Nitrogen		No
S&I Inspection Pit Drum Area 2	4	5-gallon	Oil		No
	3	35-gallon drum	Oil		No
	1	5-gallon	Grease		No
	3	35-gallon drum	Used oil		No
	1	55-gallon drum	Cleaner	Spill pallet	No
	4	35-gallon drum	Oil	Spill pallet	No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
S&I Building Shop - East Cage Drum Area 3	1	35-gallon drum	Oil		No
	1	5-gallon	Oil		No
	1	35-gallon drum	Used oil		No
S&I Building Battery Room	2	1-gallon	Battery oil		No
	2	1-quart	NO-OX-ID		No
	4	18-oz spray	Spray contact cleaners		No
S&I Building Lube/Oil Room Drum Area 4	1	35-gallon drum	Used oil	Concrete dike	No
	7	55-gallon drum	Oil	Concrete dike	No
	1	55-gallon drum	Grease	Concrete dike	No
	1	55-gallon drum	Cleaner	Concrete dike	No
	8	5-gallon	Oil	Concrete dike	No
	6	5-gallon	Grease	Concrete dike	No
	1	5-gallon safety can	Oil	Concrete dike	No
S&I Building Lube/Oil Room Flammable Cabinet No. 1	5	5-gallon safety can	Diesel fuel	Flammable cabinet	No
	2	5-gallon safety can	Gasoline	Flammable cabinet	No
	1	5-gallon	Antifreeze	Flammable cabinet	No
	1	5-gallon	Coolant	Flammable cabinet	No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
S&I Building Lube/Oil Room Flammable Cabinet No. 2	5	1-gallon	Paint	Flammable cabinet	No
	4	1-quart	Paint	Flammable cabinet	No
	2	1-quart	Fillers	Flammable cabinet	No
	3	1-gallon	Oil	Flammable cabinet	No
	1	1-gallon	Thinner	Flammable cabinet	No
	2	1-gallon	Cleaners	Flammable cabinet	No
	3	5-gallon	Oil	Flammable cabinet	No
	2	5-gallon	Adhesives	Flammable cabinet	No
S&I Building West Cage Cylinder Area 2	1	Cylinder	Propane		No
	1	Cylinder	Oxygen		No
	1	Cylinder	Acetylene		No
	1	Cylinder	Mixed gas - Argon/CO_2		No
	1	Cylinder	Argon		No
	4	Cylinder	Freon		No
S&I Building Basement Boiler Room Flammable Cabinet No. 3	1	1-gallon	Paint	Flammable cabinet	No
	15	12-oz spray can	Spray lube	Flammable cabinet	No
	12	15-oz spray can	Spray cleaner/degreaser	Flammable cabinet	No
	3	5-gallon	Paint	Flammable cabinet	No
S&I Building Basement Boiler Room Flammable Cabinet No. 4	4	5-gallon safety can	Diesel fuel	Flammable cabinet	No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
S&I Building Basement Boiler Room	1	55-gallon drum	Antifreeze		No
	3	5-gallon	Oil		No
	2	55-gallon drum	Oil		No
S&I Building Basement PLEM Office	1	Cylinder	Acetylene		No
S&I Building Basement Boiler Room Cylinder Area 3	2	Cylinder	Freon		No
S&I Building Basement Storeroom No. 254	4	Cylinder	Halon		No
	1	55-gallon drum	Grease		No
	37	5-gallon bucket	Ice melt		No
S&I Building Basement UPS Room	60		Batteries		No
S&I Building Boiler Room Drum Area No. 5	1	55-gallon drum	Concrete cleaner	Spill pallet	No
	25	5-gallon	Oil	Spill pallet	No
	3	55-gallon drum	Oil	Spill pallet	No
	1	55-gallon drum	Citric cleaner	Spill pallet	No
	1	55-gallon drum	Oil		No
	1	55-gallon drum	Grease	Spill pallet	No
S&I Building Basement Transformer Substation Room	3	Cylinder	Halon		No

TABLE 4-4
CONTAINER STORAGE AREA INVENTORY

Location	Current Inventory	Container Type	Material	Spill Containment	Exposed Storage Location
S&I Building Basement Cylinder Area 4	2	Cylinder	Propane		No
	2	Cylinder	Nitrogen		No
	1	Cylinder	Argon		No
	1	Cylinder	Acetylene		No
S&I Building Hazardous Waste Storage Shed	1	55-gallon drum	Freon-contaminated used oil	Flammable cabinet	No
S&I Building Basement Outside Train Wash Reclaim Room	1	55-gallon drum	Arca shock	Spill pallet	No
S&I Building Train Wash Reclaim Room Drum Area 6	4	55-gallon drum	Arca shock	Spill pallet	No
	4	55-gallon drum	Sodium hypochlorite	Spill pallet	No
	1	55-gallon drum	Caustic soda	Spill pallet	No
	1	AST	Dual compartment - 450 gals. each	AST	No
S&I Building, Basement Elevator Machine Room	1	100-gallon lift oil reservoir	Hydraulic oil		No

Within the basement of the S&I Building, equipment and chemicals are stored for use at West Falls Church Rail Yard. The products stored at the time of inventory included acetylene, freon, halon, grease, oil, ice melt, batteries, cleaners, propane, nitrogen, argon, Arca Shock, sodium hypochlorite, caustic soda, antifreeze, paint, and degreasers. The inventory is expected to vary depending on product delivery schedule and the rate of product use.

The rail car cleaning area of the S&I Shop uses high pressure spraying, washing, and water rinsing; materials observed in this area at the time of this inventory included cleaner and carpet shampoo. A train car inspection pit area in the S&I Shop serves as an inspection and service location for rail cars; oil, cleaner, used oil, grease, nitrogen, and freon were located in this area during the site inspection.

Materials stored in the lube/oil room in the S&I Shop during the site inspection included 55- and 35-gallon drums of oil, used oil, grease, and cleaner. Also stored were diesel fuel, gasoline, antifreeze, coolant, paint, paint thinner, and adhesives in 1-quart and 1- and 5-gallon containers. The S&I Shop battery room stores nickel-cadmium (NiCad) batteries. Daily inventory of the NiCad batteries will vary, depending on the maintenance schedule.

Some materials stored within the facility are included in WMATA's overall chemical inventory. The amounts and types of chemicals stored at the West Falls Church facility fluctuate. The most recent storeroom inventory for West Falls Church Rail Yard (Storeroom No. 254) is included in Appendix D.

At the PLNT Field Base, equipment and chemicals are stored for use in the maintenance shops. Products stored in this area during the time of the inspection included oxygen, acetylene, cleaners, water treatment chemical, oil, batteries, paint, windshield washer fluid, cutting fluid, concrete, and transmission fluid.

Flammable cabinets and storage sheds are located on the north side of the PLNT Field Base. These lockers and sheds store both new product and waste chemicals.

Four halon cylinders are present in the basement of the Yard Operations Building in the breakroom.

Hazardous waste is stored in two sheds at the West Falls Church Rail Yard. One storage shed is located outside the PLNT Field Base; another shed is located in the basement of the S&I Shop. An inventory of waste contained in these sheds at the time of this inspection is presented in Table 4-5. At the time of the inspection, four waste batteries, six 55-gallon drums of waste PCB ballasts/capacitors, and two 55-gallon drums of waste oil were awaiting disposal.

TABLE 4-5
HAZARDOUS WASTE STORAGE LOCATIONS

Location	Waste	Container Type	Spill * Containment	Current Inventory
PLNT Hazardous Waste Storage Shed (Exterior - north side of building)	Batteries	-	Shed	4
	Waste ballasts/ capacitors	55-gallon drum	Shed	6
	Waste oil	55-gallon drum	Shed	2
S&I Hazardous Waste Storage Shed Basement	Used oil (Freon-contaminated)	55-gallon drum	Shed	1

* Spill containment is an integral part of each hazardous waste storage shed.

Batteries are located in the Traction Power Substation Building and the Tie Breaker Buildings. The batteries are connected in tandem and provide backup power in the event of a power failure. This battery power system is called an Uninterruptible Power Supply (UPS). There are UPS units, 60 batteries each, in the Traction Power Building, the UPS room in the basement of the S&I building, and the two Tie Breaker Buildings at the West Falls Church Rail Yard.

4.2 Hazardous Waste Generation

A variety of hazardous wastes may be generated at the West Falls Church Rail Yard. Waste is stored on site in secured sheds (see Figure C-1 in Appendix C). Table 4-6 presents the types and approximate quantities of hazardous waste generated at the West Falls Church Rail Yard. The hazardous waste stored at the West Falls Church Rail Yard during the site inspection included waste batteries, waste PCB ballasts/capacitors, and freon-contaminated oil.

WMATA is taking effective pollution prevention steps to eliminate use of hazardous materials and the generation of hazardous wastes. For example, use of Safety-Kleen degreasing solvents that are volatile and contain carcinogens have been phased out.

4.3 Potential Spill Sources

Based on an inspection of the West Falls Church Rail Yard and a review of activities performed at the facility, potential sources of pollutants have been identified. Spills from potential pollutant sources situated outside the buildings will be contained and absorbed using absorbent pads/booms or may be captured by the storm sewer system, which discharges to the on-site stormwater management pond. Spills from potential pollutant sources inside the buildings will be captured by the facility's floor drain system and pre-treated through gravity oil/water separators before discharging into the public sanitary sewer system. Potential pollutant sources from outside the buildings include fueling operations (antifreeze, gasoline, and diesel dispensers), and storage tanks. Potential pollutant sources from inside the buildings include storage areas and aboveground storage tanks. The potential pollutant sources identified for the West Falls Church Rail Yard are shown in figures contained in Appendix C. In general, the potential spill sources are as follows:

Empty Drums. Pollution can result when product residues leak from deteriorated drums or when open drums are exposed to precipitation. Management procedures are in place to clean and dispose of empty drums in a timely manner; drums are marked "MT" and returned or treated as scrap within 45 days.

Fueling Operations. Improper filling can result in spills or overfills of storage tanks. Dispensers are located close to storm drains near the PLNT Field Base; contamination can result when fueling is performed in a haphazard manner. A spill kit is present near the

TABLE 4-6
HAZARDOUS WASTE TYPES GENERATED*

Hazardous Waste Description	Shipping Code(s)	Annual Average Amount	Units
Waste Flammable Liquid	D001 D018	100	gallons
Waste Combustible Liquid	D001	120	gallons

*1999 Estimate

fueling area; absorbents are used to absorb spills. WMATA has procedures in place to minimize release during fueling operations.

Vehicle and Equipment Maintenance and Cleaning Areas. Rail car maintenance is performed inside the S&I Shop and track equipment maintenance is performed inside the PLNT building. Bulk products in drums are stored and used within the maintenance areas; these drums are stored on containment pallets or with absorbent socks around their base. Rail car cleaning is performed in the car wash area; water from the cleaning is 100 percent filtered and recycled. Parts cleaning is performed within the steam-cleaning area and within recycling parts-washing cabinets.

Underground Storage Tanks. All underground storage tanks at the West Falls Church Rail Yard are provided with leak detection and spill/overfill prevention. The potential for contamination from spills, overfills, and leaks from USTs has been minimized through the leak detection, corrosion protection, and spill/overfill protection provided at each of the USTs.

Chemical Storage Areas. Pollution can occur when open or damaged containers are stored near drains. Inspection of these storage areas minimizes the potential pollution by detecting problems quickly. Liquid chemicals should be stored in secondary containment. Drains should be diked or blocked when handling liquid chemicals.

4.4 Spill History

WMATA policy requires that all spills are reported to the MOC. WMATA maintains a database of all spill or release events for all its facilities. There have been no spills reported to MOC for West Falls Church Rail Yard in the past three years. Appendix E is reserved for future use if spills should occur prior to updating this Plan.

4.5 Stormwater Sampling Information

The General Stormwater Permit from the VDEQ does not require stormwater sampling.

4.6 Non-Stormwater Discharges

Based on a review of the utility drawings for this site and discussions with facility personnel, there are no non-stormwater discharges to the stormwater system at the West Falls Church Rail Yard.

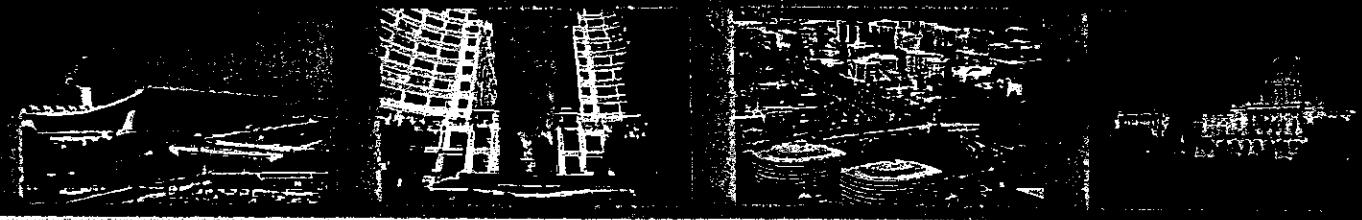
4.7 Wastewater Pretreatment

Wastewater is generated from the train wash area in the S&I Shop and the parts washers in the S&I Shop and the PLNT Field Base. The car wash area has a closed-loop train

washwater system. The majority of this water is recycled and the washwater is treated with an acid or base to adjust the pH of the system. Periodically, a portion of this water is discharged to the sanitary sewer system and fresh "make-up" water is added. The parts washer wastewater is currently being disposed of off site as non-hazardous waste by a contractor. Floor drains at the S&I Building go to one of three OWS prior to discharge.

Dulles Corridor Rapid Transit Project

November 2004



Noise and Vibration Technical Report

Dulles Corridor
Rapid Transit Project

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APPENDIX

1.0 NOISE EFFECTS

This chapter includes an introduction to basic noise concepts including noise descriptors, the prediction methodologies and modeling assumptions, the results of the ambient noise monitoring program, and the evaluation of potential impacts along the Dulles Corridor.

1.1 HUMAN PERCEPTION OF NOISE

The characteristics and properties of noise are explained in the following subsections.

1.1.1 DESCRIBING NOISE

Noise is "unwanted sound" and, by this very definition, the perception of noise is a subjective process. Several factors affect the actual level and quality of sound (or noise) as perceived by the human ear and can generally be described in terms of loudness, pitch (or frequency), and time variation.

Loudness. The loudness, or magnitude, of noise determines its intensity and is measured in decibels (dB). The noise decibel is used to describe a large range of sound levels. For example, ambient noise ranges from 40 decibels from the rustling of leaves to over 70 decibels from a truck passby to over 100 decibels from a rock concert.

Pitch. Pitch describes the character and frequency content of noise. Measured in Hertz (Hz), frequency is typically used to identify the annoying characteristics of noise and thereby identify the proper mitigation to help eliminate or minimize its magnitude. The human ear is typically sensitive to noise frequencies between 20 Hz (low-pitched noise) and 20,000 Hz (high-pitched noise). For example, noise may range from very low-pitched "rumbling" noise from stereo sub-woofers to mid-range traffic noise to very high-pitched whistle noise.

Time Variation. The time variation of some noise sources can be characterized as continuous, such as a building ventilation fan, intermittent, such as for a train passby, or impulsive, like a car backfire.

1.1.2 DESCRIPTION OF NOISE LEVELS

Various levels are used to quantify noise from transit sources including a sound's loudness, duration, and tonal character. For example, the A-weighted decibel (dBA) is commonly used to describe the overall noise level. Because the decibel is based on a logarithmic scale, a 10-decibel increase in noise level is generally perceived as a doubling of loudness, while a 3-decibel increase in noise is just barely perceptible to the human ear. The A-weighting is an attempt to take into account the human ear's response to audible frequencies. Typical A-weighted sound levels from transit and other common

sources are shown in Figure 1-1. The following A-weighted noise descriptors are typically used to determine impacts from transit-related sources:

- Lmax represents the maximum noise level that occurs during an event or train passby and is the noise level actually heard during the event or passby.
- Leq represents a level of constant noise with the same acoustical energy as the fluctuating noise levels (e.g., highway traffic) observed during a given interval such as one hour. For transit projects the Leq noise level is commonly used to describe levels at non-residential places (such as offices, schools, and churches) with primarily daytime uses. Leq(h) is a noise level averaged over one hour.
- Ldn, the day-night noise level, represents the average noise level evaluated over a 24-hour period. A 10-decibel penalty is added to events that occur during the nighttime hours (10:00 p.m. to 7:00 a.m.) to account for people's increased sensitivity to noise while they are sleeping. For transit projects the Ldn is commonly used to describe noise at residences.
- SEL is the sound exposure level typically used to predict overall transit source levels. The SEL converts the time period of the Leq to one second allowing for the direct comparison of events or passbys with different time durations.

Unlike the Lmax level, the hourly Leq noise level describes noise over a longer time duration than just a single event. For example, a single six-car train passby at 50 mph has an Lmax of 88 dBA but a Leq(h) level of only 54 dBA. This is due to the concept of time averaging whereby the overall average noise level (Leq) during the one-hour period is much less than the short-duration passby level of the event (Lmax). The Lmax and the hourly Leq levels are theoretically equivalent for constant noise sources such as a transformers or rooftop ventilation units.

1.2 EVALUATION CRITERIA

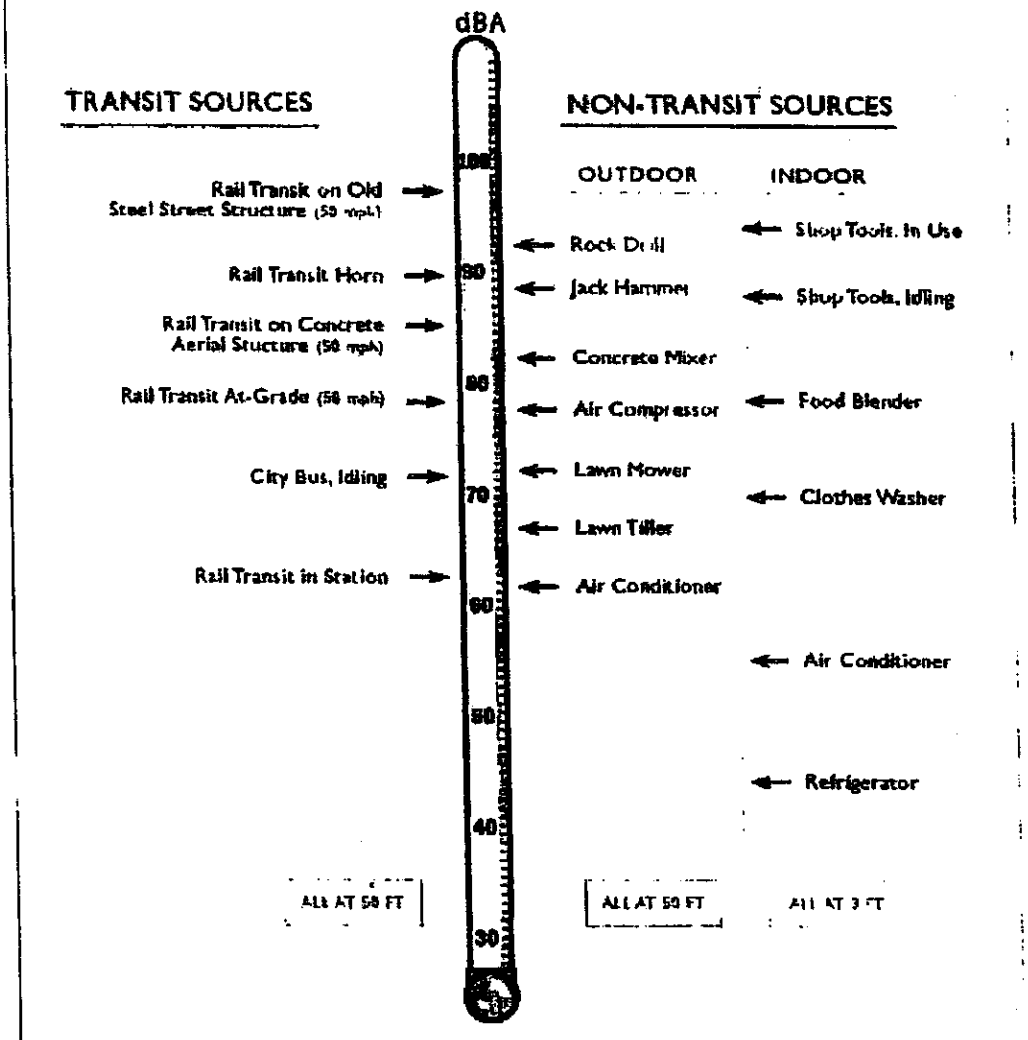
The criteria used to evaluate noise impacts are described in the following subsections. Criteria used to evaluate operational and construction impacts are discussed separately.

1.2.1 OPERATIONAL NOISE

Operational criteria are used to assess noise impacts from the Project alternatives when they are fully operational. These criteria are, therefore, typically evaluated against the Project operations that occur in the design year.

1.2.1.1 Federal Noise Guidelines

The Federal Transit Administration's *Transit Noise and Vibration Impact Assessment* guidance manual (DOT-95-16, April 1995) presents the basic concepts, methods, and procedures for evaluating the extent and severity of noise impacts from transit projects. Transit noise impacts are assessed based on land use categories and sensitivity to noise from transit sources under the FTA guidelines. The FTA noise impact criteria are defined by two curves that allow increasing project noise levels as existing noise increases up to a point, beyond which impact is determined based on project noise alone. The FTA land use categories and required measurements are described in **Table 1-1**.



Source: Transit Noise and Vibration Impact Assessment - Final Report Federal Transit Administration, Washington, D.C., April 1995

Figure 11

Typical A-Weighted Sound Levels

Table 1-1: FTA Land Use Categories and Noise Levels

Land Use Category	Noise Level	Description
1	Leq(h)	Tracts of land set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and historic landmarks.
2	Ldn	Buildings used for sleeping such as residences, hospitals, hotels, and other areas where nighttime sensitivity to noise is of utmost importance.
3	Leq(h)	Institutional land uses with primarily daytime and evening uses including schools, libraries, churches, museums, cemeteries, historic sites, and parks, and certain recreational facilities used for study or meditation.

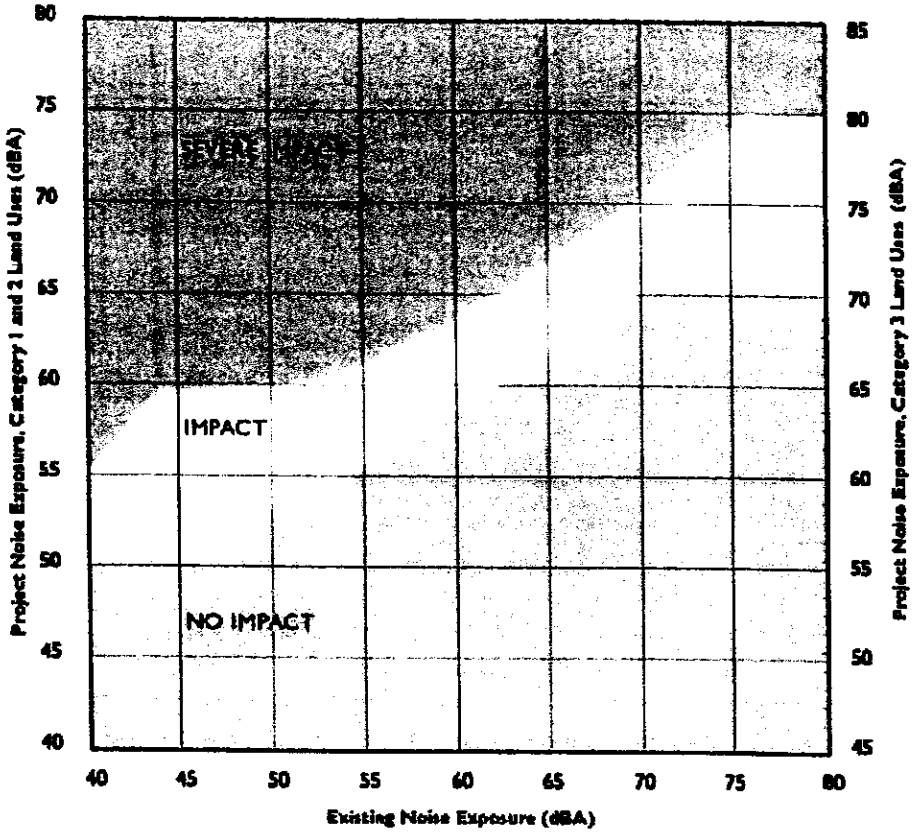
Source: *Transit Noise and Vibration Impact Assessment - Final Report*, Federal Transit Administration, Washington, D.C., April 1995.

