National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments

FY–2009 Network Documentation:

Highway and Transit Network Development

DRAFT

June 30, 2009

Item 4A
From the FY-2009 Unified Planning Work Program
for Transportation Planning for
the Metropolitan Washington Region

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Agency

The Metropolitan Washington Council of Governments (COG) and the National Capital Region Transportation Planning Board (TPB).

COG serves as the regional planning organization for the Washington metropolitan area. COG works toward solutions to regional problems, especially those related to regional growth, transportation, housing, human services, and the environment. The TPB is the designated Metropolitan Planning Organization (MPO) for transportation planning in the Washington region. Members of the TPB include representatives of local governments; state transportation agencies; the Maryland and Virginia General Assemblies; the Washington Metropolitan Area Transit Authority; and non-voting members from the Metropolitan Washington Airports Authority and federal agencies.

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Abstract

This report describes the development of highway and transit networks that represent the ground transportation system of the Washington, D.C. metropolitan area for the purposes of travel demand modeling. These networks are important inputs to the TPB travel demand models. COG's Geographic Information System (GIS) has been employed to pre-process and manage network components, and is used to link the transportation network development process to other TPB planning activities, including Cooperative Forecasting, Corridor Studies, Models Development, Congestion Monitoring, and the Regional Transportation Data Clearinghouse. This work program represents a continuation of a multi-year networks and models development plan that was formulated in FY-93 under the direction of the Travel Forecasting Subcommittee, a subcommittee of the Transportation Planning Board's Technical Committee.

Copies of this report can be found on the MWCOG Web Site:

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Chapter 1 Introduction

The Metropolitan Washington Council of Governments (COG) serves as the regional planning organization for the Washington, D.C. metropolitan area. The National Capital Region Transportation Planning Board (TPB) is the designated Metropolitan Planning Organization (MPO) which functions to coordinate transportation planning among the various federal, state, and local agencies in the Washington region. The TPB maintains a four-step transportation planning model that is used to evaluate transportation plans and programs, including air quality planning, in accordance with federal requirements. The TPB's travel model is periodically refined as more advanced methods emerge from the research community. The transportation networks that inform TPB's travel model are also refined and updated on an annual basis. This report documents work activities completed by COG/TPB staff in accordance with the transportation network development element identified in the *FY-2009 Unified Planning Work Program* (UPWP).

Network development activities primarily support transportation modeling that the TPB undertakes each year to ascertain how well the Constrained Long Range Plan (CLRP) and Transportation Improvement Plan (TIP) meet air quality objectives in accordance with federal requirements. This analysis is formally known as the Air Quality Conformity Determination. As part of these activities, base year transit and highway networks are updated annually with information provided by regional transit providers and transportation agencies.

The conformity cycle begins during winter and concludes in the summer or fall of the next year with TPB review and approval of public comments on the draft CLRP and TIP, and adoption of the Air Quality Conformity Determination. Since transportation networks that are inputs to the conformity analysis process are developed in one fiscal year and adopted by the TPB in the next, this report documents Version 2.2 model[1] networks and data files that were developed in FY-2009 as inputs to the 2008 CLRP and FY2009-2014 TIP. The 2008 CLRP and FY2009-2014 TIP were approved by the TPB on November 19, 2008. Exhibit 1-1 presents a time-line chart of work activities conducted in support of the Air Quality Conformity assessment.

The remainder of this chapter provides overviews of the transportation network development program and network files supporting the Version 2.2 travel model. Chapter 2 presents project elements in the 2008 CLRP and FY2009-2014 TIP. Chapter 3 describes network inputs to the Version 2.2 Travel Model. Chapter 4 describes planned improvements in network development.

[1] COG/TPB Travel Forecasting Model, Version 2.2 Specification, Validation, and User's Guide, March 1, 2008.

Exhibit 1-1 Time-Line for FY-2009 Network Development and Air Quality Conformity Assessment Activities

	FY-2009											
	Calendar 2008						Calendar 2009					
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
Transportation Network Maintenance:												
1 Network Review by state and local transportation agencies.												
2 Network review by Model, GIS, and Systems applications groups.												
3 Update GIS-based highway network database.												
4 Solicit transit information from regional transit providers.												
5 Update catalogues and transit files with current data.												
6 Network conflation to Navtec Street base.												
7 Test and Impliment new GIS-based network mangement application.												
Air Quality Conformity Process:	2008 CLRP/ FY2009-14 TIP											
							2009 CLRP / FY2010-15 TIP					
8 Request CLRP and TIP project submissions.						X						
9 Deadline for project submissions.							X					
10 Public comment on project submissions begins.							X					
11 Public comment on project submissions ends.								X				
12 Develop transportation networks based on project submissions.												
13 Execute travel demand and emissions models.												
14 Summarize and analyze results.												
15 Prepare CLRP and TIP draft documents.												
16 Begin public comment on conformity results.				X								X
17 End public comment on conformity results.					X							
18 Adoption of CLRP and TIP by TPB.					X							