The FTA noise criteria are delineated into two categories: *impact* and *severe impact*. The *impact* threshold defines areas where the change in noise is noticeable but may not be sufficient to cause a strong, adverse community reaction. The *severe impact* threshold defines the noise limits above which a significant percentage of the population would be highly annoyed by new noise. The level of impact at any specific site can be established by comparing the predicted Project noise level at the site to the existing noise level at the site. The FTA noise impact criteria for all three land use categories are shown in Figure 1-2.

Additionally, Public Law 97-310 established a maximum Leq noise limit of 52 to 54 dBA from traffic along the Dulles Toll Road (DTR) at Wolf Trap Farm Park. Due to the noise barriers constructed at this location, all of the predicted noise levels are well below the provisions of Public Law 97-310 for both of the two Build Alternatives of the Final EIS.

1.2.1.2 WMATA Noise Criteria

In addition to FTA noise guidance, the Final EIS is evaluating the two Build Alternatives using the Washington Metropolitan Area Transit Authority's (WMATA) criteria. Unlike the FTA noise criteria, which are based on cumulative exposure to predicted transit noise (e.g., 24-hour day-night noise levels), the WMATA criteria are based on single event maximum vehicle passby noise levels. As shown in **Table 1-2**, maximum noise levels (or Lmax) from transit vehicle passbys are applicable to single and multi-family residences as well as commercial receptors located in various communities ranging from low-density residential to industrial (for example, 'SF4' or 'SFAM IV' indicate a single-family residence in a high-density community area). The WMATA maximum passby noise levels are applied to the Corridor express bus and Metrorail passbys.



Note: To use this table find the existing noise level along the bottom row and follow the line up to the projected noise level using the scale on the left for Category 1 or 2 Land Uses. At the intersection of the existing and projected levels, the colored background shows *no impact* (blue), *impact* (yellow), or *severe impact* (red).

Noise exposure is in terms of Leq(h) for Category 1 and 3 Land Uses; Ldn for Category 2 Land Uses

Source: *Transit Noise and Vibration Impact Assessment - Final Report*, Federal Transit Administration, Washington D.C. April 1995

Figure 1-2

FTA Noise Impact Criteria for Transit Projects

Dulles Corridor Rapid Transit Project

Table 1-2: WMATA Criteria for Single Event Maximum Airborne Noise Levels (Lmax) from Metrorail Operations (dBA)

Community Area Category[1]		Receptor Category		
		Single-Family (SF)	Multi-Family (MF)	Commercial (CM)
I	Low-density Residential	70	75	80
II	Average Residential	75	75	80
III	High-density Residential	75	80	85
IV	Commercial	80	80	85
V	Industrial/Highway	80	85	85
Specific Receptor Categories				
Amphitheaters			65	
"Quiet" Outdoor Recreation Areas			70	
Concert Halls, Radio, and TV Studios			70	
Churches, Theaters, Schools, Hospitals, Museums, and Libraries			75	

1 Community categories include: Low-density urban residential, including open space park, suburban residential, or quiet recreation areas with no nearby highways; average urban residential, including quiet apartment and hotels, open space, suburban residential, or occupied outdoor areas near busy streets; High-density urban residential, including average semi-residential/commercial areas, parks, museums, and non-commercial public building areas; commercial areas including office buildings, retail stores, etc., with primary daytime occupancy (Central Business District); and industrial areas or highway corridors.
Source: *WMATA Noise and Vibration Criteria* (January 16, 2001).

Project noise levels related specifically to facility operations, such as at passenger stations and maintenance facilities, will be assessed using the WMATA "Transit Systems Ancillary Facility" criteria. As shown in **Table 1-3**, noise criteria were developed for both transient (short-time-duration) events, such as a train passby, and continuous (long-time-duration) events, such as rooftop ventilation fans. The WMATA criteria were applied to all noise-sensitive receptor locations, including residential and commercial land uses, identified along the Dulles Corridor.

Table 1-3: WMATA Criteria for Noise from Transit System Ancillary Facilities (dBA)[1]

Community Area Category		Maximum Noise Level Criteria[2]		
		Transient Noise	Continuous Noise	
			Fans, etc.	Transformer
I	Low-density Residential	50	40	35
II	Average Residential	55	45	40
III	High-density Residential	60	50	45
IV	Commercial	65	55	50
V	Industrial/Highway	75	65	60

1 The WMATA criteria are generally referenced to or applied at a point 50 feet or farther from the Metrorail guideway centerline.
2 Maximum noise level (or Lmax) criteria are reported for transient and continuous sources.
Source: *WMATA Noise and Vibration Criteria* (January 16, 2001).

Additionally, randomly occurring noises from Service and Inspection (S & I) Yards, such as wheel squeal or rail car auxiliary equipment, were also evaluated at nearby residences using the WMATA criteria shown in **Table 1-4.**

Table 1-4: WMATA Residential Noise Criteria for Metrorail Operations at Service and Inspection Yards (dBA)[1]

Community Area Category		Maximum Noise Level Criteria
I	Low-density Residential	55
II	Average Residential	55
III	High-density Residential	65
IV	Commercial	65
V	Industrial/Highway	70

1 The WMATA criteria are generally applied to the nearest residence or property line.
Source: *WMATA Noise and Vibration Criteria* (January 16, 2001).

1.2.1.3 VDOT Noise Policy

The Virginia Department of Transportation (VDOT) "State Noise Abatement Policy" (January 1, 1997) established evaluation criteria for Type I and II highway projects. As shown in **Table 1-5**, these criteria include both the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) adopted by VDOT and a relative increase over existing criterion for various land use categories. For this criterion, a "substantial" increase of 10 dBA or more is used to evaluate highway noise especially at remote receptors currently not affected by existing traffic. The VDOT noise criteria apply only to those residences located adjacent to the proposed realignment of the Dulles Connector Road, Dulles International Airport Access Highway (DIAAH), Dulles Toll Road and Dulles Greenway, in order to widen the freeway median for Metrorail stations or pocket tracks. No other roadway changes, affecting either capacity or elevation, are expected anywhere else along the Project corridor.

1.2.1.4 Local Ordinances

In addition to the FTA and WMATA criteria, an inventory of local and county noise ordinances was compiled for all municipalities along the proposed Project corridor. Local noise ordinances generally do not set limits on transit operations but rather on construction and other nuisance noises. However, local noise ordinances were used to evaluate impacts from stationary sources, such as the S&I yard and park-and-ride structures in Fairfax County. To determine impact, maximum facility noise levels were evaluated against the residential criterion of 55 dBA and the commercial criterion of 60 dBA.

Table 1-5: VDOT and FHWA Noise Abatement Criteria for Highway Projects (dBA)

Agency	Land Use Category	Leq(h) Noise Level (dBA)	Description
FHWA	A	57	Lands on which serenity and quiet are of extraordinary significance.
	B	67	Residences, hotels, schools, churches, libraries, hospitals, parks, and other recreational areas.
	C	72	Developed lands, properties, or activities not included in Categories A and B above.
	D	--	Undeveloped lands.
	E	52	Indoor: residences, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
VDOT	--	Background+10 dBA[1]	Applicable to all noise-sensitive receptors.

1 Impact threshold limit equals the existing background level plus 10 dBA or more (i.e., "a substantial amount").
Source: VDOT. *State Noise Abatement Policy*. Richmond, VA. January 1, 1997.

1.2.2 CONSTRUCTION NOISE

Noise limits placed on construction activities from the FTA, WMATA, and other local ordinances are described in the following subsections.

1.2.2.1 Federal Guidelines

During the environmental review phase of a project, construction details are limited; therefore, the FTA guidelines suggest evaluating proposed construction scenarios against the one-hour Leq thresholds shown in **Table 1-6**. These guidelines are evaluated against noise levels from the two loudest pieces of equipment that, under worst-case conditions, are assumed to operate continuously for one hour during both the daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods.

Table 1-6: Recommended FTA Construction Noise Limits (dBA)

Land use Category	Construction Period	
	Daytime	Nighttime
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: *Transit Noise and Vibration Impact Assessment - Final Report*, Federal Transit Administration, Washington, D.C., April 1995.

1.2.2.2 WMATA Criteria

As shown in **Table 1-7**, the WMATA criteria for construction activities are applicable to both continuous noise (i.e., long-term noise lasting more than 2 hours) and intermittent noise (i.e., short-term noise lasting less than 2 hours).

Additionally, the WMATA criteria also set limits on the construction equipment source noise levels as measured at a reference distance of 50 feet. These limits apply separately to various construction equipment types purchased before and after January 1, 1990.

Table 1-7: WMATA Criteria limits for Maximum Noise from Construction Activities (dBA)

Affected Structure or Area	Maximum Allowable Noise Level (dBA)			
	Continuous		Intermittent	
	Daytime	Nighttime	Daytime	Nighttime
Residential				
Single-family residential areas, not along a major arterial	60	50	75	60
Multi-family residential areas, along a major arterial, including hospitals	65	55	75	65
In semi-residential or commercial areas, including hotels	70	60	80	70
Commercial				
In semi-residential or commercial areas, including schools	70	65	80	80
In commercial areas with no nighttime residency	75	70	85	85
Industrial				
All locations	80	80	90	90

1 The WMATA criteria are generally applied to the nearest occupied building or property line.
Source: *WMATA Noise and Vibration Criteria* (January 16, 2001).

1.2.2.3 Local Ordinances

In general, local ordinances along the Project corridor permit construction activities during the daytime hours from 7:00 a.m. to 6:00 p.m. There are currently no identified limits on maximum equipment noise levels in any of the communities along the Project corridor.

1.3 MODELING METHODOLOGY AND ASSUMPTIONS

A detailed description of the modeling methodologies and the types of noise sources included in the modeling prediction are included in the following sub-sections.

1.3.1 MODELING METHODOLOGY

A description of the FTA modeling methodologies for both operations and construction is included in the following sub-sections.

1.3.1.1 Operations

The impact assessment from future transit noise sources along the Project corridor was determined according to the FTA guidelines and includes a screening procedure, general assessment, and detailed analysis, as described below:

- **Screening Procedure** – Identifies existing noise-sensitive land uses along the proposed Project corridor and whether or not impact is likely. Further analysis is required if noise-sensitive receptors fall within FTA "screening" distances for various sources.
- **General Assessment** – Estimates the severity of noise impacts in the study area selected during the Screening Procedure analysis. When detailed Project data of existing background noise levels are not available, conservative assumptions are used to identify the noise levels at which potential impact could result.
- **Detailed Analysis** – Quantifies impacts through an in-depth analysis that includes ambient noise monitoring and a delineation of site-specific impacts and mitigation measures for each of the proposed Project alternatives.

The screening procedure considered a screening distance of 1,000 feet to determine the number, location, and land use types of noise-sensitive receptors along the Project corridor. The additional 300 feet added to the FTA screening distance of 700 feet for unobstructed corridors accounted for the VDOT limit on Type I highway noise impacts.

Because precise alignment and operations data were available, a detailed analysis was conducted to quantify the overall noise level at receptors identified during the screening procedure. The noise prediction modeling included all new sources of noise proposed along the Project corridor, including Metrorail train passbys, wheel squeal along curves, Metrorail auxiliary equipment at stations, public address systems at stations, express bus passbys, express bus idle at stations and feeder bus idle at park-and-ride facilities. Operations data were adjusted based on the existing topography, such as acoustically hard or soft ground, terrain cuts, earthen berms, and other noise barrier walls. Project noise levels from facilities, such as park-and-ride structures, rail yards, and express bus maintenance facilities, were predicted using the FTA General Assessment guidelines.

Based on the screening distances shown in **Table 1-8**, over 2,500 noise-sensitive receptor locations were identified along the Project corridor that were included in the modeling analysis. These receptor locations include single- and multi-family residences, hotels, schools, churches, amphitheaters, offices, parks, and historic resources.

Table 1-8: FTA Screening Distances for Noise Assessments

Project		Screening Distance (feet)	
Type	Description	Unobstructed	Intervening Buildings
Fixed Guideway System	Rail Transit Guideway	700	350
	Rail Transit Station	200	100
	Rail Yard and Shops (S&I Yard)	2,000	1,000
	Parking Facilities	150	75
Bus Systems	Busway	500	250

Project noise levels were developed for the two Build Alternatives of the Final EIS including the following:

- Wiehle Avenue Extension
- Full Locally Preferred Alternative (LPA)

Operations data, such as volumes, speeds, consist sizes for Metrorail trains, as well as other operations input data, are described in the Appendix.

1.3.1.2 Construction

Construction noise expected along the Dulles Corridor was estimated according to the procedures outlined in the FTA guidelines. Construction equipment operates as either a stationary or mobile source. Stationary equipment operates in one location for an extended period of time and produces either continuous noise (e.g., from pumps, generators, and compressors) or intermittent noise (e.g., from pile drivers and pavement breakers). Mobile equipment moves around the construction site, with engine power varying as needed (e.g., bulldozers and loaders) or to and from the construction site (e.g., trucks). Construction noise is highly dependent on variations in equipment power setting and activity. Mobile noise sources typically do not operate at full power continuously.

The construction noise prediction methodology is based on the following assumptions:

- The construction equipment operates at full power for a one-hour period;
- Free field conditions, ignoring ground effects;
- Equipment's full power reference emission level;
- All construction equipment operates at the center of the Project site or along the Metrorail guideway centerline;
- The two noisiest pieces of equipment expected to be utilized during each construction phase; and,
- Noise attenuation resulting only from energy dissipation (i.e., 6 dBA for each doubling of distance).

Based on the results of the screening procedure, whereby potential noise-sensitive receptors were identified along the Project corridor, a general assessment was conducted according to the FTA construction noise guidelines. Predicted levels that exceeded the FTA construction noise guidelines indicated potential construction noise impacts.

The impact assessment is based on the types of equipment that are typically used for each construction activity. Noise levels from typical construction equipment types are provided in the FTA guidelines at a reference distance of 50 feet. These levels were used to estimate the onset of impact at nearby sensitive receptors for each of the different construction activities. The noise predictions included the two loudest pieces of equipment that could be utilized for each construction activity. This assessment is preliminary only and will be updated during preliminary engineering and/or final design to reflect more precise construction scenarios, equipment types, and operating schedules. The following construction scenarios were selected to be representative of the types of activities expected during construction of the Dulles Corridor:

- Track-Laying (At Grade);
- Track-Laying (Aerial);
- Rail Passenger Station Construction;
- Bridge Construction;
- Express and Feeder Bus Facility Construction;
- Park-and-ride Structure Construction; and,
- Rail Service and Inspection Yard.

The equipment types and the maximum FTA reference noise levels are shown in **Table 1-9** for each of the selected prototypical construction scenarios. Although numerous equipment types would eventually be used during each scenario, the FTA guidelines suggest using only the two loudest pieces during the preliminary noise impact assessment.

Table 1-9: Construction scenario equipment Noise reference Lmax levels (dBA)

Construction	Construction Scenario						
Equipment Type	Track Laying		Rail	Rail & Road	Feeder	Park-n-Ride	Rail S&I
Description	At Grade	Aerial	Stations	Bridges	Bus Lots	Structure	Yards
Crane, Derrick	–[1]	88	–	–	88	88	–
Grader	85	–	85	85	85	85	–
Jack Hammer	–	–	–	88	–	–	–
Loader	–	–	–	–	–	–	85
Pneumatic Tool	–	–	–	–	–	–	–
Tie Inserter	85	–	–	–	–	–	–
Truck	–	88	88	–	–	–	88

1 Equipment type not included in the prediction modeling for selected construction scenario.

1.3.2 METRORAIL PASSBYS

The Metrorail cars proposed along the Dulles Corridor would be the same vehicles currently in revenue service on the Orange Line. These vehicles consist of 75-foot electrically powered, heavy rail cars that operate on continuously welded rail tracks. Adjustments to the predicted noise levels for each passby included the following:

- Metrorail guideway type: aerial (pre-cast concrete) vs. at-grade (ballast);
- Train speed;
- Consist size; and;
- Period volumes.

Pre-cast concrete supports, resiliently-supported ties, and continuously welded rail track included in the proposed track design all combine to greatly minimize overall noise and vibration levels from train passbys along aerial sections. Although newer pre-cast concrete track structures are proposed to minimize excessive noise and vibration levels, the modeling analysis included a 4-decibel penalty to account for potential structural noise due to Metrorail passbys along all elevated sections of direct fixation track.

Reference data, such as Lmax and SEL noise levels and average acoustical source height, are shown in **Table 1-10** for Metrorail passby noise sources.

Table 1-10: Summary of Noise Source Reference Data

Noise Source		Duration	Height	Noise Level (dBA)	
Name	Description	(SECONDS)	(FEET)	Lmax	SEL
Metrorail	Train passbys	–[1]	2	80	82
Wheel Squeal-Alignment	Curves <1,000 feet	4	0	88	124
Public Address	Stations	15	10	78	114
Auxiliary Equipment	Stations	30	10	65	101
Express Bus Passbys	DIAAH	–	8	79	81
Express Bus Idle	Stations	30	8	74	110
Feeder Bus Idle	Feeder Bus Facilities	30	8	75	111
Park-and-ride	Parking Facilities	–	0	65	101
Rail S&I Facility	Rail yard	–	2	82	118
Wheel Squeal-Rail Yard	300-ft curves	8	0	108	144

1 "–" = not applicable. Passby and facility noise prediction equations do not require a duration time.
Note: All noise levels are based on a reference distance of 50 feet and a speed of 50 mph (for mobile sources).

Using the peak- and 24-hour Metrorail volumes listed in the Appendix, passby noise levels from Metrorail cars were predicted at each of the identified receptor locations along the Project corridor using the FTA fixed-guideway algorithm shown in Equation 1.

$$LeqM_{50}(h) = SEL_{ref} + 10\log(N_{cars}) + 20\log\left(\frac{S}{50}\right) + 10\log(V) + C_{adj} - 10\log(3600) \qquad \text{[Eq. 1]}$$

where:

$LeqM_{50}(h)$ = hourly Leq noise level at 50 feet from Metrorail passbys (in dBA);
SEL_{ref} = reference SEL noise level at 50 feet (in dBA);
N_{cars} = average consist size (i.e., number of Metrorail cars per train);
S = train speed (in mph);
V = average hourly Metrorail volumes as follows (in trains/hour):

$$V_D = \left(\frac{\sum_{7AM}^{10PM} number\ of\ trains}{15} \right)$$ [average hourly daytime volume];

$$V_N = \left(\frac{\sum_{10PM}^{7AM} number\ of\ trains}{9} \right)$$ [average hourly nighttime volume];

$$V_{PK} = \sum_{PK-HR} number\ of\ trains$$ [average hourly peak-hour volume];

C_{adj} = adjustment factor applied to Metrorail guideway type as follows (in dBA):
= +5 for jointed rail track;
= +4 for aerial structure with direct fixation track; and,
= +3 for embedded track on grade.
-10log(3600) = Leq(h) adjustment factor based on the number of seconds in one hour (in dBA).

For example, the reference peak-hour Leq noise level at 50 feet from Metrorail passbys with 7-minute headways and 8-car consists traveling at 60 mph along aerial guideway on structure is computed as follows:

$$LeqM_{50}(h) = 82 + 10\log(8) + 20\log\left(\frac{60}{50}\right) + 10\log(8.57) + 4 - 10\log(3600) = 70.4\ dBA$$

using the following input data:

82 FTA reference SEL noise level for rail cars (in dBA);
8 consist size;
60 average travel speed (in mph);
8.57 average peak-hour volume = 60 min/hr divided by 7-minute headway times;
4 rail car adjustment for aerial structure (in dBA); and,
3600 the number of seconds in one hour is used to compute the average Leq level.

1.3.3 CORRIDOR EXPRESS BUS PASSBYS

The Corridor express buses proposed along the Project corridor would consist of 40-foot diesel-powered conventional buses that would travel in freeways of the DIAAH and Dulles Toll Road. Adjustments to the predicted noise levels for each passby included Corridor express bus travel speed and period volumes. A maximum speeds were used along the DIAAH, except at stations where average speeds were reduced to a stop based on the vehicle's average acceleration/deceleration performance upon egress/access to the station.

Reference data, such as Lmax and SEL noise levels and average acoustical source height, are shown in **Table 1-10** for express bus and Metrorail passby noise sources. The Altoona Bus Testing and Research Center provided reference noise data for a typical express bus with a similar profile.[1]

Using the peak- and 24-hour express bus volumes listed in the Appendix, passby noise levels from express buses were predicted at each of the identified receptor locations along the Project corridor using the FTA highway/transit-source algorithm shown in Equation 2.

[1] Bus Testing and Research Center. November 1998. *STURAA Test, 12 Year 500,000 Mile Bus from New Flyer Industries LTD. Model D60LF.* Altoona, PA. 128 pages.

$$LeqB_{50}(h) = SEL_{ref} + 10\log(V) + C_{emis} - 10\log\left(\frac{S}{50}\right) - 10\log(3600) \qquad \text{[Eq. 2]}$$

where:

$LeqB_{50}(h)$ = hourly Leq noise level at 50 feet (in dBA) from express bus passbys;
SEL_{ref} = reference SEL noise level at 50 feet (in dBA);
C_{emis} = noise emission adjustment factor as follows:
= 1.6 for accelerating buses;
S = vehicle speed (in mph);
V = average hourly express bus volumes as follows (in buses/hour):

$$V_D = \left(\frac{\sum_{7AM}^{10PM} number\ of\ buses}{15} \right)$$ [average hourly daytime volume];

$$V_N = \left(\frac{\sum_{10PM}^{7AM} number\ of\ buses}{9} \right)$$ [average hourly nighttime volume];

$$V_{PK} = \sum_{PK-HR} number\ of\ buses$$ [average hourly peak-hour volume];

-10log(3600) = Leq(h) adjustment factor based on the number of seconds in one hour (in dBA).

1.3.4 STATIONARY SOURCES

In addition to Metrorail and Corridor express bus passbys, several stationary sources were also included in the modeling prediction analysis including:

- Metrorail wheel squeal along curves;
- Metrorail auxiliary equipment at stations;
- Public address sound systems at stations; and,
- Express bus and feeder bus idling at stations and feeder bus facilities.

All reference data, such as Lmax and SEL source noise levels and average acoustical source height, are shown in **Table 1-10** for each of the stationary sources.

Using the peak- and 24-hour period volumes listed in the Appendix, event noise levels from each stationary source were predicted at each of the identified receptor locations along the Project corridor using the FTA stationary source algorithm shown in Equation 3.

$$LeqS_{50}(h) = SEL_{ref} + 10\log(N) + 10\log\left(\frac{dT}{3600}\right) - 10\log(3600) \qquad \text{[Eq. 3]}$$

where:

$LeqS_{50}(h)$ = hourly Leq noise level at 50 feet (in dBA) from stationary sources;
SEL_{ref} = reference SEL noise level at 50 feet (in dBA);
N = average hourly number of events as follows (in events/hour):

$$N_D = \left(\frac{\sum_{7AM}^{10PM} number\ of\ events}{15} \right)$$ [average hourly daytime number of events]

$$N_N = \left(\frac{\sum_{10PM}^{7AM} number\ of\ events}{9} \right)$$ [average hourly nighttime number of events]

$$N_{PK} = \sum_{PK-HR} number\ of\ events$$ [average hourly peak-hour number of events]

-10log(3600) = Leq(h) adjustment factor based on the number of seconds in one hour (in dBA).

1.3.4.1 Wheel Squeal

Although wheel squeal occurs from train passbys in tight-radius curves, the actual noise source itself has acoustical properties more representative of a point or stationary source. Due to the large variations in noise magnitude between different rail vehicles and curves, the FTA recommends site- and source-specific measurements to best establish actual wheel squeal noise conditions. As a result, actual noise measurements were conducted along two very different curves: (1) a 770-foot curve along the existing Yellow/Blue Line guideway at National Airport and (2) a 300-foot curve at the West Falls Church S&I Yard.

Based on the results of these measurements, wheel squeal noise levels from the 770-foot curve along an existing section of guideway was used to predict future Metrorail wheel squeal at proposed curves with radii less than 1,000 feet. Similarly, the S&I Yard curve noise levels were used to predict Metrorail wheel squeal at the proposed yard curves at the following locations:

- New yard lead at the West Falls Church S&I Yard; and,
- New S&I Yard at Site 15 in Loudoun County.

As shown in **Table 1-10**, wheel squeal duration times for each curve type are based on actual observations.

1.3.4.2 Auxiliary Equipment

Metrorail auxiliary equipment, such as heating and ventilation units, was also included in the noise modeling analysis at stations. Although the auxiliary equipment is included in the cumulative Metrorail passby noise level, it is the dominant train noise source when the Metrorail trains are stopped at the station and is, therefore, modeled separately. As shown in **Table 1-10**, an average delay time in the

station of 30 seconds and a Metrorail rooftop source height of 10 feet was used to predict Project noise levels from auxiliary equipment.

1.3.4.3 PA System

Noise from the public address system at stations was also included in the modeling prediction analysis. Recessed speakers may be included in the final station design, which are typically not a major source of noise. However, in order to be conservative, bullhorn type speakers were assumed to broadcast public announcements for each Metrorail train event for a duration of 15 seconds at a height of 10 feet.

1.3.4.4 Bus Idling

Idling noise from express buses at stations and feeder buses at the satellite feeder bus facilities were also included in the modeling prediction analysis. Although each source type has different reference idling noise levels, as shown in **Table 1-10**, overall idling noise predicted from Corridor express bus and feeder buses is based on average idling times of 30 seconds with an average acoustical source height of 10 feet. This average acoustical height is based on a rooftop exhaust location. Regional or feeder buses at proposed satellite bus facilities were also included in the modeling analysis because, unlike feeder bus passbys, which currently operate along local streets, the proposed satellite facilities would introduce a new source of noise in the community.

1.3.5 FACILITIES

In addition to Metrorail, express bus, and feeder bus operations, several ancillary facilities were also included in the modeling prediction analysis including:

- Park-and-ride facilities at five locations; and,
- Rail S&I Yard at two locations.

All reference data, such as Lmax and SEL source noise levels and average acoustical source height, are shown in **Table 1-10** for each of the facility noise sources.

Using the peak- and 24-hour period volumes listed in the Appendix, event noise levels from each facility noise source were predicted at each of the identified receptor locations along the Project corridor using the FTA stationary source General Assessment algorithm shown in Equation 4.

$$LeqF_{50}(h) = SEL_{ref} + C_N - 10\log(3600) \qquad \text{[Eq. 4]}$$

where:

$LeqF_{50}(h)$ = hourly Leq noise level at 50 feet (in dBA) from facility sources;
SEL_{ref} = reference SEL noise level at 50 feet (in dBA);
C_N = facility volume adjustment factor for the following facilities:

$C_{N1} = 10\log\left(\frac{N_T}{20}\right)$ [rail yard and shops];

$C_{N2} = 10\log(2N_T)$ [rail layover tracks];

$C_{N6} = 10\log\left(\frac{N_A}{1{,}000}\right)$ [park-and-ride structure];

$$C_{NT} = 10\log\left(\frac{N_A}{2{,}000} + \frac{N_B}{24}\right)$$ [Park-and-ride lot];

N_T = average number of trains (in trains/hour);
N_B = average number of buses (in buses/hour);
N_A = average number of automobiles (in cars/hour);

For each facility type, average volumes by period of the day are also calculated. For example:

$$N_{T,D} = \left(\frac{\sum_{7AM}^{10PM} number\ of\ trains}{15}\right)$$ [average hourly daytime number of trains]

$$N_{T,N} = \left(\frac{\sum_{10PM}^{7AM} number\ of\ trains}{9}\right)$$ [average hourly nighttime number of trains]

$$N_{T,PK} = \sum_{PK-HR} number\ of\ trains$$ [average hourly peak-hour number of trains]

-10log(3600) = Leq(h) adjustment factor based on the number of seconds in one hour (in dBA).

1.3.5.1 Park-and-Ride Facilities

General facility noise from park-and-ride facilities was also included in the modeling analysis under the two Build Alternatives. Noise from park-and-ride facilities was predicted at nearby receptor locations from the following facilities:

- Tysons West 500 new spaces
- Wiehle Avenue 2 ,300 new spaces
- Herndon-Monroe 1,750 additional spaces; 3,500 spaces total
- Route 28 2,000 new spaces
- Route 606 2,000 new spaces; 2,750 spaces total
- Route 772 3,300 new spaces

As shown in **Table 1-10**, reference noise levels are based on the FTA guidelines only. No noise measurements were conducted to validate these levels.

1.3.5.2 Metrorail S&I Yard

Noise from activities at Metrorail S&I yards include train movements through switches (which is normally associated with the clickety-clack sounds), maintenance work, and wheel squeal along track curves. Overall yard noise as well as curve wheel squeal was predicted at nearby receptor locations from the following facilities:

- New Site 15 in Loudoun County; and,
- Improvements to the existing West Falls Church yard where 8 new storage tracks and 4 maintenance bays are proposed.

As shown in **Table 1-10**, S&I Yard noise from general train activities are based on the FTA reference levels. Yard wheel squeal reference noise levels, however, are based on noise measurements that were conducted to validate these levels. New activities proposed at the West Falls Church S&I Yard, such as noise associated with maintenance activities and the storage tracks, were included in the modeling analysis. All other existing conditions were documented through the noise measurement program. However, the new rail yard lead connecting the S&I Yard with the Project corridor is a new source and was modeled as such. All activities at the Loudoun County S&I Yard located at proposed Site Y15, including general yard activity noise and wheel squeal, were included in the modeling analysis.

All volumes used to predict the overall noise levels from the S&I Yard, including the peak- and 24-hour periods, are described in the Appendix.

1.3.6 24-HOUR LDN NOISE LEVEL

At residential receptors identified along the Project corridor, including residences and hotels, the 24-hour Ldn noise level was used to assess impact against the FTA impact criteria. Using Equation 5, average hourly Leq noise levels during the daytime (from 7 a.m. to 10 p.m.) and the nighttime (from 10 p.m. to 7 a.m.) periods were used to develop an overall 24-hour Ldn noise level.

$$Ldn_{50} = 10\log\left[15\times10^{\left(\frac{LeqD_{50}}{10}\right)} + 9\times10^{\left(\frac{LeqN_{50}+10}{10}\right)}\right] - 10\log(24) \qquad \text{[Eq. 5]}$$

where:

Ldn_{50} = 24-hour Ldn noise level at 50 feet (in dBA);

$LeqD_{50}$ = average daytime hourly Leq(h) noise level at 50 feet between 7 a.m. and 10 p.m. (in dBA);

$LeqN_{50}$ = average nighttime hourly Leq(h) noise level at 50 feet with 10-dBA penalty applied for nighttime events between 10 p.m. and 7 a.m. (in dBA); and,

-10log(24) = Ldn adjustment factor based on the number of hours in a day (in dBA).

1.3.7 ATTENUATION AND SHIELDING EFFECTS

In areas along the Project corridor with intervening structures, such as buildings, noise barriers, or terrain features that affect the noise propagation path between the transit source and receptor, noise attenuation was determined on a receptor-by-receptor basis. The following shielding and attenuation factors were included in the modeling analysis:

- Ground attenuation effects;
- Barrier and berm shielding effects;
- Building shielding effects; and,
- Atmospheric divergence or distance attenuation.

The modeling assumptions and the calculation methodologies for each are described in the following sub-sections. All methodologies are based on the FTA modeling guidelines.

1.3.7.1 Ground Attenuation: Effective Height

As part of the FTA modeling methodologies, "acoustically soft" ground cover attenuates or reduces noise along the propagation path between the source and the receptor. If "acoustically hard" ground cover is present, then no ground attenuation effects are determined. However, under "acoustically soft" ground conditions, ground attenuation is determined based on the effective height of the receptor-source pair. In essence, the higher the effective height, the less attenuation provided by the ground cover. According to the FTA guidelines, the effective height between the source and the receptor is computed according to Equation 6.

$$H_{eff} = \frac{H_{Source} + 2H_{Bar} + H_{Rec}}{2} \qquad \text{[Eq. 6]}$$

where:

H_{eff} = effective height (in feet);
H_{Source} = height of noise source with the following acoustical heights (in feet):
- 0 wheel squeal along curves;
- 2 Metrorail trains;
- 8 Corridor express buses and feeder buses;
- 10 Metrorail auxiliary equipment and public address system at stations;

H_{Bar} = height of intervening barrier (in feet); and,
H_{Rec} = height of receptor (in feet).

1.3.7.2 Ground Attenuation: Ground Factor

Based on the effective height, an appropriate ground attenuation factor may be computed according to Equation 7. In general, as the effective height increases, the overall attenuation decreases. As a result, barriers essentially eliminate any ground attenuation effects due to the large increase in the effective source-receptor height.

$$G = \begin{cases} 0.66 & H_{eff} < 5 \\ 0.75 \times \left(1 - \frac{H_{eff}}{42}\right) & 5 < H_{eff} < 42 \\ 0 & 42 < H_{eff} \end{cases} \qquad \text{[Eq. 7]}$$

where:

G = ground factor (dimensionless); and,
H_{eff} = computed effective height (in feet).

1.3.7.3 Barrier and Terrain Shielding

Due to the extensive use of barriers along the Dulles Connector Road and Dulles Toll Road, their effects on the proposed Project noise levels were evaluated. The effective barrier, berm, and terrain line heights were determined based on site observations, design drawings, and microfiche obtained at VDOT. These data were combined to establish overall top of barrier height at each of the current barrier locations. Parapet barriers along aerial sections of Metrorail guideway, especially in Tysons Corner, were also included in the modeling analysis. Parapet barriers, or short knee-high walls along the edge of an aerial guideway, are proposed along aerial guideway sections only.

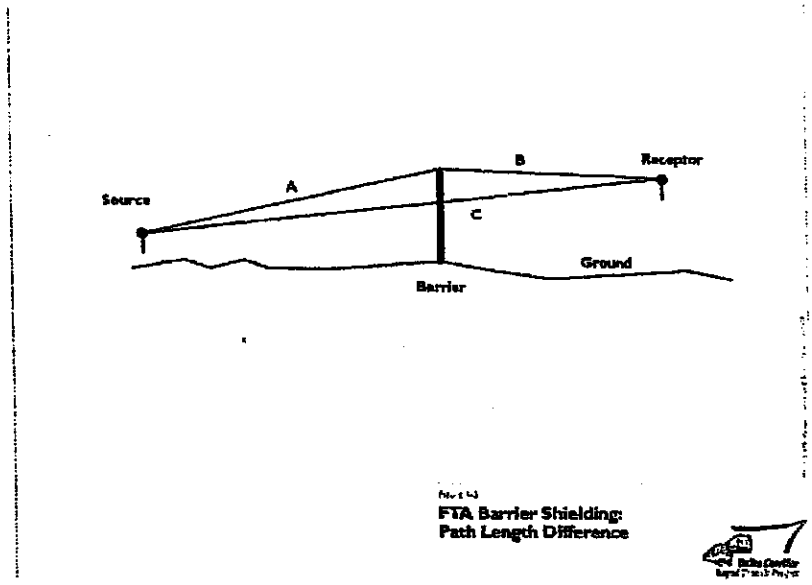
The standard WMATA aerial section includes a 15-inch parapet wall with a pipe rail for sections that do not require noise mitigation. However, due to the mounting design, the parapet is only 4 inches above the top of rail. Where noise mitigation is required, the mitigation measure is either a 4- or 6-foot sound barrier that is mounted atop of the parapet base.

According to the FTA guidelines, barrier shielding was computed using Equation 8. In general, the overall shielding provided by a barrier is based on the path length difference between the noise path over the barrier and the direct line-of-sight path in the absence of a barrier. The path length difference relationship is shown graphically in Figure 1-3.

$$A_{Bar} = Min\left\{15 \text{ or } \left[20\log\left(\frac{2.51\sqrt{dPL}}{\tanh\left[4.46\sqrt{dPL}\right]}\right)+5\right]\right\} \qquad \text{[Eq. 8]}$$

where:

A_{Bar} = barrier shielding (in dBA); and,
dPL = barrier path length difference: dPL = A + B - C (in feet).



FTA Barrier Shielding:
Path Length Difference

Figure 1-3: FTA Barrier Shielding: Path Length Difference

1.3.7.4 Barrier Insertion Loss

In addition to the barrier shielding discussed in Section 1.3.7.3, the overall barrier insertion loss is determined using FTA Equation 9. According to Equation 9, the overall reduction in noise at a receptor behind a barrier is based on the combination of the barrier shielding effects and the difference between the ground attenuation with and without a barrier.

$$IL_{Bar} = A_{Bar} - 10(G_{NB} - G_B)\log\left(\frac{dS}{50}\right) \quad \text{[Eq. 9]}$$

where:

IL_{Bar} = barrier insertion loss (in dBA);
A_{Bar} = barrier shielding (in dBA);
G_{NB} = ground factor computed without a barrier;
G_B = ground factor computed with a barrier; and,
dS = closest distance between the receptor and the source (in feet).

1.3.7.5 Building Shielding

In addition to barrier shielding effects, dense residential neighborhoods may also provide shielding due to the intervening rows of buildings. Depending on the density of the rows of buildings, shielding due to rows of buildings is computed using Equation 10. To be conservative, average density (i.e., building gaps between 35 and 65 percent of the row length) building configuration was used to predict overall shielding effects from buildings. Building shielding effects were primarily used along the Dulles Connector Road in McLean and Falls Church, as well as in Tysons Corner. Average building densities were assigned based on aerial photography.

$$A_{Bldg} = Min\{10 \text{ or } [1.5 \times (N_{Row} - 1) + C_{Gap}]\} \quad \text{[Eq. 10]}$$

where:

A_{Bldg} = building shielding (in dBA);
N_{Row} = number of rows of buildings that intervene between the source and receptor; and,
C_{Gap} = building shielding adjustment factor as follows (in dBA):
- 5 if gap between row of buildings is less than 35 percent of the row length;
- 3 if gaps between row of buildings is between 35 and 65 percent of the row length; and,

A_{Bldg} = 0, if gaps between row of buildings is greater than 65 percent of the row length.

1.3.7.6 Maximum Allowable Shielding

Although several shielding factors were evaluated for each source-receptor pair, the FTA limits the total shielding allowed according to Equation 11. As a result, overall Project noise levels predicted at each receptor location reflect only one of several different shielding effects available.

$$A_{Shld} = Max\{IL_{Bar} \text{ or } A_{Bar} \text{ or } A_{Bldg}\} \quad \text{[Eq. 11]}$$

where:

A_{Shld} = total shielding allowed (in dBA);
IL_{Bar} = barrier insertion loss (in dBA);
A_{Bar} = barrier shielding (in dBA); and,
A_{Bldg} = building shielding (in dBA).

1.3.8 COMBINED PROPAGATION AND SHIELDING EFFECTS

The overall noise level at each receptor is determined by combining all of the different noise components including the reference noise level at 50 feet, the distance correction factor, ground attenuation, and the maximum allowable shielding permitted under the FTA guidelines. The combination of the various adjustment factors is best described by Equation 12 for Metrorail passbys, Equation 13 for express bus passbys, and Equation 14 for all stationary sources.

$$LdnM_{REC} = LdnM_{50} - 10\log\left(\frac{dS}{50}\right) - 10 \times G \times \log\left(\frac{dS}{42}\right) - A_{Shld} \qquad \text{[Eq. 12]}$$

$$LdnB_{REC} = LdnB_{50} - 10\log\left(\frac{dS}{50}\right) - 10 \times G \times \log\left(\frac{dS}{29}\right) - A_{Shld} \qquad \text{[Eq. 13]}$$

$$LdnS_{REC} = LdnS_{50} - 20\log\left(\frac{dS}{50}\right) - 10 \times G \times \log\left(\frac{dS}{50}\right) - A_{Shld} \qquad \text{[Eq. 14]}$$

where:

$LdnM_{REC}$	= final Ldn noise level at receptor from Metrorail passbys (in dBA);
$LdnB_{REC}$	= final Ldn noise level at receptor from Corridor express bus passbys (in dBA);
$LdnS_{REC}$	= final Ldn noise level at receptor from stationary sources (in dBA);
$LdnM_{50}$	=reference Ldn noise level at 50 feet from Metrorail passbys (in dBA);
$LdnB_{50}$	= reference Ldn noise level at 50 feet from Corridor express bus passbys (in dBA);
$LdnS_{50}$	= reference Ldn noise level at 50 feet from stationary sources (in dBA);
dS	= closest distance between the receptor and the source (in feet);
G	= ground factor (dimensionless); and,
A_{Shld}	= total shielding allowed (in dBA).

The total Project noise level at each receptor location from all sources combined is determined using Equation 15. This total noise level, $LdnALL_{REC}$ for residences or $LeqALL_{REC}$ for non-residential receptors, was then compared with the established FTA criteria threshold limits to determine the onset of impact.

$$LdnALL_{REC} = 10\log\left(10^{LdnM_{REC}/10} + 10^{LdnB_{REC}/10} + 10^{LdnS_{REC}/10}\right) \qquad \text{[Eq. 15]}$$

1.3.9 CONSTRUCTION NOISE

As part of the FTA General Assessment to estimate preliminary noise impact from construction activities, two pieces of equipment were selected to be representative of the construction scenario. Using Equation 16, each piece of equipment was estimated to operate continuously over a period of one hour at the center of the selected construction activity. Impacts estimated using the FTA General Assessment methodology warrant further investigation during preliminary engineering and/or final design when more details of the actual construction process are known.

$$Leq_{REC} = EL_{50} + 10\log(UF) - 20\log\left(\frac{dS}{50}\right) - 10 \times G \times \log\left(\frac{dS}{42}\right) - A_{Shld} \qquad \text{[Eq. 16]}$$

where:

Leq_{REC}	= Ldn noise level at receptor from a single piece of equipment (in dBA);
EL_{50}	= reference noise emission level at 50 feet from a single piece of equipment (in dBA);
UF	= usage factor accounts for the fraction of time that the equipment is used during the specified time period. Equipment is typically assumed to operate continuously during the specified period (i.e., UF = 1);
dS	= closest distance between the receptor and the equipment (in feet);
G	= ground factor (dimensionless). This is typically ignored to be conservative (i.e., G = 0); and,
A_{Shld}	= total shielding allowed (in dBA). Typically, to be conservative, shielding is ignored.

1.4 EXISTING CONDITIONS

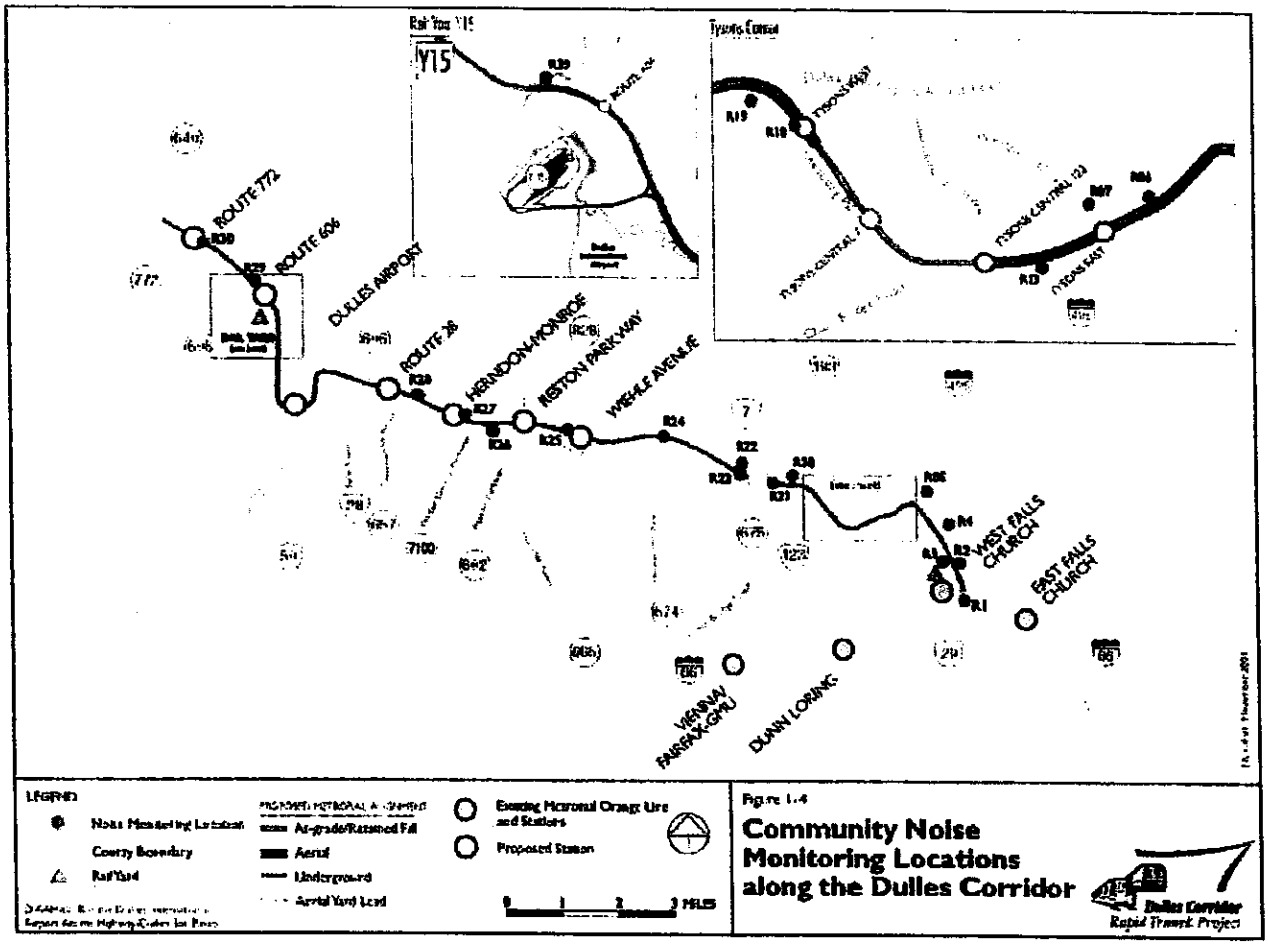
Existing noise along the Project corridor was measured to characterize ambient background levels in the community as well as to document transit sources that currently operate along the DIAAH and Dulles Toll Road. The scope and the results of the noise measurement program are described in the following subsections.

1.4.1 BACKGROUND AMBIENT NOISE LEVELS

In accordance with FTA noise guidelines, a noise-monitoring program was conducted along the Dulles Corridor to (1) establish the existing ambient background levels within the Project area and (2) develop Project criteria noise limits.

As shown in Figure 1-4, noise measurements were obtained at 30 receptor locations along the Dulles Corridor. The measurements were conducted at various times of the day during the peak travel hours, midday off-peak travel hours, and late night hours at several noise-sensitive receptor locations along the Project corridor. The results were used to establish baseline noise levels for both residential and non-residential receptors. The existing noise environment was characterized according to the FTA land use categories shown in **Table 1-1.**

Existing land uses along the Dulles Corridor are exposed to a variety of noise sources ranging from vehicular traffic along the DIAAH and Dulles Toll Road to cross streets and arterials such as Fairfax and Loudoun County Parkways. Noise measurements were conducted at noise-sensitive locations along the corridor as described in the Dulles Corridor Rapid Transit Project *Noise and Vibration Measurement Protocol* (January 2001). The monitoring locations shown in Figure 1-4 were selected to be representative of the types of neighborhoods and land uses found along the corridor. The results of the community noise-monitoring program were used to establish the existing background noise levels and to develop the allowable Project criteria using the FTA guidelines. The noise-monitoring program was conducted in January 2001 at 30 receptor locations to establish existing peak-hour Leq noise levels at non-residential locations and 24-hour Ldn noise levels at residences. The results of the noise-monitoring program, including measurement date, time, and noise levels, are summarized in **Table 1-11** for each of the 30 discrete receptors.



Source: Dulles Corridor Rapid Transit Project Final EIS, Figure 4.7-3, July 2004.

Note: Discrete Receptors R8, R9, R10, R11, R12, R14, R15, R16 and R17 located in Tysons Corner were removed from the Final EIS by the Project Team because: 1) some were originally selected to document changes along Alignment T4; and, 2) others are located above tunnel sections of the Full LPA whereby Metrorail operations would presumably not affect the ambient noise levels.

1.4.2 ESTIMATE 24-HOUR LDN NOISE LEVELS FROM CONTINUOUS MEASUREMENTS

At several residences, continuous 24-hour noise measurements were conducted to establish the existing background Ldn noise levels. At each location, 24 hourly Leq noise measurements were collected during one continuous 24-hour period. To compute the Ldn noise level, the hourly Leq noise levels were summed logarithmically, with a 10-dBA penalty applied to all measurements conducted between 10 p.m. and 7 a.m. The results of these calculations are summarized **Table 1-11**.

1.4.3 ESTIMATE 24-HOUR LDN NOISE LEVELS FROM SHORT-TERM MEASUREMENTS

At those receptor locations where 24-hour continuous noise measurements were not collected, short-term noise measurements were conducted during various periods of the day as a substitute. Following the FTA guidelines, short-term noise measurements were conducted during the each of the following periods:

- a.m. or p.m. peak-hour period (7-9 a.m. or 4-6 p.m.);
- Midday or off-peak period (9 a.m.-4 p.m.); and,
- Late night period (12-4 a.m.).

Using Equation 17, the average hourly Leq noise levels (shown in **Table 1-11**) were used to develop a composite 24-hour Ldn noise level at each of the residential receptor locations.

$$Ldn_{Bkgd} \approx 10\log\left[3\times10^{\left(\frac{LeqPK-2}{10}\right)}+12\times10^{\left(\frac{LeqMID-2}{10}\right)}+9\times10^{\left(\frac{LeqN+10-2}{10}\right)}\right]-10\log(24) \quad \text{[Eq. 17]}$$

where:

Ldn_{Bkgd}	= 24-hour Ldn background noise level at 50 feet (in dBA);
LeqPK	= Leq(h) noise level measured during the a.m. or p.m. peak hours (in dBA);
LeqMID	= Leq(h) noise level measured during the midday period between 9 a.m. and 4 p.m. (in dBA);
LeqN	= Leq(h) noise level measured during the latenight period between 12 and 4 a.m. includes a 10-dBA penalty for nighttime events between 10 p.m. and 7 a.m. (in dBA); and,
-10log(24)	= Ldn adjustment factor based on the number of hours in a day (in dBA).

To account for the reduced measurement period, a 2-dBA penalty is applied to all measured Leq noise levels resulting in a slightly conservative estimate of the actual 24-hour Ldn noise level.

Table 1-11: Summary of Noise Measurement Program Along the Dulles Corridor

Noise Measurement Location		FTA L.U.	Noise Measurement Period											
			Peak-Hour			Off-Peak (9 a.m. – 4 p.m.)			Latenight (12-4 a.m.)			24-hour Ldn		
No.	Description[1]	Cat.	Date	Time	Leq[2]	Date	Time	Leq[2]	Date	Time	Leq[2]	Date	Time	Ldn[2]
1	MFAM, The Pavilion, Falls Church Dr.	2	1/23/01	16:44	61.6	1/23/01	15:24	60.6	1/30/01	23:54	56.2	--[3]	--	61.7[4]
2	SFAM, 2134 Greenwich St.	2	--	--	--	--	--	--	--	--	--	1/23/01	15:03	65.5
3	SFAM, 7103 Norwalk St.	2	1/29/01	15:58	62.6	1/29/01	15:14	62.8	1/31/01	0:23	55.4	--	--	61.9[4]
4	SFAM, 1726 Baldwin Dr.	2	1/23/01	16:11	59.4	1/24/01	15:14	58.1	1/31/01	0:54	50.1	--	--	57.1[4]
5	SFAM, 7405 Hallcrest Dr.	2	--	--	--	--	--	--	--	--	--	1/23/01	14:43	59.2
6	Mitre Office Building, 7798 Dolley Madison Blvd.	3	1/23/01	17:24	66.1	--	--	--	--	--	--	--	--	--
7	Xerox Office Building, 7900 Westpark Dr.	3	1/24/01	8:44	63.6	--	--	--	--	--	--	--	--	--
8	Capital Church, 7903 Westpark Dr.	3	1/24/01	8:16	62.7	--	--	--	--	--	--	--	--	--
9	IMC Office Building, 7925 Westpark Dr.	3	1/24/01	7:52	62.3	--	--	--	--	--	--	--	--	--
10	MCI Office Building, 8003 Westpark Dr.	3	1/24/01	7:25	58.6	--	--	--	--	--	--	--	--	--
11	MFAM, Avalon Crescent, 8248 Westpark	2	1/24/01	7:00	64.0	1/23/01	11:16	66.5	1/31/01	1:24	46.7	--	--	62.4[4]
12	MFAM, Rotonda, Westpark & Int'l Dr.	2	--	--	--	--	--	--	--	--	--	1/23/01	16:00	62.2
13	LaMadeleine Restaurant, 1961 Chain Bridge Rd.	3	1/23/01	18:00	66.2	--	--	--	--	--	--	--	--	--
14	Clyde's Restaurant, 8332 Chain Bridge Rd.	3	1/30/01	15:57	61.1	--	--	--	--	--	--	--	--	--
15	Cellular One Store, 8359 Leesburg Pike	3	1/30/01	16:29	65.5	--	--	--	--	--	--	--	--	--
16	Best Western Hotel, 8401 Westpark Dr.	2	1/29/01	16:31	64.1	1/23/01	10:16	64.9	1/31/01	1:50	55.7	--	--	63.1[4]
17	Ernst & Young Office Building, 8484 Leesburg Pike	3	1/29/01	16:57	67.1	--	--	--	--	--	--	--	--	--
18	Moore Cadillac Dealership, 8595 Leesburg Pike	3	1/29/01	17:27	63.9	--	--	--	--	--	--	--	--	--
19	MFAM, Town Homes of Westwood, Leeds Castle Dr.	2	1/29/01	17:48	56.4	1/23/01	9:29	56.7	1/31/01	2:17	45.8	--	--	54.3[4]
20	SFAM, 1468 Carrington Ridge Ln	2	--	--	--	--	--	--	--	--	--	1/22/01	13:00	64.3
21	Filene Center, Wolf Trap Farm Park, Trap Rd.	1	1/23/01	8:37	53.7	--	--	--	--	--	--	--	--	--

Noise Measurement Location		FTA L.U.	Noise Measurement Period											
			Peak-Hour			Off-Peak (9 a.m. – 4 p.m.)			Latenight (12-4 a.m.)			24-hour Ldn		
No.	Description[1]	Cat.	Date	Time	Leq[2]	Date	Time	Leq[2]	Date	Time	Leq[2]	Date	Time	Ldn[2]
22	SFAM, Cinnamon Creek, 1533 Red Rock Ct.	2	1/25/01	16:06	56.8	1/24/01	14:00	56.5	1/30/01	1:59	45.0	–	–	*54.0*[4]
23	SFAM, 1606 Chathams Ford Pl.	2	–	–	–	–	–	–	–	–	–	1/22/01	10:51	63.2
24	SFAM, Hunter Mill Estates, 1709 Landon Hill Rd.	2	–	–	–	–	–	–	–	–	–	1/22/01	10:06	57.0
25	Sheraton-Reston Hotel, 11810 Sunrise Valley Dr.	2	1/25/01	16:58	65.2	1/24/01	12:09	62.5	1/30/01	1:21	51.7	–	–	*60.7*[4]
26	SFAM, 12708 Roark Ct.	2	1/25/01	17:35	60.4	1/25/01	14:38	58.6	1/30/01	0:50	47.4	–	–	*56.5*[4]
27	MFAM, The Crescent at Worldgate, 2204 Westcourt Ln.	2	–	–	–	–	–	–	–	–	–	1/24/01	19:00	68.8
28	MFAM, 13300 Apgar Pl.	2	–	–	–	–	–	–	–	–	–	1/24/01	17:11	60.9
29	Site of proposed S&I Rail Yard (Y7)	3	1/24/01	17:42	61.8	–	–	–	–	–	–	–	–	–
30	SFAM, 21971 Shellhorn Rd.	2	1/30/01	17:30	51.5	1/31/01	9:33	55.8	1/30/01	0:10	51.9	–	–	*57.0*[4]

1 The observed land use categories include single- (SFAM) and multi-family (MFAM) residences, commercial properties, and several other specific land use types, such as outdoor amphitheaters.
2 All Leq and Ldn noise levels are reported in A-weighted decibels.
3 "–" = not applicable. No noise measurements were conducted during the selected period.
4 Composite Ldn noise levels (i.e., those calculated based on short-term noise measurements) are shown in *ITALICS*.
Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

The final results of the noise-monitoring program are summarized in **Table 1-12.** These finalized Leq and Ldn levels were used in the modeling analysis to establish background noise levels at all other identified receptors along the Project corridor. Where noise measurements were not conducted, an equivalent background level was estimated based on its similarity to one of the 30 discrete receptors. This equivalencing evaluated land-use, location to cross streets or other major ambient noise sources, and vicinity to the discrete 30 receptors.

Existing peak-hour equivalent noise levels, or Leq(h), at non-residential receptors ranged from 54 dBA at location R21 (Filene Center at Wolf Trap Farm Park) to 67 dBA at location R17 (Ernst and Young Office Building in Tysons Corner). Similarly, 24-hour noise measurements conducted to establish residential day-night noise levels ranged from 54 dBA at location R22 (Cinnamon Creek neighborhood) to 69 dBA at R27 (The Crescent at Worldgate condominiums). Because receptors located at airports are typically not noise-sensitive due to the higher ambient background levels, no noise measurements were conducted at Dulles Airport. However, background noise levels for any noise-sensitive receptors identified at Dulles Airport (such as the Dulles Marriott) were determined based on Ldn noise contours developed by the Metropolitan Washington Airports Authority.

The measured noise levels are fairly typical for both urban areas and community developments along highway corridors. In general, measured Ldn noise levels were observed below 60 dBA at residential communities that benefit from an existing barrier or berm including locations R4, R5, R19, R22, R24, and R28. However, measured Ldn levels above 60 dBA were observed at residences without any existing mitigation including R1, R2, R3, R20, R23, R25, and R27.

1.4.4 TRANSIT SOURCE LEVELS

In addition to the community noise-monitoring program, measurements were conducted to establish noise reference levels from existing sources. The measured source levels are intended to supplement and validate the FTA reference levels through direct comparison with Project-specific levels. Both the FTA and the measured noise levels are shown in **Table 1-13.**

Wayside noise measurements were conducted along a section of tangent or straight guideway near the Arlington Cemetery Blue Line Station. As shown in **Table 1-13,** maximum noise levels due to Metrorail train passbys were measured at 79 dBA. Although the observed level correlates well with the FTA reference level of 80 dBA, the FTA level is preferred as it will yield the more conservative prediction results. The measured Lmax noise levels were normalized for continuously welded rail track to a reference distance of 50 feet at 50 mph so that they may be directly comparable to the FTA levels.

To address a significant concern in the community, wheel squeal events from existing Metrorail trains were measured at (1) Ronald Reagan Washington National Airport (National Airport) and (2) the West Falls Church Yard. Wheel squeal, or the annoying high-pitched, pure tone noise due to steel wheels rubbing against steel rails, may occur along a Metrorail guideway section with a turning radius of less than 1,000 feet depending on the type of rail car wheel truck. Because wheel squeal occurrence depends on many factors in addition to track curvature (e.g., humidity, truck design, and speed), it is often difficult to predict its occurrence or estimate its levels without actual measurements.

Table 1-12: Summary of Existing Ambient Noise Levels (dBA)

Receptor		Town	Type[1]	Land use Cat.[2]		Noise Level	
No.	Description and Location			FTA	WMATA	Leq	Ldn
R1	The Pavilion (Townhouses), Falls Church Dr.	Falls Church	Res.	2	MFAM V	--	62
R2	2134 Greenwich St.	McLean	Res.	2	SFAM V	--	65
R3	7103 Norwalk St.	Falls Church	Res.	2	SFAM III	--	62
R4	1726 Baldwin Dr.	McLean	Res.	2	SFAM III	--	57
R5	Hallcrest Heights, 7405 Hallcrest Dr.	McLean	Res.	2	MFAM V	--	59
R6	Mitre Office Bldg, 7798 Dolley Madison Blvd.	McLean	NR	3	COM IV	66	--
R7	Xerox Office Bldg, 7900 Westpark Dr.	McLean	NR	3	COM IV	64	--
R8	Capital Church, 7903 Westpark Dr.	McLean	NR	3	COM IV	63	--
R9	IMC Office Bldg, 7925 Westpark Dr.	McLean	NR	3	COM IV	62	--
R10	MCI Office Bldg, 8003 Westpark Dr.	McLean	NR	3	COM IV	59	--
R11	Avalon Crescent, 8248 Westpark Dr.	McLean	Res.	2	MFAM IV	--	62
R12	The Rotunda, Westpark & Int'l Dr.	McLean	Res.	2	MFAM IV	--	62
R13	La Madeleine Restaurant, 1961 Chain Bridge Rd.	McLean	NR	3	COM IV	66	--
R14	Clyde's Restaurant, 8332 Chain Bridge Rd.	McLean	NR	3	COM IV	61	--
R15	Cellular One, 8359 Leesburg Pike	Vienna	NR	3	COM IV	66	--
R16	Best Western Hotel, 8401 Westpark Dr.	McLean	Hotel	2	COM IV	--	63
R17	Ernst & Young Bldg, 8484 Leesburg Pike	McLean	NR	3	COM IV	67	--
R18	Moore Cadillac, 8595 Leesburg Pike	Vienna	NR	3	COM IV	64	--
R19	Town Homes of Westwood, Leeds Castle Dr.	Vienna	Res.	2	MFAM V	--	54
R20	1468 Carrington Ridge Ln.	Vienna	Res.	2	SFAM III	--	64
R21	Filene Center (Wolf Trap Farm Park)	Vienna	Park	1	Park	54	--
R22	Cinnamon Creek, 1533 Red Rock Ct.	Vienna	Res.	2	SFAM II	--	54
R23	1606 Chathams Ford Pl.	Vienna	Res.	2	SFAM II	--	63
R24	Hunter Mill Estates, 1709 Landon Hill Rd.	Reston	Res.	2	SFAM II	--	57
R25	Sheraton-Reston Hotel, 11810 Sunrise Valley Dr.	Reston	Hotel	2	COM V	--	61
R26	12708 Roark Ct.	Reston	Res.	2	SFAM III	--	57
R27	The Crescent at Worldgate, 2204 Westcourt Ln.	Herndon	Res.	2	MFAM V	--	69
R28	13300 Apgar Pl.	Herndon	Res.	2	MFAM III	--	61
R29	Proposed Site of Rail S&I Facility (Y7)	Ashburn	NR	3	COM I	62	--
R30	21971 Shellhorn Rd.	Ashburn	Res.	2	SFAM I	--	57

1 Receptor types include residential (Res.), non-residential (NR), and other receptor types (e.g., hotels and parks).
2 The WMATA land use categories include single- (SFAM) and multi-family (MFAM) residences, commercial properties (COM), and several other specific land use types, such as outdoor amphitheaters (Park). For each receptor type, a corresponding community area category, such as low-density (I) or industrial (V), are also required to select the proper WMATA evaluation criteria.
Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

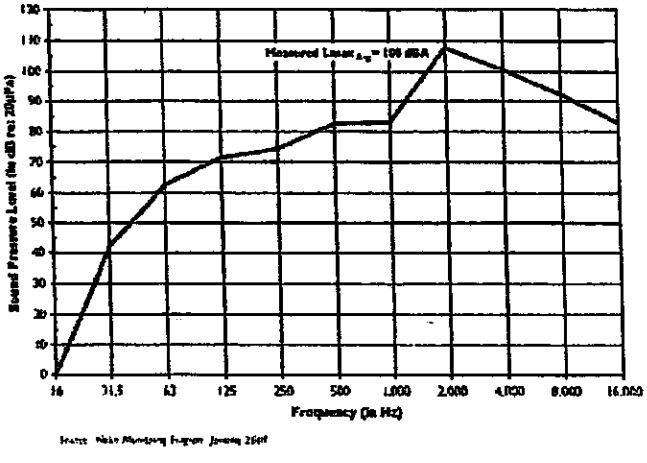
Table 1-13: Existing Transit Source Noise Levels Observed During the Monitoring Program (dBA)

No.	Event Description	Location	Lmax at 50 feet[1]	
			FTA	Measured
1	Rail car Passbys	Alignment	80	79
2	Wheel Squeal, Alignment	National Airport	100	88
3	Wheel Squeal, Rail Yard	West Falls Church Yard	100	108

1 Reference FTA and measured noise levels were normalized to 50 feet and for all mobile sources, 50 mph.

Noise measurements were conducted at National Airport to determine wheel squeal noise levels along curves with the WMATA design radius of approximately 755 feet. The WMATA minimum radius is proposed at several curve locations along the Project corridor including downtown Tysons Corner. The measured wheel squeal, with an average normalized Lmax noise level of 88 dBA at 50 feet along a 775-foot curve, is dramatically lower than the reference FTA level of 100 dBA rated for all curves.

Similarly, noise measurements were also conducted at an existing rail yard to determine the wheel squeal level along a much shorter radius rail yard curve. As shown in Figure 1-5, the average measured noise level along a 300-foot curve at the West Falls Church rail yard of 108 dBA was significantly higher than both the WMATA alignment curve (88 dBA) and the FTA reference level (100 dBA). This suggests that the overall wheel squeal noise level varies dramatically with the radius of curvature.



Wheel Squeal Observed Along a 308-foot Radius Curve at the West Falls Church S&I Rail Yard

Source: Noise Monitoring Program, January 2001.

As a result of the noise measurement program along existing Metrorail sources, measured wheel squeal noise levels were used in the modeling predictions for both alignment curves and rail yard curves, because it is expected that these measurements are a more accurate predictor of future conditions under the two Build Alternatives.

1.5 LONG-TERM EFFECTS

A noise assessment was completed to determine the potential noise related impacts at various sensitive receptor locations along the Dulles Corridor. The noise levels predicted at the discrete receptors for the two Build Alternatives were determined using the FTA guidelines and methodologies. These levels were then compared to both the FTA and WMATA criteria. Corridor-wide impacts from operations were also evaluated at noise-sensitive receptors within approximately 1,000 feet of the proposed corridor alignments.

The results of the noise impact assessment for each of the Project alternatives are described in the following subsections.

1.5.1 NO BUILD ALTERNATIVE

In accordance with FTA guidelines, noise impacts from the two Build Alternatives are not compared to the No Build Alternative to determine impacts. Instead, the FTA analysis methodology establishes Project criteria noise limits based on existing measured noise levels in the study area. Therefore, FTA guidelines do not require a noise assessment for the No Build Alternative.

1.5.2 WIEHLE AVENUE EXTENSION

The Wiehle Avenue Extension would extend Metrorail service from the existing Orange Line near West Falls Church through Tysons Corner to Wiehle Avenue Station. Supplemental express bus service would operate between Wiehle Avenue and all other proposed stations to the west except at Route 28. Diesel-powered express buses would operate along designated routes between Wiehle Avenue Station and Route 772 Station in Loudoun County.

1.5.2.1 Federal Criteria

Under the Wiehle Avenue Extension, peak-hour Leq noise levels, as shown in **Table 1-14**, are predicted to range from well below background at non-residential receptor locations along underground sections in Tysons Corner to 60 dBA at Receptors R7, R13 and R18 in Tysons Corner. The peak hour Leq(h) noise levels are not predicted to exceed the FTA Land Use Categories 1 and 3 *impact* or *severe impact* criteria at any of the selected discrete receptors.

At specific residential receptors (Category 2) evaluated as part of the noise assessment, 24-hour Ldn levels under the Wiehle Avenue Extension are predicted to range from well below background at locations along underground sections of Metrorail guideway in Tysons Corner to 65 dBA at R3 (a residence on Norwalk Street) in Falls Church. As shown in **Table 1-14**, three exceedances of the FTA Land Use Category 2 *impact* and *severe impact* criteria are predicted from Metrorail operations at location R3, R5 and R19.

As shown in **Table 1-15**, corridor-wide Project noise levels are predicted to exceed the FTA Category 2 Land Use *impact* criteria at 174 locations under the Wiehle Avenue Extension and the *severe impact* criteria would be exceeded at an additional 10 locations. Project noise levels are not predicted to exceed any FTA Land use Category 1 or 3 criteria anywhere along the corridor. The receptor locations, where exceedances of the FTA *impact* and *severe impact* criteria are predicted, are shown in Appendix Figure A-4.

1.5.2.2 WMATA Criteria

Lmax noise levels from train passbys and stationary events, such as public address announcements at the stations, would range from well below the ambient background at receptors located near underground sections in Tysons Corner, to 78 dBA at R3 (a residence along Norwalk Street in Falls Church) from train passbys, as shown in **Table 1-16.** As a result, maximum passby noise levels are predicted to exceed the WMATA transit criteria under Wiehle Avenue Extension at Discrete Receptor R3 (a residence on Norwalk Street in McLean).

Overall, single-event Lmax noise levels under the Wiehle Avenue Extension are predicted to exceed the WMATA noise criteria at 48 locations (46 residential and 2 commercial) as shown in **Table 1-17.** The receptor locations, where exceedances of the WMATA impact criteria are predicted, are shown in Appendix Figure A-5.

1.5.2.3 Project Facilities

Although the overall impact assessment included the noise contribution from Project facilities such as Metrorail stations, feeder bus facilities, and park-and-ride structures, their individual contributions were also evaluated against the WMATA criteria and those from Fairfax County. Lmax noise levels from idling buses at stations were predicted to range from below 20 dBA at a residence in McLean, to 51 dBA at the LaMadeleine Restaurant in Tysons Corner under the Wiehle Avenue Extension. Similarly, Project noise levels from park-and-ride facilities were expected to range from below the ambient background at receptors over 2,000 feet away, to 36 dBA at Moore Cadillac in Tysons Corner, which would be less than 750 feet away from the Tysons West Station. However, Lmax noise levels from facility activities associated with the new storage tracks at the West Falls Church S&I Yard are predicted to exceed the Fairfax County stationary noise criterion of 55 dBA at 6 residences in Falls Church along McKay Street. No other exceedances of the FTA or the WMATA facility criteria are predicted under the Wiehle Avenue Extension. The receptor locations, where exceedances of the Fairfax County impact criteria are predicted, are shown in Appendix Figure A-6.

Table 1-14: FTA Noise Impact Summary at Discrete Receptors Under Wiehle Avenue Extension and the Full LPA (dBA)

Receptor		Town	FTA	Existing	Noise Levels (dBA)		FTA Impact Criteria (dBA)	
No.	Description		Category	Background	Wiehle Avenue Extension	Full LPA	Impact	Severe Impact
R1	Pavilion, Falls Church Drive	Falls Church	2	62 Ldn	47	47	59	64
R2	2134 Greenwich Street	McLean	2	66 Ldn	61	61	61	67
R3	7103 Norwalk Street	Falls Church	2	62 Ldn	[65][1]	[65][1]	59	64
R4	1726 Baldwin Drive	McLean	2	57 Ldn	49	49	56	62
R5	7405 Hallcrest Drive	McLean	2	59 Ldn	[64][1]	[64][1]	57	63
R6	7798 Dolley Madison Boulevard	McLean	3	66 Leq	n.a.[2]	n.a.[2]	67	72
R7	7900 Westpark Drive	McLean	3	64 Leq	60	60	65	70
R8	7903 Westpark Drive	McLean	3	63 Leq	56	58	64	70
R9	7925 Westpark Drive	McLean	3	62 Leq	57	57	64	70
R10	8003 Westpark Drive	McLean	3	58 Leq	34	34	62	68
R11	8248 Westpark Drive	McLean	2	62 Ldn	26	26	59	65
R12	The Rotonda, International Drive	McLean	2	62 Ldn	BD[3]	BD[3]	59	65
R13	1961 Chain Bridge Road	McLean	3	66 Leq	60	60	67	72
R14	8332 Chain Bridge Road	McLean	3	61 Leq	BD[3]	BD[3]	63	69
R15	8359 Leesburg Pike	Vienna	3	66 Leq	BD[3]	BD[3]	66	72
R16	8401 Westpark Drive	McLean	2	63 Ldn	BD[3]	BD[3]	60	65
R17	8484 Leesburg Pike	McLean	3	67 Leq	BD[3]	BD[3]	67	73
R18	8595 Leesburg Pike	Vienna	3	64 Leq	60	60	65	71
R19	Westwood Village	Vienna	2	54 Ldn	*61*[1]	*61*[1]	55	61
R20	1468 Carrington Ridge Lane	Vienna	2	64 Ldn	59	59	60	66
R21	Filene Center (Wolf Trap National Park)	Vienna	1	54 Leq	41	41	55	61
R22	1533 Red Rock Court	Vienna	2	54 Ldn	48	48	55	61
R23	1606 Chathams Ford Drive	Vienna	2	63 Ldn	58	58	60	65
R24	1709 Landon Hill Road	Reston	2	57 Ldn	47	47	56	62

Receptor		Town	FTA	Existing	Noise Levels (dBA)		FTA Impact Criteria (dBA)	
No.	Description		Category	Background	Wiehle Avenue Extension	Full LPA	Impact	Severe Impact
R25	11810 Sunrise Valley	Reston	2	61 Ldn	43[4]	57	58	64
R26	12708 Roark Court	Reston	2	57 Ldn	50[4]	47	56	62
R27	2204 Westcourt Lane	Herndon	2	69 Ldn	45[4]	61	64	69
R28	13300 Apgar Place	Herndon	2	61 Ldn	25[4]	46	58	64
R29	Rail S&I Yard (Y7)	Ashburn	3	62 Leq	39[4]	54	64	69
R30	21971 Shellhorn Road	Ashburn	2	57 Ldn	46[4]	45	56	62

1 Assessment of impacts is determined as follows: No Impact, ***Impact***, [Severe Impact].

2 Not applicable. Due to other developments along the Dulles Corridor (not associated with the Project), several receptors would be "taken."

3 Below detection. Project levels at receptors near underground sections of Metrorail guideway would be well below the ambient background level.

4 Receptor noise levels west of Wiehle Avenue are due to Corridor express buses under the Wiehle Avenue Extension.

Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

Table 1-15: Number of FTA Noise Impacts under the Wiehle Extension and the Full LPA

Corridor Section	Impact Criteria	Wiehle Avenue Extension Impacts		Full LPA Impacts	
		Category 2	Category 3	Category 2	Category 3
Falls Church	Impact	67	0	67	0
	Severe Impact	1	0	1	0
	Sum	68	0	68	0
McLean	Impact	84	0	84	0
	Severe Impact	8	0	8	0
	Sum	92	0	92	0
Vienna	Impact	19	0	19	0
	Severe Impact	1	0	1	0
	Sum	20	0	20	0
Reston	Impact	4	0	3	0
	Severe Impact	0	0	0	0
	Sum	4	0	3	0
Herndon	Impact	0	0	0	0
	Severe Impact	0	0	0	0
	Sum	0	0	0	0
Sterling	Impact	0	0	0	0
	Severe Impact	0	0	0	0
	Sum	0	0	0	0
Washington	Impact	0	0	0	0
	Severe Impact	0	0	0	0
	Sum	0	0	0	0
Ashburn	Impact	0	0	0	0
	Severe Impact	0	0	0	0
	Sum	0	0	0	0
Totals	Impact	174	0	173	0
	Severe Impact	10	0	10	0
	Sum	184	0	183	0

Note: FTA land use categories include residential (Cat. 2) and institutional (Cat. 3) receptors.

Table 1-16: WMATA Noise Impact Summary at Discrete Receptors Under Wiehle Avenue Extension and the Full LPA (dBA)

Receptor		Town	WMATA Category	Wiehle Avenue Extension Noise Level (dBA)	Full LPA Noise Level (dBA)[1]	Impact Criteria (dBA)
No.	Description					
R1	Pavilion, Falls Church Drive	Falls Church	MFAM V	59	59	85
R2	2134 Greenwich Street	McLean	SFAM V	75	75	80
R3	7103 Norwalk Street	Falls Church	SFAM III	78[1]	78[1]	75
R4	1726 Baldwin Drive	McLean	SFAM III	62	62	75
R5	7405 Hallcrest Drive	McLean	MFAM V	77	77	85
R6	7798 Dolley Madison Boulevard	McLean	COM IV	n.a.[2]	n.a.[2]	85
R7	7900 Westpark Drive	McLean	COM IV	75	75	85
R8	7903 Westpark Drive	McLean	COM IV	73	73	85
R9	7925 Westpark Drive	McLean	COM IV	72	72	85
R10	8003 Westpark Drive	McLean	COM IV	43	43	85
R11	8246 Westpark Drive	McLean	MFAM IV	27	27	80
R12	The Rotonda, Int'l Drive	McLean	MFAM IV	BD[3]	BD[3]	80
R13	1961 Chain Bridge Road	McLean	COM IV	74	74	85
R14	8332 Chain Bridge Road	McLean	COM IV	BD[3]	BD[3]	85
R15	8359 Leesburg Pike	Vienna	COM IV	BD[3]	BD[3]	85
R16	8401 Westpark Drive	McLean	COM IV	BD[3]	BD[3]	85
R17	8484 Leesburg Pike	McLean	COM IV	BD[3]	BD[3]	85
R18	8595 Leesburg Pike	Vienna	COM IV	76	76	85
R19	Westwood Village	Vienna	MFAM V	73	73	85
R20	1466 Carrington Ridge Lane	Vienna	SFAM III	72	72	75
R21	Filene Center (Wolf Trap National Park)	Vienna	Park	56	56	65
R22	1533 Red Rock Court	Vienna	SFAM II	61	61	75
R23	1606 Chathams Ford Drive	Vienna	SFAM II	71	71	75
R24	1709 Landon Hill Road	Reston	SFAM II	61	61	75
R25	11810 Sunrise Valley	Reston	COM V	71[4]	73	85
R26	12708 Roark Court	Reston	SFAM III	60[4]	59	75
R27	2204 Westcourt Lane	Herndon	MFAM V	72[4]	74	80
R28	13300 Apgar Place	Herndon	MFAM III	58[4]	59	80
R29	Rail S&I Yard (Y7)	Ashburn	COM V	67[4]	69	85

Receptor		Town	WMATA Category	Wiehle Avenue Extension Noise Level (dBA)	Full LPA Noise Level (dBA)[1]	Impact Criteria (dBA)
No.	Description					
R30	21971 Shellhorn Road	Ashburn	SFAM I	59[4]	54	70

1 Assessment of Impact is determined as follows: No Impact and ***Impact.***

2 Not applicable. Due to other developments along the Dulles Corridor (not associated with the Project), several receptors would be "taken".

3 Below detection. Project levels at receptors near underground sections of Metrorail guideway would be well below the ambient background level.

4 Receptor noise levels west of Wiehle Avenue are due to express buses under Wiehle Avenue Extension.

Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

Table 1-17: Number of WMATA Noise Impacts Under the Wiehle Avenue Extension and the Full LPA

Corridor Section	Land Use[1]	Wiehle Avenue Extension Impacts	Full LPA Impacts
Falls Church	Residential	13	13
	Commercial	0	0
	Other	0	0
McLean	Residential	29	29
	Commercial	1	1
	Other	0	0
Vienna	Residential	3	4
	Commercial	0	0
	Other	0	0
Reston	Residential	0	0
	Commercial	1	1
	Other	0	0
Herndon	Residential	1	1
	Commercial	0	0
	Other	0	0
Sterling	Residential	0	0
	Commercial	0	0
	Other	0	0
Washington	Residential	0	0
	Commercial	0	0
	Other	0	0
Ashburn	Residential	0	0
	Commercial	0	0
	Other	0	0
Totals	Residential	46	47
	Commercial	2	2
	Other	0	0

1 Residential (Res.) land uses include all single- and multi-family buildings while commercial (Com.) receptors include all non-residential receptors such as offices. Other specific receptor types (Other) include schools and amphitheaters.

1.5.2.4 Historic Resources

As shown in **Table 1-18**, peak-hour Leq noise levels are expected to range from 36 dBA at Wolf Trap National Park to 65 dBA at Dulles Airport. Similarly, 24-hour Ldn noise levels are predicted to range from well below background at several receptor locations to 58 dBA at the Launders House. As a result, none of the Project noise levels under the Wiehle Avenue Extension are predicted to exceed the FTA Land Use Categories 1, 2, or 3 *impact* or *severe impact* criteria at historic resources in the study area.

1.5.2.5 FHWA Criteria

Due to the proposed realignment of the DIAAH, the Dulles Toll Road and the Dulles Greenway at all stations west of Tysons Corner, peak-hour traffic noise levels were compared with the FHWA Noise Abatement Criteria. Although future peak-hour Leq noise levels under the Wiehle Avenue Extension are expected to approach or exceed the FHWA Land-Use Category 'C' criterion of 72 dBA at several commercial receptor locations, there is no change from the existing noise levels. Due to the negligible change in noise levels between the existing condition and the future Build Alternatives, there are no exceedances of the VDOT "substantial increase over existing" criterion predicted under the Wiehle Avenue Extension.

1.5.3 LOCALLY PREFERRED ALTERNATIVE

The Locally Preferred Alternative would extend Metrorail service from West Falls Church to Dulles Airport and beyond to Route 772 in Loudoun County. The Metrorail alignment will follow Alignment T-6 in Tysons Corner, which includes a tunnel under the Routes 7 and 123 interchange. The results of the noise assessment for the LPA are described in the following subsections.

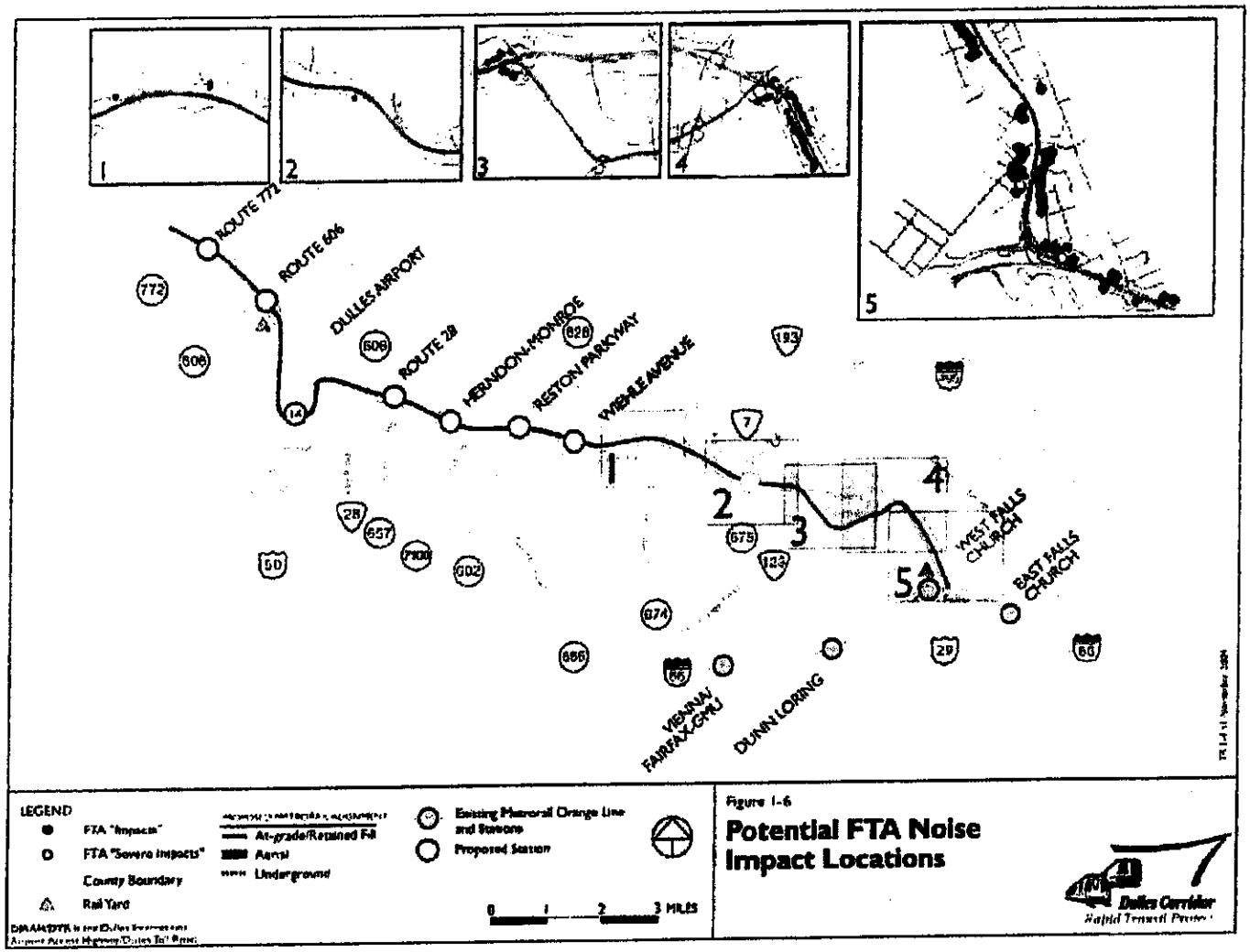
1.5.3.1 Federal Criteria

As shown in **Table 1-15**, the total number of receptor locations where Project noise levels are predicted to exceed the FTA Land-Use Category 2 *impact* criteria is predicted to decrease slightly from 174 under the Wiehle Avenue Extension to 173 under the Full LPA. The number of residential locations where Project noise levels are predicted to exceed the FTA Land-Use Category 2 *severe impact* criteria is predicted to remain unchanged at 10 under the Full LPA. The reduced number of impacts under the LPA is due primarily to the elimination of idling express buses at the Wiehle Avenue Station. The receptor locations, where exceedances of the FTA *impact* and *severe impact* criteria are predicted, are shown in Figure 1-6 and in Appendix Figure A-1.

Table 1-18: FTA Noise Impact Summary from Transit Operations at Historic Resources (dBA)

Receptor			FTA		Receptor	Exist.	Calculated Level (dBA)		FTA Criteria Level (dBA)	
No.	Description	Area	Category	Land use	Equivalent[1]	BKGD	Wiehle Ext.	LPA	*Impact*	*Sev. Imp.*
H1	Lewinsville Post Office	McLean	2	SF3	5	57 Leq	50	50	57	63
H2	Bois de Gosses/Windy Hill	McLean	3	CM5	5	59 Ldn	50	50	59	65
H3	Shiloh Baptist Church	McLean	3	CHU	20	66 Leq	47	47	64	69
H4	Ash Grove	Vienna	2	SF3	19	54 Ldn	54	54	55	61
H5	Wolf Trap Farm Park	Vienna	3	REC	21	57 Leq	36	36	60	66
H6	Plantation	Vienna	2	SF2	19	54 Ldn	54	54	55	61
H7	Robert Wiehle House	Reston	2	SF5	25	61 Ldn	43	49	58	64
H8	Smith Bowman Distillery	Reston	3	MUS	25	65 Leq	41	48	66	71
H9	Sunset Hills	Reston	2	MF5	25	65 Leq	43	49	58	64
H10	Wiehle/Sunset Hills Historic Dist.	Reston	2	MF5	25	61 Ldn	44	50	58	64
H11	Launders House	Herndon	2	SF2	27	61 Ldn	35	58	64	69
H12	Ratcliff/Meiselman House	Herndon	2	SF1	27	61 Ldn	32	51	64	69
H13	Middleton Farm	Chantilly	2	SF4	27	57 Ldn	29	16	64	69
H14	Washington Dulles Int'l Airport	Sterling	NA[2]	OTH	99	NA[1]	65	37	999	999
H15	Cockerille House and Farm	Washington	2	SF5	30	57 Ldn	44	34	56	62
H16	House/Farm, Rte. 643 Ryan	Ashburn	2	SF5	30	57 Ldn	51	56	56	62
H17	House, Petworth Ct., Ryan	Ashburn	2	MF3	30	57 Ldn	40	42	56	62
H18	House, Route. 772 Ryan	Ashburn	2	SF1	30	57 Ldn	43	49	56	62

1 Where background noise measurements were not conducted, an equivalent receptor location from the 30 noise-measurement sites was selected as a representative ambient background noise level.
2 NA means not applicable. The Dulles Airport Terminal Building is not sensitive to transit noise.
Note: Assessment of impact is determined as follows: No Impact; Impact; and [Severe Impact].


1
2
3
4
5
ROUTE 772
ROUTE 606
DULLES AIRPORT
ROUTE 28
HERNDON-MONROE
RESTON PARKWAY
WIEHLE AVENUE
WEST FALLS CHURCH
EAST FALLS CHURCH
VIENNA/ FAIRFAX-GMU
DUNN LORING
772
606
608
828
193
7
28
657
7900
602
50
675
123
874
886
66
29
LEGEND
FTA "Impacts"
FTA "Severe Impacts"
County Boundary
Rail Yard
At-grade/Retained Fill
Aerial
Underground
Existing Metrorail Orange Line and Stations
Proposed Station
0 1 2 3 MILES
Figure 1-6
Potential FTA Noise Impact Locations
Dulles Corridor
Rapid Transit Project

1.5.3.2 WMATA Criteria

As shown in **Table 1-16**, the total number of receptor locations where maximum Project passby noise levels are predicted to exceed the WMATA impact criteria is predicted to increase slightly from 46 residences under the Wiehle Avenue Extension to 47 under the Full LPA. This increase of one WMATA impact (The Launders Historic House) between the Wiehle Avenue Extension and the Full LPA is due to Metrorail operations that occur west of Wiehle Avenue. The number of WMATA impacts at commercial receptors remains unchanged at 2 locations under the Full LPA.

1.5.3.3 Project Facilities

In the vicinity of stationary sources, Lmax noise levels from facility activities associated with the new storage tracks at the West Falls Church S&I Yard are also predicted to exceed the Fairfax County stationary noise criterion of 55 dBA at 6 residences in McLean under the Full LPA. However, Project noise levels from S&I Yard Site 15 in Loudoun County, such as wheel squeal, are not predicted to exceed the selected Project criteria limits at any nearby receptor locations under the Full LPA.

1.5.3.4 Historic Resources

At historic resources, Project noise levels under the Full LPA are predicted to be similar to those predicted under the Wiehle Avenue Extension. As shown in **Table 1-18**, peak-hour Leq noise levels are expected to range from 37 dBA at H5 (Wolf Trap Farm Park) to 48 dBA at H8 (Smith Bowman Distillery). Similarly, 24-hour Ldn noise levels are predicted to range from 23 dBA at H13 (Middleton Farm) to 58 dBA at H11 (Launders House). Therefore, no exceedances of the FTA or the WMATA impact criteria are predicted at any of the selected historic receptor locations under the Full LPA.

1.5.3.5 FHWA Criteria

Due to the proposed realignment of the DIAAH, the Dulles Toll Road and the Dulles Greenway at all stations west of Tysons Corner, peak-hour traffic noise levels were compared with the FHWA Noise Abatement Criteria. Although future peak-hour Leq noise levels under the Full LPA are expected to approach or exceed the FHWA Land-Use Category C criterion of 72 dBA at several commercial receptor locations, there is no change from the existing noise levels. Due to the negligible change in noise levels between the existing condition and the future Build Alternatives, there are no exceedances of the VDOT "substantial increase over existing" criterion predicted under the Full LPA.

1.6 CONSTRUCTION EFFECTS

Noise levels from construction activities along the Dulles Corridor, although temporary, could create a nuisance condition at nearby sensitive receptors. Exposure to excessive noise levels varies depending on the types of construction activity and the types of equipment used for each stage of work. Project construction activities would include track laying, station construction, bridge construction, feeder bus facility construction, and park-and-ride structure construction. The following subsections describe the predicted noise levels and potential noise impacts associated with the Project construction activities.

1.6.1 NO BUILD ALTERNATIVE

The No Build Alternative includes changes to the operating characteristics of the existing transportation network separate from the Dulles Corridor Rapid Transit Project. Therefore, a construction impact assessment was not conducted for the No Build Alternative.

1.6.2 WIEHLE AVENUE EXTENSION

Under the Wiehle Avenue Extension, track-laying construction activities would occur from West Falls Church to Wiehle Avenue Station only. Construction activities would also include Metrorail stations, Corridor express bus stops, bridges, park-and-ride structures and feeder bus facilities. The distances at which an exceedance of the FTA daytime noise limits of 90 dBA at residential receptors is predicted ranges from 32 feet during station construction to 40 feet during at-grade track laying. The distances at which an exceedance of the FTA daytime noise limits of 100 dBA at commercial receptors would occur ranges from 10 feet during station construction to 13 feet during at-grade track-laying. As shown in **Table 1-19**, construction activities are predicted to exceed the FTA daytime noise limits at 4 residences during track laying under the Wiehle Avenue Extension and the LPA.

Table 1-19: Summary of the Construction Noise Corridorwide Impact Assessment at Residences

Construction	Wiehle Avenue Extension		Full LPA	
Scenario	FTA	WMATA	FTA	WMATA
Laying – AG	2	3	2	3
Laying Aerial	2	2	2	2
Stations	0	0	0	0
Bridges	0	0	0	0
Parking	0	0	0	0
Feeder Bus	0	0	0	0
Rail Yard	0	0	0	0

The distances at which an exceedance of the WMATA daytime noise limits of 75 dBA at residential receptors is predicted ranges from 182 feet during at-grade track-laying to 223 feet during aerial guideway construction. The distances at which an exceedance of the WMATA daytime noise limits of 80 dBA at commercial receptors is predicted ranges from 102 feet during at-grade track laying to 126 feet during aerial construction. As shown in **Table 1-19**, noise levels from tunnel construction activities under the Wiehle Avenue Extension, for example, are predicted to exceed the WMATA daytime noise limits at 3 commercial receptor locations in Tysons Corner. These receptors include a bank at the corner of Gosnell Road and Route 7, a Wendy's restaurant on Leesburg Pike (Route 7) and the Courtyard Marriott Hotel at the corner of International Drive and Chain Bridge Road.

1.6.3 LOCALLY PREFERRED ALTERNATIVE

Under the Full LPA, Metrorail service replaces Corridor express bus service west of Wiehle Avenue Station to Dulles Airport and beyond into Loudoun County. Additional construction would include stations west of Wiehle Avenue and an S&I Yard in Loudoun County at Site Y15. Therefore, the FTA noise impact assessment was evaluated along the entire Project corridor between West Falls Church and Route 772 Station. However, the total number of construction noise impacts under the Full LPA is predicted to be the same as those reported for the Wiehle Avenue Extension.

Construction activities are not predicted to exceed the FTA daytime noise limits anywhere along the Project corridor under the Full LPA. However, noise levels from tunnel construction activities under the Full LPA, for example, are predicted to exceed the WMATA daytime noise limits at 3 commercial receptor locations in Tysons Corner: a bank and a Wendy's restaurant along Route 7, and the Courtyard Marriott Hotel at the corner of International Drive and Chain Bridge Road.

1.7 MITIGATION

Mitigation measures are proposed to reduce the onset of noise impacts along the Dulles Corridor from the Wiehle Avenue Extension and the Full LPA during operations as well as during construction are described in the following subsections. These mitigation measures will be refined during preliminary engineering and/or final design. Other inherent measures included in the proposed track design, such as pre-cast concrete supports, resiliently-supported ties, and continuously welded rail track, all combine to greatly minimize overall noise and vibration levels from train passbys along aerial sections.

1.7.1 OPERATIONS

Noise impacts are predicted at several locations along the Project corridor due to operations under the Wiehle Avenue Extension and the Full LPA. To supplement the current Metrorail guideway design, which includes standard 4-inch parapets along aerial guideway sections, additional shielding is required to eliminate impacts predicted at residential areas. Where feasible, parapets are proposed along those sections of aerial guideway where noise impacts are predicted. Similarly, trackside barriers are also proposed along at-grade sections of Metrorail guideway to provide additional mitigation along the corridor. Although several locations currently benefit from wayside barriers along the residential property lines, the parapets and the trackside barriers are intended to eliminate Metrorail noise only. Utilizing 4- and 6-foot barrier heights, the most effective barrier dimensions were optimized for each individual impact location. As a result of this barrier optimization assessment, barriers are proposed along both aerial and at-grade sections of guideway at the following approximate locations listed in **Table 1-20** and shown in Figure 1-7a and 1-7b.

Table 1-20: Proposed Location and Dimensions of Aerial Parapets and At-Grade Barriers

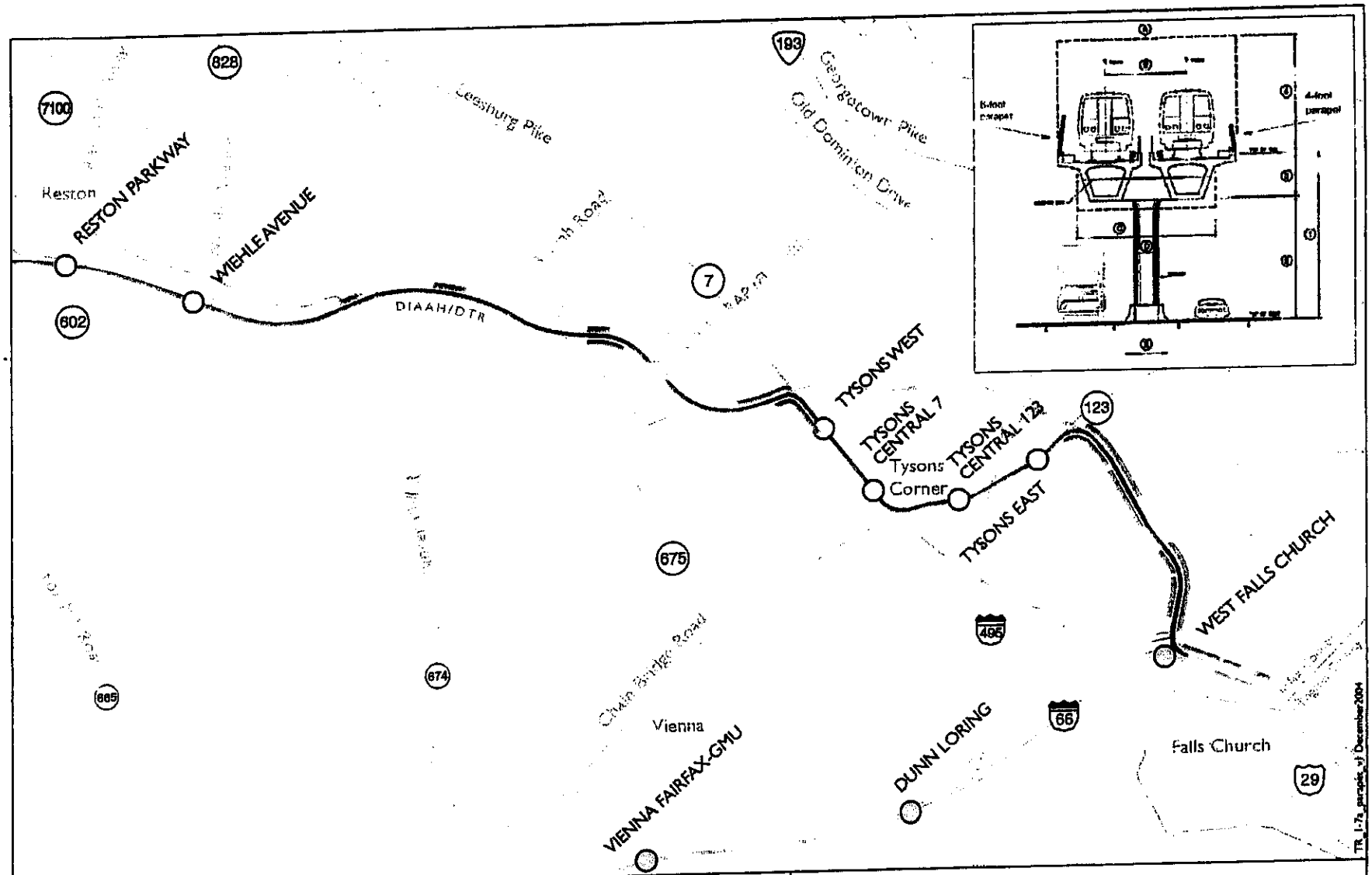
Station Location	Height[1]	Length	Type	Alternative
Outbound side of the Metrorail Corridor				
Sta. No. 474+00 to 480+00	4 ft	600 ft	At Grade	Wiehle & LPA
Sta. No. 730+00 to 734+00	6 ft	400 ft	At Grade	Wiehle & LPA
Sta. No. 743+00 to 756+00	4 ft	1,300 ft	At Grade	Wiehle & LPA
Sta. No. 764+00 to 779+00	4 ft	1,500 ft	Aerial	Wiehle & LPA
Sta. No. 780+00 to 785+00	6 ft	500 ft	Aerial	Wiehle & LPA
Sta. No. 796+00 to 810+00	4 ft	1,400 ft	At Grade	Wiehle & LPA
Sta. No. 830+00 to 867+00	4 ft	3,700 ft	At Grade	Wiehle & LPA
Sta. No. 1028+00 to 1045+00	4 ft	1,700 ft	Aerial	Wiehle & LPA
Sta. No. 1121+00 to 1140+00	4 ft	1,900 ft	At Grade	Wiehle & LPA
Sta. No. 1194+00 to 1200+00	4 ft	600 ft	At Grade	Wiehle & LPA
Sta. No. 1242+00 to 1246+00	4 ft	400 ft	At Grade	Wiehle & LPA
Sta. No. 1520+00 to 1540+00	4 ft	2,000 ft	At Grade	Wiehle & LPA
Inbound side of the Metrorail Corridor				
Sta. No. 483+00 to 486+00	6 ft	300 ft	At Grade	Wiehle & LPA
Sta. No. 731+00 to 735+00	6 ft	400 ft	At Grade	Wiehle & LPA
Sta. No. 770+00 to 785+00	4 ft	1,500 ft	Aerial	Wiehle & LPA
Sta. No. 790+00 to 792+00	4 ft	200 ft	At Grade	Wiehle & LPA
Sta. No. 793+00 to 810+00	6 ft	1,700 ft	At Grade	Wiehle & LPA
Sta. No. 813+00 to 849+00	4 ft	3,600 ft	At Grade	Wiehle & LPA
Sta. No. 855+00 to 863+00	6 ft	800 ft	At Grade	Wiehle & LPA
Sta. No. 864+00 to 882+00	4 ft	1,800 ft	Aerial	Wiehle & LPA
Sta. No. 1015+00 to 1040+00	4 ft	2,500 ft	Aerial	Wiehle & LPA
Sta. No. 1117+00 to 1140+00	4 ft	2,300 ft	At Grade	Wiehle & LPA

[1] Proposed barrier height determined by mitigation analysis measured from top of rail. Actual barrier height as measured from outside of structure will conform to WMATA criteria (52 or 76 inches).

Table 1-20 includes the addition and extension of barriers over and above the analytical results in order to reduce the noise of Metrorail passbys over the rail discontinuities of special trackwork. The barriers have been added or extended at the following locations:

- West of Pimmit Run in McLean, 1,000 feet extension of 4-foot at-grade barrier from Sta. No. 800+00 to 810+00 on the outbound side for the two single crossovers related to TBS-2.
- West of Pimmit Run in McLean, 1,300 feet extension of 4-foot at-grade barrier from Sta. No. 797+00 to 810+00 on the inbound side for the two single crossovers related to TBS-2.
- East of Beulah Road, 1,900 feet of 4-foot at-grade barrier from Sta. No. 1121+00 to 1140+00 on both outbound and inbound sides for the two single crossovers related to TPSS-8.
- West of Centerville Road, 2,000 feet of 4-foot at-grade barrier from Sta. No. 1520+00 to 1540+00 on the outbound side for the double crossover related to Route 28 Station.

Short gaps between sections of parapets and barriers will be made continuous during preliminary engineering.



LEGEND

- Noise Parapet Barrier
- Proposed Metrorail Alignment
- County Boundary
- Existing Metrorail Orange Line and Station
- Proposed Station

DIAAH/DTR is the Dulles International Airport Access Highway/Dulles Toll Road

Three-foot parapets are proposed along all aerial Metrorail sections, except on Airport property or as shown

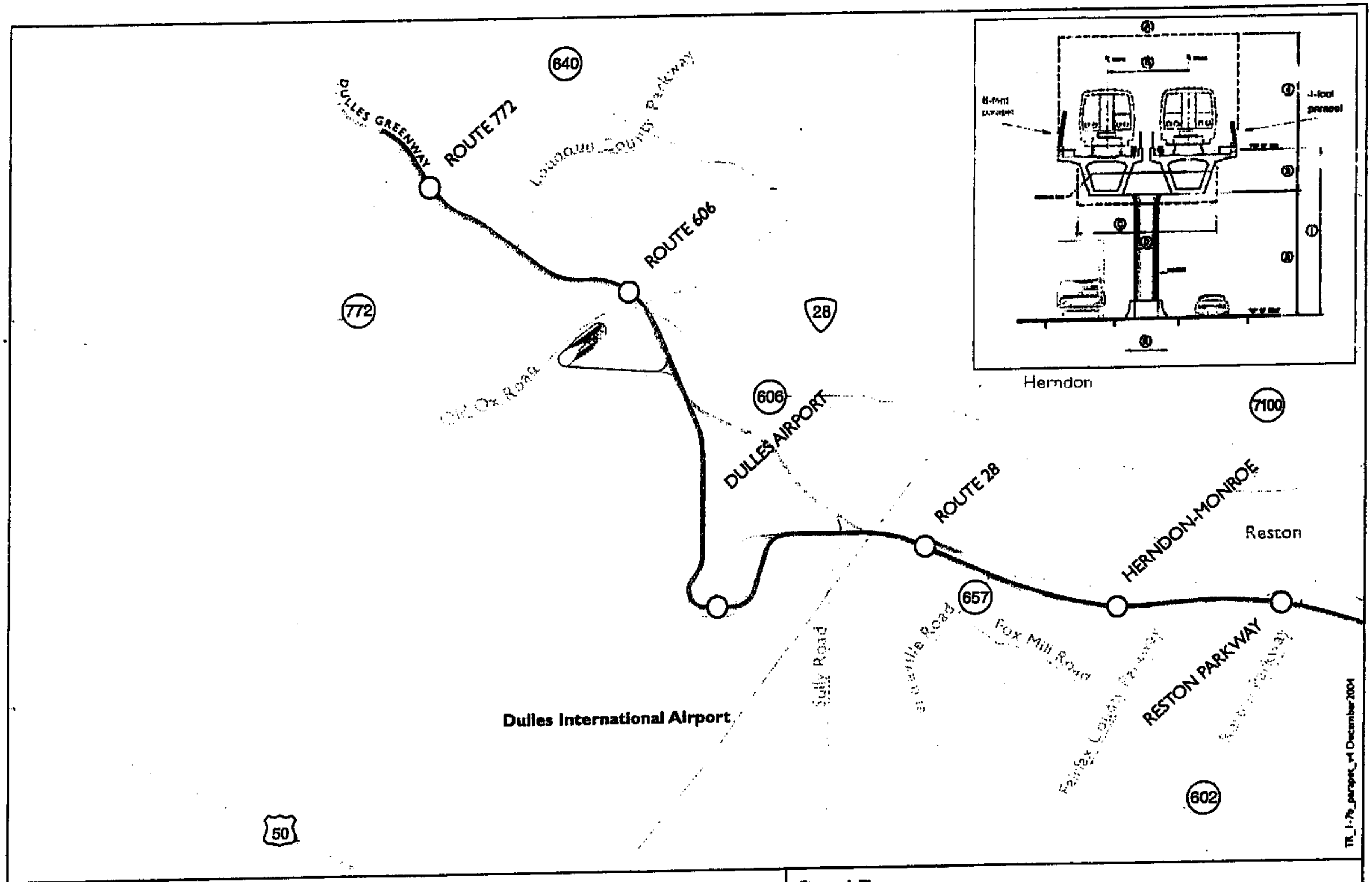
0 3000 6000 FEET

Figure 1-7a

Proposed Sound Barrier/Parapet Locations and Cross-Section

Dulles Corridor Rapid Transit Project

TR_1-7a_parapet_v1 December 2004



LEGEND

- Noise Parapet Barrier
- Proposed Metrorail Alignment
- County Boundary
- Proposed Station

DIAAH/DTR is the Dulles International Airport Access Highway/Dulles Toll Road

0 3000 6000 FEET

Figure 1-7b

Proposed Sound Barrier/Parapet Locations and Cross-Section

Dulles Corridor Rapid Transit Project

At several receptors that are not noise-sensitive according to the FTA guidelines, such as the HBL Mercedes and Porsche automobile dealership in Tysons Corner, a parapet sound barrier along the aerial guideway would not be reasonable since other ambient noise from existing traffic along Route 7 would continue to dominate at these locations. However, in those locations where noise impacts are predicted at single residences (such as at a single-family residence located at approximately 1600 White Pine Drive off Beulah Road in Vienna, opposite LPA Sta. No. 1120+00), Metrorail barriers are proposed to eliminate the predicted noise impact there.

With few exceptions, implementation of the trackside noise barriers described in **Table 1-20** is expected to eliminate all of the predicted FTA and WMATA impacts at residences due to Metrorail operations. At two residences along the Project corridor, proposed barriers at the height of 6 feet are not expected to eliminate completely the predicted FTA impact under both the Wiehle Avenue Extension and the Full LPA. Due to the difference in elevation between the residence and the proposed Metrorail alignment, future day-night noise levels with the 6-foot barrier are only predicted to decrease approximately 6 dBA (to within one decibel of the FTA impact noise limit). Additional mitigation is necessary to completely eliminate the predicted noise impacts at these two locations: single-family residences along Woodland Drive in Falls Church (Sta. No. 733+00) and White Pine Drive in Vienna (Sta. No. 1120+00).

Based on the commitment by WMATA to fully enclose both the existing and future loop tracks at the West Falls Church S&I yard with boxes, wheel squeal would essentially be eliminated at all nearby receptor locations. Therefore, no additional mitigation is recommended at this time to reduce any new noise sources proposed as part of the Final EIS. Although the loop track enclosures are expected to reduce the impact from wheel squeal substantially (10-12 dBA) at the closest residences, the background ambient noise level due to other nearby sources (such as the Dulles Connector Road) limit the overall reduction achievable at these receptor locations.

In those locations where barriers are proposed that would potentially degrade a nearby parallel barrier (such as at Hallcrest Heights), special attention should be paid to the type of materials used to face the new barrier. To avoid barrier degradation due to multiple reflections over the top of parallel barriers, acoustically soft materials should be utilized that absorb the initial sound, preventing additional reflections.

Under the Full LPA only, no impacts are currently predicted at the S&I Yard proposed at Site 15 on Airport property. Residential development is three-quarter mile distant from the yard; between the S&I yard and the residences are light industrial buildings that will shield the residences from the yard noise. Moreover, the ambient noise levels include Dulles Airport aircraft operations. The Dulles Airport land use plan and Loudoun County ordinances do not allow residential development in the runway approach zones and paths, within which the yard will be situated. So, there would be no future residential development or sensitive receptors near the yard and therefore no impacts. Increasing the radius of the yard's loop track would lessen the effects of wheel squeal upon WMATA yard personnel and nearby businesses in the light industrial buildings and would extend the useful life of track and wheels. A larger radius, however, would increase the Project's property requirements and might result in additional environmental effects to wetlands and floodplain. There is no consideration of a larger radius and a reconfiguration of the yard as the Project enters preliminary engineering.

1.7.2 CONSTRUCTION ACTIVITY

Noise control measures can be included in the construction specification documents to ensure compliance with all federal and WMATA guidelines and noise limits. These specifications could require contractors to use properly maintained and operated equipment, including the use of exhaust mufflers according to the equipment manufacturer's specifications. Additional noise control measures could be incorporated into the construction specification documents as determined to be necessary during preliminary engineering and/or final design.

The FTA guidelines and procedures identify several areas of potential noise control during construction including:

- Temporary noise barriers erected between noisy activities and noise-sensitive receptors;
- Use of sonic/vibratory pile-drivers rather than impact pile-driving near noise-sensitive receptors; and,
- Re-routing construction traffic along roadways that minimize noise impacts at nearby noise-sensitive receptors.

1.7.3 HIGHWAY TRAFFIC AT BUBBLE SECTIONS

Although exceedances of the FHWA noise abatement criteria are predicted at the "bubble" sections at some of the mid-corridor stations, noise mitigation measures are not recommended. Office buildings observed along the Dulles Toll Road already have sealed or non-operable windows with primarily indoor uses. Therefore, they clearly do not have the same level of noise-sensitivity as other more "exposed" receptors. Furthermore, noise barriers are ineffective in reducing highway noise on the upper levels of a multi-level office building, where the lobby occupies the ground or first floor.

2.0 VIBRATION

This chapter introduces some basic ground-borne vibration and ground-borne noise concepts including the prediction methodologies and modeling assumptions, the results of the existing source vibration measurement program, and the evaluation of impacts along the Project corridor.

2.1 HUMAN PERCEPTION OF VIBRATION

The characteristics and properties used to describe ground-borne vibration and noise are explained in the following subsections.

2.1.1 DESCRIBING VIBRATION

Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between the wheel and the road or rail surfaces. Examples of such interactions (and subsequent vibrations) include train wheels over a jointed rail, an untrue rail car wheel with "flats", and motor vehicle wheels hitting a pothole or even a manhole cover.

Unlike noise, which travels in air, transit vibration typically travels along the surface of the ground. Depending on the geological properties of the surrounding ground and the type of building structure exposed to transit vibration, vibration propagation may be more or less efficient. Buildings with a solid foundation set in bedrock are "coupled" more efficiently to the surrounding ground and experience relatively higher vibration levels than those buildings located in sandier soil.

Similarly, ground-borne noise results from vibrating room surfaces located near a heavily traveled transit corridor, such as a subway line. Consequently, annoyance resulting from the "rumbling" sound of ground-borne noise is only evaluated indoors and is described using the A-weighted decibel.

2.1.2 DESCRIPTION OF VIBRATION LEVELS

Vibration induced by vehicle passbys can generally be discussed in terms of displacement, velocity, or acceleration. However, human responses and responses by monitoring instruments and other objects are more accurately described with velocity. Therefore, the vibration velocity level is used to assess vibration impacts.

To describe the human response to vibration, the average vibration amplitude called the root mean square (RMS) amplitude, is used to assess impacts. The RMS velocity is expressed in inches per second (ips) or decibels (VdB). All VdB vibration levels are referenced to 1 µips.

To evaluate the potential for damage to buildings, the peak particle velocity (PPV) is also used to characterize the vibration. Typically expressed in units of ips, PPV represents the maximum

instantaneous vibration velocity observed during an event. Typical ground-borne vibration levels from transit and other common sources are shown in Figure 2-1.

2.2 EVALUATION CRITERIA

As described in the following subsections, both the FTA and the WMATA criteria will be used to assess annoyance due to vibration and ground-borne noise from single event transit operations.

2.2.1 OPERATIONAL VIBRATION

Both FTA and WMATA criteria are used to evaluate vibration from single-event transit passbys and construction.

2.2.1.1 Federal Criteria

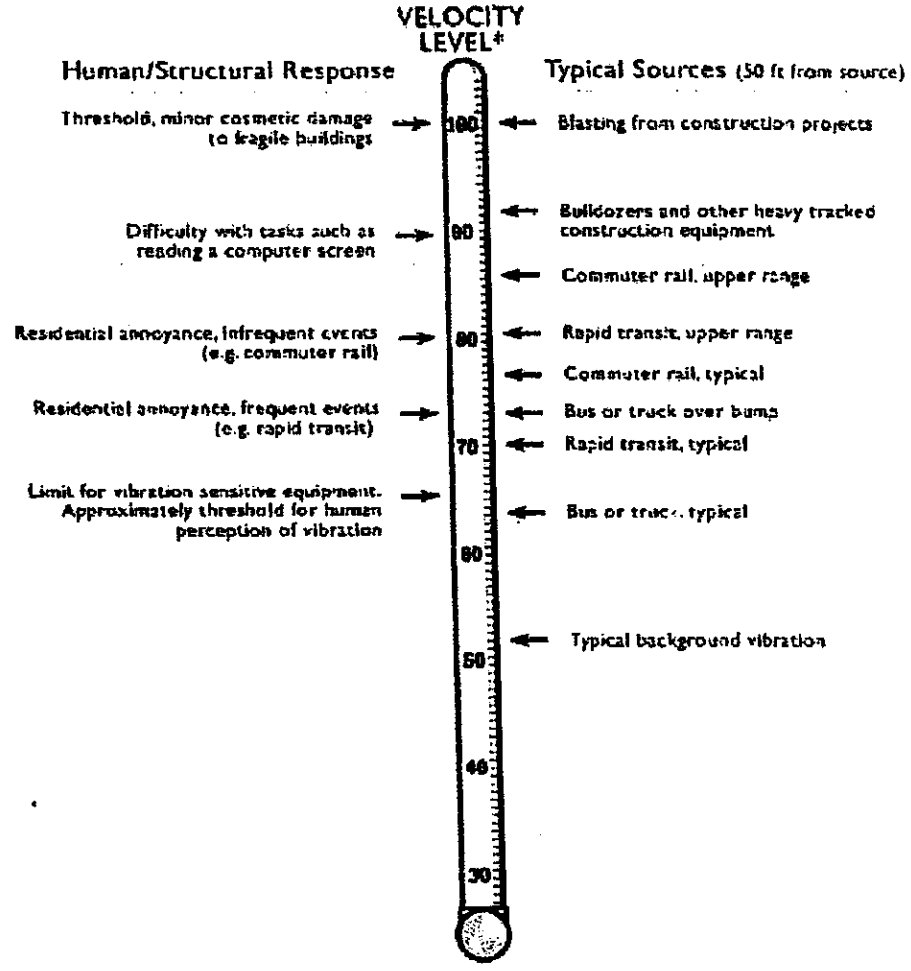
The FTA vibration criteria for evaluating ground-borne vibration (and noise) impacts from train passbys at nearby sensitive receptors are shown in **Table 2-1.** These vibration criteria are related to ground-borne vibration levels that are expected to result in human annoyance, and are based on RMS velocity levels expressed in VdB. The FTA's experience with community response to ground-borne vibration indicates that when there are only a few train events per day, it would take higher vibration levels to evoke the same community response that would be expected from more frequent events. This is taken into account in the FTA criteria by distinguishing between projects with frequent and infrequent events, where the frequent-events category is defined as more than 70 events per day. The vibration criteria levels shown in **Table 2-1** are defined in terms of human annoyance for different land use categories such as high sensitivity (Category 1), residential (Category 2), and institutional (Category 3). In general, the vibration threshold of human perceptibility is roughly 65 VdB.

The vibration levels shown in **Table 2-1** are well below the damage criteria levels of approximately 95 to 100 VdB. It is extremely rare for vibration from train operations to cause any sort of building damage, including minor cosmetic damage.

Table 2-1: FTA Ground-Borne Vibration Impact Criteria for Annoyance (VdB)

Receptor Land Use		RMS Vibration Levels (VdB)		Ground-Borne Noise Levels (dBA)	
Category	Description	Frequent Events	Infrequent Events	Frequent Events	Infrequent Events
1	Buildings where low vibration is essential for interior operations	65	65	N/A	N/A
2	Residences and buildings where people normally sleep	72	80	35	43
3	Daytime institutional and office use	75	83	40	48
Specific Buildings	TV/Recording Studios/Concert Halls	65	65	25	25
	Auditoriums	72	80	30	38
	Theaters	72	80	35	43

Note: N/A = not applicable. Vibration-sensitive equipment is not affected by ground-borne noise.
Source: *Transit Noise and Vibration Impact Assessment - Final Report*, Federal Transit Administration, Washington, D.C., April 1995.



Source: Transit Noise and Vibration Impact Assessment Final Report Federal Transit Administration, Washington, D.C., April 1995

* RMS Velocity Level in VdB relative to 1 μ inch/second

Figure 3-1
Typical Ground-Borne Vibration Levels

While vibration criteria are generally used to assess annoyance from transit sources at the exterior facade of receptors, ground-borne noise, or the rumbling sound due to vibrating room surfaces, is typically assessed indoors. In general, the relationship between vibration and ground-borne noise depends on the dominant frequency of the vibration and the acoustical absorption characteristics of the receiving room. Typical soil conditions were assumed everywhere along the corridor for computing ground-borne noise.

2.2.1.2 WMATA Criteria

Similar to the FTA criteria, the WMATA vibration and ground-borne noise criteria were developed for various community land use categories, as well as for specific building types. As shown in **Table 2-2**, the WMATA criteria were used to assess impacts from single event train passbys for each of the Project alternatives.

Table 2-2: WMATA Criteria for Single Event Maximum Vibration and Ground-Borne Noise from Metrorail Train Operations (VdB)

Community Area Category		RMS Vibration Levels (VdB)[1]			Ground-Borne Noise Levels (dBA)[1]		
		SFAM	MFAM	COM	SFAM	MFAM	COM
I	Low-density Residential	70	70	70	30	35	40
II	Average Residential	70	70	75	35	40	45
III	High-density Residential	70	75	75	35	40	45
IV	Commercial	70	75	75	40	45	45
V	Industrial/Highway	75	75	75	40	45	50
Specific Building Types		RMS Vibration Levels (VdB)			Ground-Borne Noise Levels (dBA)		
Concert Halls, Television Studios		65			25		
Auditoriums and Music Rooms		70			30		
Church, Theaters, & Hospitals		70			35		
Courtrooms, Universities, Offices		75			35		
Schools and Libraries		75			40		
Commercial Buildings		75			45		
Industrial Buildings		75			NA[2]		
Vibration-Sensitive Laboratories		60			NA		

1 Land use categories include single-family (SFAM), multi-family (MFAM), and commercial (COM) receptors.
2 NA = not applicable. Industrial buildings and laboratories are not sensitive to ground-borne noise.
Source: Proposed *WMATA Noise and Vibration Criteria* (January 16, 2001).

2.2.2 CONSTRUCTION VIBRATION

Vibration impacts due to construction activities were assessed using the FTA and the WMATA criteria to determine the onset of annoyance and as well as structural damage. These criteria are described in the following subsections.

2.2.2.1 Federal Criteria

The vibration levels shown in **Table 2-1** were used to evaluate vibration annoyance according to the FTA from various construction scenarios expected along the Project corridor. Although damage is unlikely, the

recommended FTA criteria limits that were used to assess minor structural damage, such as small cracks in plaster walls, in PPV are 0.20 ips for fragile buildings and 0.12 ips for extremely fragile or older historic buildings.

2.2.2.2 WMATA Criteria

As shown in **Table 2-3,** PPV vibration levels from construction activities were also evaluated against the WMATA criteria at the nearest occupied buildings. Unlike the FTA damage thresholds, the WMATA limits are used to evaluate the potential for annoyance and interference to occupants of affected buildings.

Table 2-3: WMATA PPV vibration Criteria from Construction Activities (IPS)

Activity Type	Activity Duration	Land Use Type	Vibration Limit
Sustained	More than 1 hour/day	All Areas	0.03
Intermittent	Less than 1 hour/day	All Areas	0.07
Intermittent	Less than 10 min/day	All Areas	0.10

Source: Proposed *WMATA Noise and Vibration Criteria* (January 16, 2001).

2.3 MODELING METHODOLOGY AND ASSUMPTIONS

A description of the modeling methodologies and the types of vibration sources included in the modeling prediction are described in the following sub-sections.

2.3.1 MODELING METHODOLOGY

Using the FTA's General Assessment methodology, vibration levels from Metrorail train passbys and from preliminary construction activities were predicted at receptors along the Project corridor. Due to the complexity and cost associated with a Detailed Assessment, the General Assessment approach is fairly conservative. Impacts identified under the General Assessment approach should be investigated further during preliminary engineering and/or final design when details of the final Metrorail guideway structure and construction activities are better known.

2.3.1.1 Operations

Vibration levels from Metrorail passbys at sensitive receptors along the Project corridor were determined using the FTA guidelines. Although Corridor express bus operations are also proposed, rubber-tired vehicles are typically not a major source of vibration annoyance, especially lighter-weight transit buses. Therefore, only rail car passbys along continuously welded rail and rail discontinuities such as switches and crossovers, were included in the modeling analysis.

Changes to the vibration modeling assessment between the Draft, the Supplemental Draft and the Final EIS include revised switch locations, updated travel speeds, and modifications affecting the alignment relocation and elevation.

A vibration measurement program was conducted to better determine the extent of ground-borne vibration levels from existing Metrorail trains as well as to provide insight into the type of soil conditions found along the Project corridor. The results of the measurement program are discussed in Section 2.4.

2.3.1.2 Construction

Similar to the construction noise prediction analysis, equipment was selected for each construction scenario with the highest reference level of vibration. The reference vibration levels were then adjusted for distance to determine the final level at the selected receptor. The maximum computed vibration level for each construction scenario was compared with the applicable criteria to establish its impact condition.

2.3.2 METRORAIL

Reference vibration levels from Metrorail passbys at 50 mph are based on the FTA ground-surface propagation curves as shown in Figure 2-2. Using the 'Rapid Transit' curve, a reference RMS vibration level could be determined at the distance for each identified receptor location. Depending on the receptor location, adjustments for speed and rail discontinuities, such as at switches, were also taken into account.

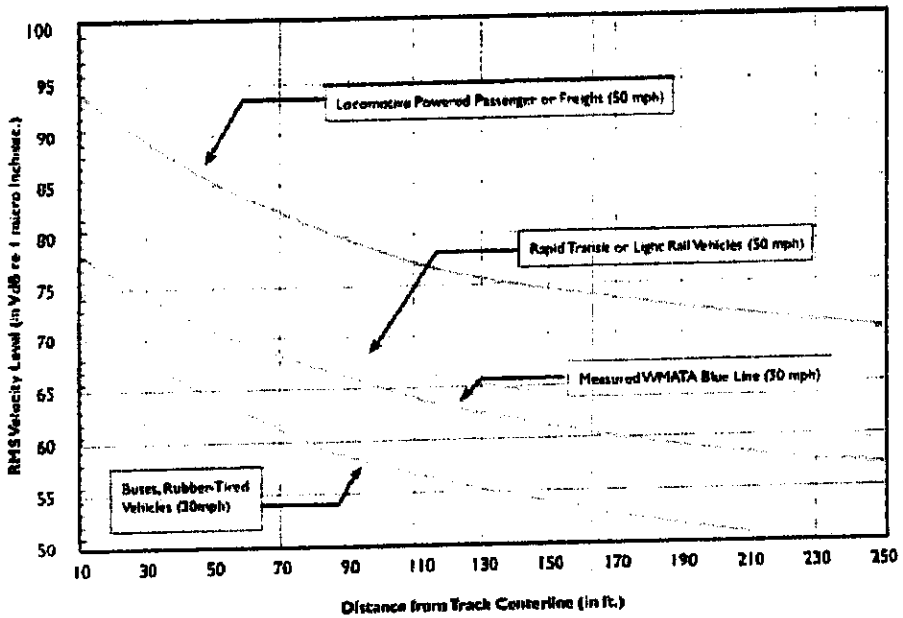
2.3.3 CONSTRUCTION VIBRATION - RMS

Using Equation 18, RMS vibration levels from construction equipment were used to predict Project construction levels at each of the selected receptor locations.

$$RMS_{equip} = RMS_{ref} - 20\log\left(\frac{dS}{25}\right)$$ [Eq. 18: used to assess annoyance and interference (FTA)]

where:

RMS_{equip} = RMS vibration level at receptor from a single piece of equipment (in VdB);
RMS_{ref} = reference RMS vibration level at 25 feet from a single piece of equipment (in VdB); and,
dS = closest distance between the receptor and the equipment (in feet).



Source: Transit Noise and Vibration Impact Assessment - Final Report, Federal Transit Administration, Washington, DC. April 1995

WMATA Blue Line data collected by the Project Team in January 2003

Figure 2-2

FTA Generalized Ground Surface Vibration Curves

2.3.4 CONSTRUCTION VIBRATION - PPV

Using Equation 19, PPV vibration levels from construction equipment were used to predict Project construction levels at each of the selected receptor locations.

$$PPV_{equip} = PPV_{ref} \times \left(\frac{25}{dS}\right)^{1.5}$$ [Eq. 19: used to assess damage (FTA) and annoyance (WMATA)]

where:

PPV_{equip}= PPV vibration level at receptor from a single piece of equipment (in ips);
PPV_{ref} = reference PPV vibration level at 25 feet from a single piece of equipment (in ips); and,
dS = closest distance between the receptor and the equipment (in feet).

2.4 EXISTING CONDITIONS

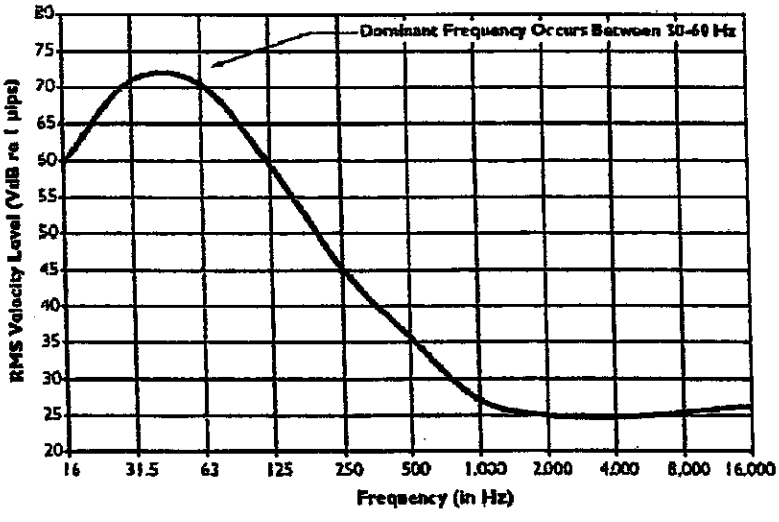
The scope and results of the vibration-monitoring program are described in the following section.

2.4.1 TRANSIT SOURCE LEVELS

Vibration measurements were conducted along an existing rail line to determine the vibration propagation characteristics of the existing terrain and the vibration levels of a Metrorail train passby. These reference vibration levels were used to provide a more detailed understanding of the ground propagation characteristics along the Project corridor. These measurements were also used to supplement the vibration curves contained in the FTA guidelines. Although vibration measurements were conducted in soil with average clay content, the soil characteristics may vary considerably from one location to another along the 23-mile Project corridor. Vibration measurements were not collected from bus passbys because: (1) rubber-tired transit vehicles are typically not a significant source of vibration and (2) no vibration-sensitive receptors were identified within the FTA screening distance of 50 feet for transit buses.

As shown in Figure 2-2, the ground-surface propagation curves developed from the measured empirical data observed along the Metrorail Blue Line near Arlington Cemetery Station are approximately 3 VdB lower than the FTA curve for rapid transit vehicles. However, the FTA surface curves were used in the modeling prediction to provide a slightly more conservative estimate than was actually measured.

The ground-borne vibration frequency spectrum of a train passby was also measured to determine the type of soil conditions. Following the FTA guidelines, ground-borne vibration levels may be converted to ground-borne noise using an empirical relationship between soil type and magnitude of the ground-borne noise. As shown in Figure 2-3, the vibration spectra observed during the measurement program indicate a dominant frequency between 30-60 Hz. This frequency range indicates average soil conditions. Therefore, average soil conditions were used to predict the ground-borne noise levels at all receptor locations along the Project corridor.



Source: Noise and Vibration Monitoring Program, January 2003

Figure 2-3
Average Ground-Borne Vibration Spectrum Measured Along Existing Metrorail Yellow/Blue Line Near Arlington Cemetery Station

2.5 LONG-TERM EFFECTS

Vibration impacts from Metrorail vehicles were evaluated at discrete receptors using the FTA and the WMATA criteria based on maximum single-event passbys. Unlike the cumulative noise criteria, vibration criteria are evaluated based on single-event passbys. The results of the impact assessment are described in the following subsections.

2.5.1 NO BUILD ALTERNATIVE

In accordance with FTA guidelines, vibration impacts are only assessed from new proposed vibration sources such as Metrorail passbys. Under the No Build Alternative, neither the Metrorail nor Corridor express buses would be in service along the Dulles Corridor. Therefore, because no new sources of vibration are expected under the No Build Alternative, a vibration impact assessment is not required.

2.5.2 WIEHLE AVENUE EXTENSION

The results of the vibration and ground-borne noise assessment from Metrorail passbys are described in the following sub-sections. Due to their lighter weight, rubber-tired Corridor express buses are typically not a significant source of vibration. Ground-borne vibration and noise levels from buses under the Wiehle Avenue Extension are expected to be well below the ambient background and are, therefore, not expected to exceed the FTA or the WMATA impact criteria anywhere along the Project corridor.

2.5.2.1 Federal Criteria

Under the Wiehle Avenue Extension, new continuously welded rail Metrorail guideway is proposed from the Orange Line to Wiehle Avenue. Most of the guideway would be at grade in the median of a roadway, or aerial to accommodate the existing roadways and cross streets. In general, aerial guideway provides additional attenuation from train passbys due to the mass of the guideway structure itself, no direct track-to-soil coupling, as well as the extra distance that the vibration must travel between the source and the receptor.

As shown in **Table 2-4**, predicted vibration levels are expected to be well below the FTA frequent events impact criteria at most of the FTA Land Use Category 1, 2, or 3 receptors identified in the study area. For example, predicted RMS vibration levels from Metrorail passbys are expected to range from well below the ambient background level of 16 VdB at several receptors to 56 VdB at a residence at Hallcrest Heights in McLean to 66 VdB at Moore Cadillac in Tysons Corner. These levels are below the FTA impact criteria of 65 and 75 VdB, respectively. However, due to the location of switches and crossovers, RMS vibration levels from Metrorail passbys are predicted to exceed the FTA Land Use Category 2 impact criteria at up to six residences along the Dulles Connector Road in McLean and the FTA Land Use Category 3 impact criteria at one non-residential receptor in Tysons Corner (The Business Bank on Route 7). No exceedances of the FTA Land Use Category 1 are predicted anywhere under the Wiehle Avenue Extension. The location of the predicted vibration impacts is shown graphically in Figure 2-4 and Appendix Figure A-7.

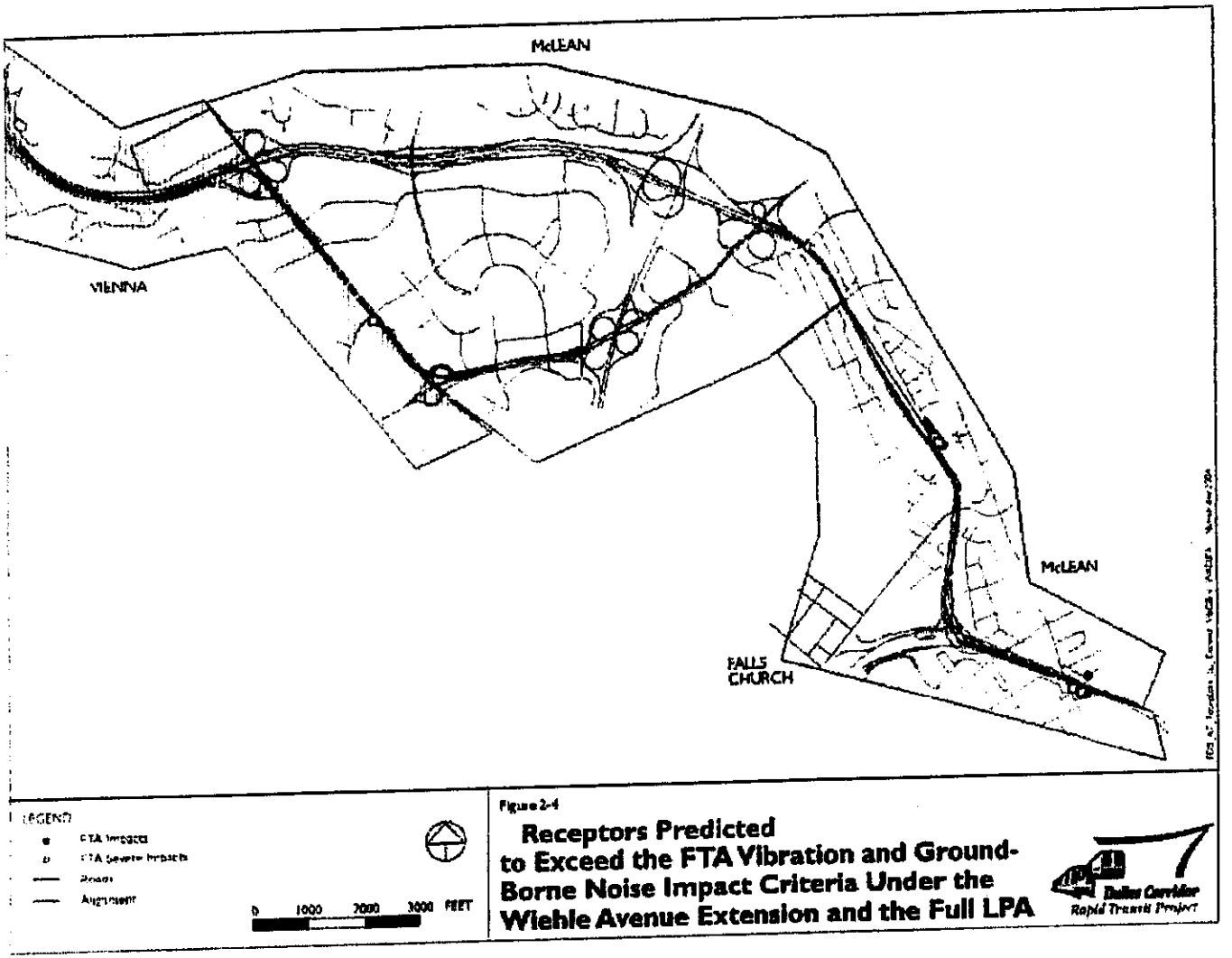


Figure 2-4

Receptors Predicted to Exceed the FTA Vibration and Ground-Borne Noise Impact Criteria Under the Wiehle Avenue Extension and the Full LPA

Table 2-4: Vibration Impact Summary at Discrete Receptors from Transit Operations (VdB)

Receptor		Land-Use Categories		Alternative-Alignment		Impact Criteria	
				Wiehle	Full		
No.	Description	FTA	WMATA	Extension	LPA	FTA	WMATA
R1	The Pavilion, Falls Church Dr., Falls Church	2	MF3	16	16	72	75
R2	2134 Greenwich St., McLean	2	SF3	50	50	72	70
R3	7103 Norwalk St., Falls Church	2	SF3	58	58	72	70
R4	1726 Baldwin Dr., McLean	2	SF3	58	58	72	70
R5	7405 Hallcrest Dr., McLean	2	MF3	56	56	72	75
R6	7798 Dolley Madison, McLean	3	CM5	45	45	75	75
R7	7900 Westpark Dr., McLean	3	CM5	–	–	75	75
R8	7903 Westpark Dr., McLean	3	CM4	–	–	75	75
R9	7925 Westpark Dr., McLean	3	CM4	–	–	75	75
R10	8003 Westpark Dr., McLean	3	CM4	–	–	75	75
R11	8248 Westpark Dr., McLean	2	MF4	–	–	72	75
R12	The Rotonda, McLean	2	MF4	–	–	72	75
R13	1961 Chain Bridge, McLean	3	CM4	54	54	75	75
R14	8332 Chain Bridge, McLean	3	CM4	38	38	75	75
R15	8359 Leesburg Pike, Vienna	3	CM4	61	61	75	75
R16	8401 Westpark Dr., McLean	2	CM4	63	63	72	75
R17	8484 Leesburg Pike, McLean	3	CM4	59	59	75	75
R18	8595 Leesburg Pike, Vienna	3	CM4	66	66	75	75
R19	Westwood Village, Vienna	2	MF3	–	–	72	75
R20	1468 Carrington Ridge, Vienna	2	SF3	56	56	72	70
R21	Filene Center (Wolf Trap Farm Park), Vienna	1	AMP	16	16	65	65
R22	1533 Red Rock Ct., Vienna	2	SF3	51	51	72	70
R23	1606 Chathams Ford, Vienna	2	SF2	26	26	72	70
R24	1709 Landon Hill Rd., Reston	2	SF3	58	58	72	70
R25	11810 Sunrise Valley, Reston	2	CM5	–	36	75	75
R26	12708 Roark Ct., Reston	2	SF2	–	–	72	70
R27	2204 Westcourt Ln., Herndon	2	MF5	–	50	72	75
R28	13300 Apgar Pl., Herndon	2	MF3	–	57	72	75
R29	Rail S&I Yard (Y7), Ashburn	3	CM5	–	–	75	75
R30	21971 Shellhorn Rd., Ashburn	2	SF1	–	–	72	70

1 "–" = below detection. Vibration levels, from Corridor express bus passbys along the DIAAH or Metrorail passbys in Tysons Corner, are expected to be well below the ambient background.

Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

Similarly, as shown in **Table 2-5**, maximum ground-borne noise levels due to Metrorail passbys are expected to range from less than 20 dBA at a residence in Reston to 31 dBA at Moore Cadillac (R18) in Tysons Corner. Ground-borne noise levels are predicted to exceed the FTA Land Use Category 2 impact criteria at up to 14 residences located adjacent to Metrorail guideway switches along the Dulles Connector Road in McLean and Falls Church. Similarly, ground-borne noise levels are predicted to exceed the FTA Land Use Category 3 impact criteria at only one location, The Business Bank in Tysons Corner along Route 7. There are no exceedances of FTA Land Use Category 1 impact criteria predicted anywhere along the corridor under the Wiehle Avenue Extension. The results of the vibration and ground-borne noise assessment are also summarized in **Table 2-6** by neighborhood.

Due to their light weight and large distance between the closest receptors and the DIAAH and DTR, vibration levels from Corridor express buses are not predicted to exceed the FTA impact criteria at any residence.

Table 2-5: Ground-Borne Noise Impact Summary at Discrete Receptors from Transit Operations (dBA)

Receptor		Land-Use Categories		Alternative-Alignment		Impact Criteria	
				Wiehle	Full		
No.	Description	FTA	WMATA	Extension	LPA	FTA	WMATA
R1	The Pavilion, Falls Church Dr., Falls Church	2	MF3	0	0	35	40
R2	2134 Greenwich St., McLean	2	SF3	15	15	35	35
R3	7103 Norwalk St., Falls Church	2	SF3	23	23	35	35
R4	1726 Baldwin Dr., McLean	2	SF3	23	23	35	35
R5	7405 Hallcrest Dr., McLean	2	MF3	21	21	35	40
R6	7798 Dolley Madison, McLean	3	CM5	10	10	40	50
R7	7900 Westpark Dr., McLean	3	CM5	–	–	40	50
R8	7903 Westpark Dr., McLean	3	CM4	–	–	40	45
R9	7925 Westpark Dr., McLean	3	CM4	–	–	40	45
R10	8003 Westpark Dr., McLean	3	CM4	–	–	40	45
R11	8248 Westpark Dr., McLean	2	MF4	–	–	35	45
R12	The Rotonda, McLean	2	MF4	–	–	35	45
R13	1961 Chain Bridge, McLean	3	CM4	19	19	40	45
R14	8332 Chain Bridge, McLean	3	CM4	3	3	40	45
R15	8359 Leesburg Pike, Vienna	3	CM4	26	26	40	45
R16	8401 Westpark Dr., McLean	2	CM4	28	28	35	45
R17	8464 Leesburg Pike, McLean	3	CM4	24	24	40	45
R18	8595 Leesburg Pike, Vienna	3	CM4	31	31	40	45
R19	Westwood Village, Vienna	2	MF3	–	–	35	40
R20	1468 Carrington Ridge, Vienna	2	SF3	21	21	35	35
R21	Filene Center (Wolf Trap Farm Park), Vienna	1	AMP	NA	NA	NA	NA
R22	1533 Red Rock Ct., Vienna	2	SF3	16	16	35	35
R23	1606 Chathams Ford, Vienna	2	SF2	–	–	35	35
R24	1709 Landon Hill Rd., Reston	2	SF3	23	23	35	35
R25	11610 Sunrise Valley, Reston	2	CM5	–	1	40	50
R26	12708 Roark Ct., Reston	2	SF2	–	–	35	35
R27	2204 Westcourt Ln., Herndon	2	MF5	–	15	35	45
R28	13300 Apgar Pl., Herndon	2	MF3	–	22	35	40
R29	Rail S&I Yard (Y7), Ashburn	3	CM5	–	–	40	50
R30	21971 Shellhorn Rd., Ashburn	2	SF1	–	–	35	30

1 "–" = below detection. Vibration levels, from Corridor express bus passbys along the DIAAH or Metrorail passbys in Tysons Corner, are expected to be well below the ambient background.
NA means not applicable. Ground-borne noise criteria do not apply to outdoor land-uses such as the Wolf Trap Farm Park.
Note: The gray shaded areas are receptors along Alignment T4 in Tysons Corner, which was eliminated from further consideration after the review and comment period of the Draft EIS.

Table 2-6: Predicted Residential Vibration and Ground-Borne Noise Impacts by Neighborhood under the LPA and Wiehle Avenue Extension

Neighborhood		RMS-Vibration		Ground-Borne Noise	
Description	Town	FTA	WMATA	FTA	WMATA
Great Falls Manor	McLean	4	8	8	8
Brllyn Park	McLean	0	1	1	1
Brllyn Park	Falls Church	2	5	5	5
Totals		6	14	14	14

2.5.2.2 WMATA Criteria

The same peak passby ground-borne vibration and noise levels used to assess impact according to the FTA criteria were also used to assess impacts using the WMATA criteria. As a result, up to 14 exceedances of the WMATA RMS vibration criteria are predicted at residential receptors along the Dulles Connector Road in McLean and Falls Church under the Wiehle Avenue Extension. Similarly, RMS vibration levels are predicted to exceed the WMATA commercial receptor impact criteria at only one location, The Business Bank in Tysons Corner along Route 7. Similarly, ground-borne noise levels are also predicted to exceed the WMATA criteria at the same receptor locations as were reported for the

2.6 CONSTRUCTION EFFECTS

Similar to noise, vibration levels from construction activities in the study area could also create a nuisance condition at nearby sensitive receptors. In addition to a nuisance condition, the potential for minor structural damage was also analyzed. Based on the vibration-monitoring program, average ground propagation characteristics were assumed as part of the vibration modeling assessment. Vibration levels were determined for the same scenarios selected for the noise assessment including track laying, station, bridge, park-and-ride structure, feeder bus bays and rail yard construction.

2.6.1 NO BUILD ALTERNATIVE

No construction activities are proposed as part of the Dulles Corridor Rapid Transit Project under the No Build Alternative. Furthermore, because the FTA guidelines do not require a modeling impact assessment for the No Build Alternative, a construction vibration impact assessment was not conducted.

2.6.2 WIEHLE AVENUE EXTENSION

Vibration impacts from proposed construction activities were evaluated for the Wiehle Avenue Extension and are discussed in the following subsections using the FTA and the WMATA impact criteria.

2.6.2.1 Federal Criteria

Under the Wiehle Avenue Extension, passenger stations and guideway would be constructed for Metrorail service between the Orange Line near West Falls Church Station and Wiehle Avenue. Maximum RMS vibration levels from track laying construction activities are expected to range from less than 50 VdB at residences along Westpark Drive in Tysons Corner to 69 VdB at Hallcrest Heights in McLean to 79 VdB at Moore Cadillac in Tysons Corner. Although most of these levels are well below the FTA impact criteria, several exceedances of the FTA residential (72 VdB) and institutional (75 VdB) annoyance impact criteria are predicted. However, all the predicted vibration levels from construction activities under Wiehle Avenue Extension are well below the threshold for minor cosmetic damage of 95 VdB.

Based on the construction equipment selected, exceedances of the FTA vibration RMS criteria are predicted at 20 residences and 6 non-residential receptors during Metrorail guideway construction under the Wiehle Avenue Extension.

The distance at which exceedance of the FTA criteria is predicted for stations and feeder bus facilities ranges from 133 feet for commercial receptors, to 187 feet for residential receptors, to 420 for serene parks such as the Wolf Trap Center. No exceedance of the FTA construction impact criteria at residences is predicted under the Wiehle Avenue Extension. Additionally, no exceedance of the FTA Land Use Categories 1, 2, or 3 impact criteria is predicted at any receptors along the Project corridor.

2.6.2.2 WMATA Criteria

The distance at which an exceedance of the WMATA damage criteria is predicted to occur ranges from 21 feet for bridge construction during intermittent construction activity to 97 feet during sustained activities. No exceedances of the WMATA vibration damage criteria are predicted at any sensitive receptors under any of the prototypical construction scenarios.

2.6.3 LOCALLY PREFERRED ALTERNATIVE

The receptors where Project vibration levels are predicted to exceed the FTA construction annoyance criteria limits are located east of Wiehle Avenue. Therefore, the results of the construction vibration impact assessment under the LPA are the same as those reported for the Wiehle Avenue Extension.

2.7 MITIGATION

Mitigation measures to eliminate or reduce the onset of vibration impacts along the Dulles Corridor from operations and construction activities are described in the following subsections. These mitigation measures will be refined during preliminary engineering and/or final design.

2.7.1 NO BUILD ALTERNATIVE

No mitigation measures are required under the No Build Alternative because no impacts are predicted.

2.7.2 WIEHLE AVENUE EXTENSION

Exceedances of the FTA and the WMATA vibration impact criteria are predicted along the Dulles Connector Road in McLean and Falls Church and in Tysons Corner from Metrorail passbys. The impacts are predicted at sensitive receptors directly adjacent to switches that result in elevated vibration and ground-borne noise levels from Metrorail train passbys. No impacts are expected from express bus passbys.

Several mitigation measures are recommended to eliminate the predicted impacts including the following:

- Employ operating limitations such as speed reductions over switches. For example, reducing the maximum allowable travel speed over switches from 55 to 35 mph at Sta. No. 484+00 and 489+00 along the existing Orange Line guideways would eliminate up to 8 vibration impacts;
- Relocate or strategically place switches and crossovers away from vibration-sensitive receptors. For example, relocating crossover beginning at Sta. No. 977+00 approximately 150 feet farther north to Sta. No. 978+50 in Tysons Corner would eliminate the predicted impact at The Business Bank. Similarly, relocating staged crossover proposed at Sta. No. 801+00 to 803+00 in McLean and Falls Church approximately 1,500 feet farther south to Sta. No. 785+00 would eliminate up to 6 impacts at nearby residences; and,
- The use of dampening materials, such as the WMATA egg resilient fasteners, under switches would reduce elevated vibration levels due to rail discontinuities approximately 8 to 10 VdB without any restrictions on speed or relocation of switches. For example, installing ballast mats under switches located at Sta. No. 484+00, 489+00, 801+00 and 803+00 would eliminate vibration impacts at several nearby residences.

Although the mitigation measures were recommended in order of least costly to most expensive, many times the least costly option, such as operating limitations, is the most impractical. Under those conditions, the most viable options available include relocating the switches away from sensitive areas (if this has been shown to be effective) and installing ballast mats. All of the recommended mitigation

measures described herein have been investigated and are predicted to eliminate each of the predicted impacts described in Section 2.5.

Similarly, because of the potential for adverse vibration impacts during construction, vibration levels should be re-evaluated during preliminary engineering and/or final design when the details of the construction stages and equipment to be used are better defined. The following mitigation measures will be implemented in various combinations to eliminate or minimize adverse vibration impacts along the Project corridor depending on local conditions and construction needs:

- Utilizing alternative construction methods that avoid impact pile driving near vibration-sensitive receptors, such as residences, schools, and hospitals. Whenever possible, use of drilled piles or sonic/vibratory pile drivers to reduce excessive vibration; and,
- Re-routing truck traffic away from vibration-sensitive receptors.

2.7.3 LOCALLY PREFERRED ALTERNATIVE

The same mitigation measures described for the Wiehle Avenue Extension are also recommended for the LPA.

9-006 General Standards

In addition to the specific standards set forth hereinafter with regard to particular special exception uses, all such uses shall satisfy the following general standards:

1. The proposed use at the specified location shall be in harmony with the adopted comprehensive plan.

2. The proposed use shall be in harmony with the general purpose and intent of the applicable zoning district regulations.

3. The proposed use shall be such that it will be harmonious with and will not adversely affect the use or development of neighboring properties in accordance with the applicable zoning district regulations and the adopted comprehensive plan. The location, size and height of buildings, structures, walls and fences, and the nature and extent of screening, buffering and landscaping shall be such that the use will not hinder or discourage the appropriate development and use of adjacent or nearby land and/or buildings or impair the value thereof.

4. The proposed use shall be such that pedestrian and vehicular traffic associated with such use will not be hazardous or conflict with the existing and anticipated traffic in the neighborhood.

5. In addition to the standards which may be set forth in this Article for a particular category or use, the Board shall require landscaping and screening in accordance with the provisions of Article 13.

6. Open space shall be provided in an amount equivalent to that specified for the zoning district in which the proposed use is located.

7. Adequate utility, drainage, parking, loading and other necessary facilities to serve the proposed use shall be provided. Parking and loading requirements shall be in accordance with the provisions of Article 11.

8. Signs shall be regulated by the provisions of Article 12; however, the Board may impose more strict requirements for a given use than those set forth in this Ordinance.

9-404 Standards for all Category 4 Uses

In addition to the general standards set forth in Sect. 006 above, all Category 4 special exception uses shall satisfy the following standards:

1. Except for electrically-powered regional rail transit facilities, as further qualified in Sect. 405 below, all buildings and structures shall comply with the bulk regulations of the zoning district in which located.

2. Any rooftop surface or touchdown pad which will be utilized as an elevated helistop shall be designed and erected in a manner sufficient to withstand the anticipated additional stress.

3. Except in the I-6 District, all maintenance, repair and mechanical work, except that of an emergency nature, shall be performed in enclosed buildings.

4. All facilities shall be so located and so designed that the operation thereof will not seriously affect adjacent residential areas, particularly with respect to noise levels.

5. Except for elevated helistops, no area used by aircraft under its own power shall be located within a distance of 200 feet from any lot line. Elevated helistops shall be located in accordance with the bulk regulations of the zoning district in which located.

6. All areas used by aircraft under its own power shall be provided with an all-weather, dustless surface.

7. Except for elevated helistops, all areas used by aircraft under its own power shall be surrounded by a chain link fence, not less than six (6) feet in height, with suitable gates to effectively control access to such areas. Access to the landing area of an elevated helistop shall be through limited access points.

8. Before establishment, all uses, including modifications or alterations to existing uses, except regional non-rail transit facilities and electrically-powered regional rail transit facilities operated by WMATA, shall be subject to the provisions of Article 17, Site Plans. Regional non-rail transit facilities and electrically-powered regional rail transit facilities operated by WMATA shall be established in conformance with the provisions of the agreement between WMATA and the County.

9-405 Additional Standards for Electrically-Powered Regional Rail Transit Facilities

1. Electrically-powered regional rail transit facilities shall not have to comply with the minimum lot size requirements of the district in which located.

2. Notwithstanding Par. 1 of Sect. 404 above, parking structures associated with electrically-powered regional rail transit facilities shall comply with the bulk regulations of the zoning district in which located.

GLOSSARY

This Glossary is provided to assist the public in understanding
the staff evaluation and analysis of development proposals.
It should not be construed as representing legal definitions.
Refer to the Fairfax County Zoning Ordinance, Comprehensive Plan
or Public Facilities Manual for additional information.

ABANDONMENT: Refers to road or street abandonment, an action taken by the Board of Supervisors, usually through the public hearing process, to abolish the public's right-of-passage over a road or road right-of way. Upon abandonment, the right-of-way automatically reverts to the underlying fee owners. If the fee to the owner is unknown, Virginia law presumes that fee to the roadbed rests with the adjacent property owners if there is no evidence to the contrary.

ACCESSORY DWELLING UNIT (OR APARTMENT): A secondary dwelling unit established in conjunction with and clearly subordinate to a single family detached dwelling unit. An accessory dwelling unit may be allowed if a special permit is granted by the Board of Zoning Appeals (BZA). Refer to Sect. 8-918 of the Zoning Ordinance.

AFFORDABLE DWELLING UNIT (ADU) DEVELOPMENT: Residential development to assist in the provision of affordable housing for persons of low and moderate income in accordance with the affordable dwelling unit program and in accordance with Zoning Ordinance regulations. Residential development which provides affordable dwelling units may result in a density bonus (see below) permitting the construction of additional housing units. See Part 8 of Article 2 of the Zoning Ordinance.

AGRICULTURAL AND FORESTAL DISTRICTS: A land use classification created under Chapter 114 or 115 of the Fairfax County Code for the purpose of qualifying landowners who wish to retain their property for agricultural or forestal use for use/value taxation pursuant to Chapter 58 of the Fairfax County Code.

BARRIER: A wall, fence, earthen berm, or plant materials which may be used to provide a physical separation between land uses. Refer to Article 13 of the Zoning Ordinance for specific barrier requirements.

BEST MANAGEMENT PRACTICES (BMPs): Stormwater management techniques or land use practices that are determined to be the most effective, practicable means of preventing and/or reducing the amount of pollution generated by nonpoint sources in order to improve water quality.

BUFFER: Graduated mix of land uses, building heights or intensities designed to mitigate potential conflicts between different types or intensities of land uses; may also provide for a transition between uses. A landscaped buffer may be an area of open, undeveloped land and may include a combination of fences, walls, berms, open space and/or landscape plantings. A buffer is not necessarily coincident with transitional screening.

CHESAPEAKE BAY PRESERVATION ORDINANCE: Regulations which the State has mandated must be adopted to protect the Chesapeake Bay and its tributaries. These regulations must be incorporated into the comprehensive plans, zoning ordinances and subdivision ordinances of the affected localities. Refer to Chesapeake Bay Preservation Act, Va. Code Section 10.1-2100 et seq and VR 173-02-01, Chesapeake Bay Preservation Area Designation and Management Regulations.

CLUSTER DEVELOPMENT: Residential development in which the lots are clustered on a portion of a site so that significant environmental/historical/cultural resources may be preserved or recreational amenities provided. While smaller lot sizes are permitted in a cluster subdivision to preserve open space, the overall density cannot exceed that permitted by the applicable zoning district. See Sect. 2-421 and Sect. 9-615 of the Zoning Ordinance.

COUNTY 2232 REVIEW PROCESS: A public hearing process pursuant to Sect. 15.2-2232 (Formerly Sect. 15.1-456) of the Virginia Code which is used to determine if a proposed public facility not shown on the adopted Comprehensive Plan is in substantial accord with the plan. Specifically, this process is used to determine if the general or approximate location, character and extent of a proposed facility is in substantial accord with the Plan.

dBA: The momentary magnitude of sound weighted to approximate the sensitivity of the human ear to certain frequencies; the dBA value describes a sound at a given instant, a maximum sound level or a steady state value. See also Ldn.

DENSITY: Number of dwelling units (du) divided by the gross acreage (ac) of a site being developed in residential use; or, the number of dwelling units per acre (du/ac) except in the PRC District when density refers to the number of persons per acre.

DENSITY BONUS: An increase in the density otherwise allowed in a given zoning district which may be granted under specific provisions of the Zoning Ordinance when a developer provides excess open space, recreation facilities, or affordable dwelling units (ADUs), etc.

DEVELOPMENT CONDITIONS: Terms or conditions imposed on a development by the Board of Supervisors (BOS) or the Board of Zoning Appeals (BZA) in connection with approval of a special exception, special permit or variance application or rezoning application in a "P" district. Conditions may be imposed to mitigate adverse impacts associated with a development as well as secure compliance with the Zoning Ordinance and/or conformance with the Comprehensive Plan. For example, development conditions may regulate hours of operation, number of employees, height of buildings, and intensity of development.

DEVELOPMENT PLAN: A graphic representation which depicts the nature and character of the development proposed for a specific land area: information such as topography, location and size of proposed structures, location of streets trails, utilities, and storm drainage are generally included on a development plan. A development plan is s submission requirement for rezoning to the PRC District. A GENERALIZED DEVELOPMENT PLAN (GDP) is a submission requirement for a rezoning application for all conventional zoning districts other than a P District. A development plan submitted in connection with a special exception (SE) or special permit (SP) is generally referred to as an SE or SP plat. A CONCEPTUAL DEVELOPMENT PLAN (CDP) is a submission requirement when filing a rezoning application for a P District other than the PRC District; a CDP characterizes in a general way the planned development of the site. A FINAL DEVELOPMENT PLAN (FDP) is a submission requirement following the approval of a conceptual development plan and rezoning application for a P District other than the PRC District; an FDP further details the planned development of the site. See Article 16 of the Zoning Ordinance.

EASEMENT: A right to or interest in property owned by another for a specific and limited purpose. Examples: access easement, utility easement, construction easement, etc. Easements may be for public or private purposes.

ENVIRONMENTAL QUALITY CORRIDORS (EQCs): An open space system designed to link and preserve natural resource areas, provide passive recreation and protect wildlife habitat. The system includes stream valleys, steep slopes and wetlands. For a complete definition of EQCs, refer to the Environmental section of the Policy Plan for Fairfax County contained in Vol. 1 of the Comprehensive Plan.

ERODIBLE SOILS: Soils that wash away easily, especially under conditions where stormwater runoff is inadequately controlled. Silt and sediment are washed into nearby streams, thereby degrading water quality.

FLOODPLAIN: Those land areas in and adjacent to streams and watercourses subject to periodic flooding; usually associated with environmental quality corridors. The 100 year floodplain drains 70 acres or more of land and has a one percent chance of flood occurrence in any given year.

FLOOR AREA RATIO (FAR): An expression of the amount of development intensity (typically, non-residential uses) on a specific parcel of land. FAR is determined by dividing the total square footage of gross floor area of buildings on a site by the total square footage of the site itself.

FUNCTIONAL CLASSIFICATION: A system for classifying roads in terms of the character of service that individual facilities are providing or are intended to provide, ranging from travel mobility to land access. Roadway system functional classification elements include Freeways or Expressways which are limited access highways, Other Principal (or Major) Arterials, Minor Arterials, Collector Streets, and Local Streets. Principal arterials are designed to accommodate travel; access to adjacent properties is discouraged. Minor arterials are designed to serve both through traffic and local trips. Collector roads and streets link local streets and properties with the arterial network. Local streets provide access to adjacent properties.

GEOTECHNICAL REVIEW: An engineering study of the geology and soils of a site which is submitted to determine the suitability of a site for development and recommends construction techniques designed to overcome development on problem soils, e.g., marine clay soils.

HYDROCARBON RUNOFF: Petroleum products, such as motor oil, gasoline or transmission fluid deposited by motor vehicles which are carried into the local storm sewer system with the stormwater runoff, and ultimately, into receiving streams; a major source of non-point source pollution. An oil-grit separator is a common hydrocarbon runoff reduction method.

IMPERVIOUS SURFACE: Any land area covered by buildings or paved with a hard surface such that water cannot seep through the surface into the ground.

INFILL: Development on vacant or underutilized sites within an area which is already mostly developed in an established development pattern or neighborhood.

INTENSITY: The magnitude of development usually measured in such terms as density, floor area ratio, building height, percentage of impervious surface, traffic generation, etc. Intensity is also based on a comparison of the development proposal against environmental constraints or other conditions which determine the carrying capacity of a specific land area to accommodate development without adverse impacts.

Ldn: Day night average sound level. It is the twenty-four hour average sound level expressed in A-weighted decibels; the measurement assigns a "penalty" to night time noise to account for night time sensitivity. Ldn represents the total noise environment which varies over time and correlates with the effects of noise on the public health, safety and welfare.

LEVEL OF SERVICE (LOS): An estimate of the effectiveness of a roadway to carry traffic, usually under anticipated peak traffic conditions. Level of Service efficiency is generally characterized by the letters A through F, with LOS-A describing free flow traffic conditions and LOS-F describing jammed or grid-lock conditions.

MARINE CLAY SOILS: Soils that occur in widespread areas of the County generally east of Interstate 95. Because of the abundance of shrink-swell clays in these soils, they tend to be highly unstable. Many areas of slope failure are evident on natural slopes. Construction on these soils may initiate or accelerate slope movement or slope failure. The shrink-swell soils can cause movement in structures, even in areas of flat topography, from dry to wet seasons resulting in cracked foundations, etc. Also known as slippage soils.

OPEN SPACE: That portion of a site which generally is not covered by buildings, streets, or parking areas. Open space is intended to provide light and air; open space may be function as a buffer between land uses or for scenic, environmental, or recreational purposes.

OPEN SPACE EASEMENT: An easement usually granted to the Board of Supervisors which preserves a tract of land in open space for some public benefit in perpetuity or for a specified period of time. Open space easements may be accepted by the Board of Supervisors, upon request of the land owner, after evaluation under criteria established by the Board. See Open Space Land Act, Code of Virginia, Sections 10.1-1700, et seq.

P DISTRICT: A "P" district refers to land that is planned and/or developed as a Planned Development Housing (PDH) District, a Planned Development Commercial (PDC) District or a Planned Residential Community (PRC) District. The PDH, PDC and PRC Zoning Districts are established to encourage innovative and creative design for land development; to provide ample and efficient use of open space; to promote a balance in the mix of land uses, housing types, and intensity of development; and to allow maximum flexibility in order to achieve excellence in physical, social and economic planning and development of a site. Refer to Articles 6 and 16 of the Zoning Ordinance.

PROFFER: A written condition, which, when offered voluntarily by a property owner and accepted by the Board of Supervisors in a rezoning action, becomes a legally binding condition which is in addition to the zoning district regulations applicable to a specific property. Proffers are submitted and signed by an owner prior to the Board of Supervisors public hearing on a rezoning application and run with the land. Once accepted by the Board, proffers may be modified only by a proffered condition amendment (PCA) application or other zoning action of the Board and the hearing process required for a rezoning application applies. See Sect. 15.2-2303 (formerly 15.1-491) of the Code of Virginia.

PUBLIC FACILITIES MANUAL (PFM): A technical text approved by the Board of Supervisors containing guidelines and standards which govern the design and construction of site improvements incorporating applicable Federal, State and County Codes, specific standards of the Virginia Department of Transportation and the County's Department of Public Works and Environmental Services.

RESOURCE MANAGEMENT AREA (RMA): That component of the Chesapeake Bay Preservation Area comprised of lands that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area. See Fairfax County Code, Ch. 118, Chesapeake Bay Preservation Ordinance.

RESOURCE PROTECTION AREA (RPA): That component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline or water's edge that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation of the quality of state waters. In their natural condition, these lands provide for the removal, reduction or assimilation of sediments from runoff entering the Bay and its tributaries, and minimize the adverse effects of human activities on state waters and aquatic resources. New development is generally discouraged in an RPA. See Fairfax County Code, Ch. 118, Chesapeake Bay Preservation Ordinance.

SITE PLAN: A detailed engineering plan, to scale, depicting the development of a parcel of land and containing all information required by Article 17 of the Zoning Ordinance. Generally, submission of a site plan to DPWES for review and approval is required for all residential, commercial and industrial development except for development of single family detached dwellings. The site plan is required to assure that development complies with the Zoning Ordinance.

SPECIAL EXCEPTION (SE) / SPECIAL PERMIT (SP): Uses, which by their nature, can have an undue impact upon or can be incompatible with other land uses and therefore need a site specific review. After review, such uses may be allowed to locate within given designated zoning districts if appropriate and only under special controls, limitations, and regulations. A special exception is subject to public hearings by the Planning Commission and Board of Supervisors with approval by the Board of Supervisors; a special permit requires a public hearing and approval by the Board of Zoning Appeals. Unlike proffers which are voluntary, the Board of Supervisors or BZA may impose reasonable conditions to assure, for example, compatibility and safety. See Article 8, Special Permits and Article 9, Special Exceptions, of the Zoning Ordinance.

STORMWATER MANAGEMENT: Engineering practices that are incorporated into the design of a development in order to mitigate or abate adverse water quantity and water quality impacts resulting from development. Stormwater management systems are designed to slow down or retain runoff to re-create, as nearly as possible, the pre-development flow conditions.

SUBDIVISION PLAT: The engineering plan for a subdivision of land submitted to DPWES for review and approved pursuant to Chapter 101 of the County Code.

TRANSPORTATION DEMAND MANAGEMENT (TDM): Actions taken to reduce single occupant vehicle automobile trips or actions taken to manage or reduce overall transportation demand in a particular area.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) PROGRAMS: This term is used to describe a full spectrum of actions that may be applied to improve the overall efficiency of the transportation network. TSM programs usually consist of low-cost alternatives to major capital expenditures, and may include parking management measures, ridesharing programs, flexible or staggared work hours, transit promotion or operational improvements to the existing roadway system. TSM includes Transportation Demand Management (TDM) measures as well as H.O.V. use and other strategies associated with the operation of the street and transit systems.

URBAN DESIGN: An aspect of urban or suburban planning that focuses on creating a desirable environment in which to live, work and play. A well-designed urban or suburban environment demonstrates the four generally accepted principles of design: clearly identifiable function for the area; easily understood order; distinctive identity; and visual appeal.

VACATION: Refers to vacation of street or road as an action taken by the Board of Supervisors in order to abolish the public's right-of-passage over a road or road right-of-way dedicated by a plat of subdivision. Upon vacation, title to the road right-of-way transfers by operation of law to the owner(s) of the adjacent properties within the subdivision from whence the road/road right-of-way originated.

VARIANCE: An application to the Board of Zoning Appeals which seeks relief from a specific zoning regulation such as lot width, building height, or minimum yard requirements, among others. A variance may only be granted by the Board of Zoning Appeals through the public hearing process and upon a finding by the BZA that the variance application meets the required Standards for a Variance set forth in Sect. 18-404 of the Zoning Ordinance.

WETLANDS: Land characterized by wetness for a portion of the growing season. Wetlands are generally delineated on the basis of physical characteristics such as soil properties indicative of wetness, the presence of vegetation with an affinity for water, and the presence or evidence of surface wetness or soil saturation. Wetland environments provide water quality improvement benefits and are ecologically valuable. Development activity in wetlands is subject to permitting processes administered by the U.S. Army Corps of Engineers

TIDAL WETLANDS: Vegetated and nonvegetated wetlands as defined in Chapter 116 Wetlands Ordinance of the Fairfax County Code: includes tidal shores and tidally influenced embayments, creeks, and tributaries to the Occoquan and Potomac Rivers. Development activity in tidal wetlands may require approval from the Fairfax County Wetlands Board.

Abbreviations Commonly Used in Staff Reports

A&F	Agricultural & Forestal District
ADU	Affordable Dwelling Unit
ARB	Architectural Review Board
BMP	Best Management Practices
BOS	Board of Supervisors
BZA	Board of Zoning Appeals
COG	Council of Governments
CBC	Community Business Center
CDP	Conceptual Development Plan
CRD	Commercial Revitalization District
DOT	Department of Transportation
DP	Development Plan
DPWES	Department of Public Works and Environmental Services
DPZ	Department of Planning and Zoning
DU/AC	Dwelling Units Per Acre
EQC	Environmental Quality Corridor
FAR	Floor Area Ratio
FDP	Final Development Plan
GDP	Generalized Development Plan
GFA	Gross Floor Area
HC	Highway Corridor Overlay District
HCD	Housing and Community Development
LOS	Level of Service
Non-RUP	Non-Residential Use Permit
OSDS	Office of Site Development Services, DPWES
PCA	Proffered Condition Amendment
PD	Planning Division
PDC	Planned Development Commercial
PDH	Planned Development Housing
PFM	Public Facilities Manual
PRC	Planned Residential Community
RC	Residential-Conservation
RE	Residential Estate
RMA	Resource Management Area
RPA	Resource Protection Area
RUP	Residential Use Permit
RZ	Rezoning
SE	Special Exception
SEA	Special Exception Amendment
SP	Special Permit
TDM	Transportation Demand Management
TMA	Transportation Management Association
TSA	Transit Station Area
TSM	Transportation System Management
UP & DD	Utilities Planning and Design Division, DPWES
VC	Variance
VDOT	Virginia Dept. of Transportation
VPD	Vehicles Per Day
VPH	Vehicles per Hour
WMATA	Washington Metropolitan Area Transit Authority
WS	Water Supply Protection Overlay District
ZAD	Zoning Administration Division, DPZ
ZED	Zoning Evaluation Division, DPZ
ZPRB	Zoning Permit Review Branch