Ref: FY09_Timeline.xls

1.1 Overview of the Network Development Program

Given the importance and regularity of the COG/TPB annual air quality conformity studies, network development has evolved into a cycle of activities around this yearly event. During late summer and fall, transit and highway network summaries from the previous conformity study are evaluated and network files are updated as per the latest transit schedules and reviews conducted by TPB staff, state, and local transportation agencies. A solicitation of transit data from the local providers is also made during the fall to ensure that the base-year transit files are verified (or updated) with the most recent data. During winter, the development of planned improvements for the next TIP cycle is formulated through the COG/TPB process. Network coding for the next conformity cycle normally occurs in March, in preparation for model executions commencing in the spring or summer.

In FY-2009, work activities focused on preparing inputs for the 2008 CLRP and FY2009 to 2014 TIP, and included the following tasks:

- Review of project submissions and their organization into appropriate forecast years, according to the project completion date as estimated by the programming agency;
- update of the GIS-based highway database and generation of network link data for base and forecast year highway networks;
- development of transit files for 2009, 2010, 2020, and 2030 informed with 2007 transit operations and projects contained in the CLRP;
- reviews of highway and transit networks for accuracy; and revising highway network toll assumptions and transit fares as necessary.

Transportation network development is a lengthy process involving the collection of data from a number of agencies in the region and updating of existing data sets to the appropriate years. The process also entails the application of ArcInfo, ArcGIS, SAS, FORTRAN, and CUBE/TP+ programs to update, generate, and build highway and transit network files. Automated checking procedures ensure that changes in network link attributes between years are reasonable. A number of intermediate development steps are not discussed in this report. Instead, the intention of this report is to provide information on the files that result at the end of the development process, which directly support travel modeling.

The network development process continues to be facilitated by improvements in communications technology and emerging software tools. Information transfer between agencies is increasingly being conducted in electronic form. There has been an increased reliance on using the Internet to obtain updated information in a timely manner. Staff has also been relying upon GIS-based applications to manage and develop highway network files in a more accurate and consistent manner, and has used TPB's Regional Bus Subcommittee[2] as a forum to streamline the transfer of bus transit data between transit providers and TPB Staff.

[2] The mission of the Regional Bus Subcommittee is to provide a permanent process for the coordination of bus planning throughout the Washington region, and for incorporating regional bus plans into the Constrained Long Range Plan (CLRP) and Transportation Improvement Program (TIP).

1.2 Overview of Network Files Supporting the Version 2.2 Model

Transportation networks and supporting datasets were developed to meet specifications for TPB's Version 2.2 travel model. The four-step travel model is applied on the TPB's 2191 transportation analysis zone (TAZ) system. The current study area is comprised 22 jurisdictions[3] that include the District of Columbia, Northern Virginia, suburban Maryland, and one county in West Virginia, as shown in Exhibit 1-2. The typical COG/TPB highway network consists of approximately 20,000 directional highway links (excluding centriod connectors). Roads are classified into four major types: freeways, arterials, collectors, and locals. COG/TPB highway networks typically include all freeways and arterials, most collectors, and some local roads.

Three highway networks are required representing weekday operations occurring in the AM peak period (6:00-9:00 AM), the PM peak period (4:00-7:00 PM), and the off-peak period (comprised of the remaining 18 hours). Highway network coding reflects operational differences between the three periods. Examples of operational differences may include directionality changes (alternating one-way/two-way operations), lane configuration changes, or vehicle prohibition changes (for example, facilities that are dedicated for HOV facilities during peak periods, but revert to general use operations during non-peak times).

Transit networks representing weekday operations in the peak and off-peak periods are also required for the model. The one-hour time period from 7:00 AM to 7:59 AM[4] is used to represent peak period conditions. Off-peak period conditions are represented by a five-hour time period from 10:00 AM to 2:59 PM. Base year transit networks model approximately 1,000 routes during the AM peak period and 700 routes representing service during the Off-peak period. The travel model also requires zone-to-zone transit times and fares (known collectively as "skims") representing AM peak period conditions and off-peak conditions. AM and off-peak transit networks are developed and are built directly over the highway networks. Transit paths are categorized into two access markets: walk-access and drive-access.

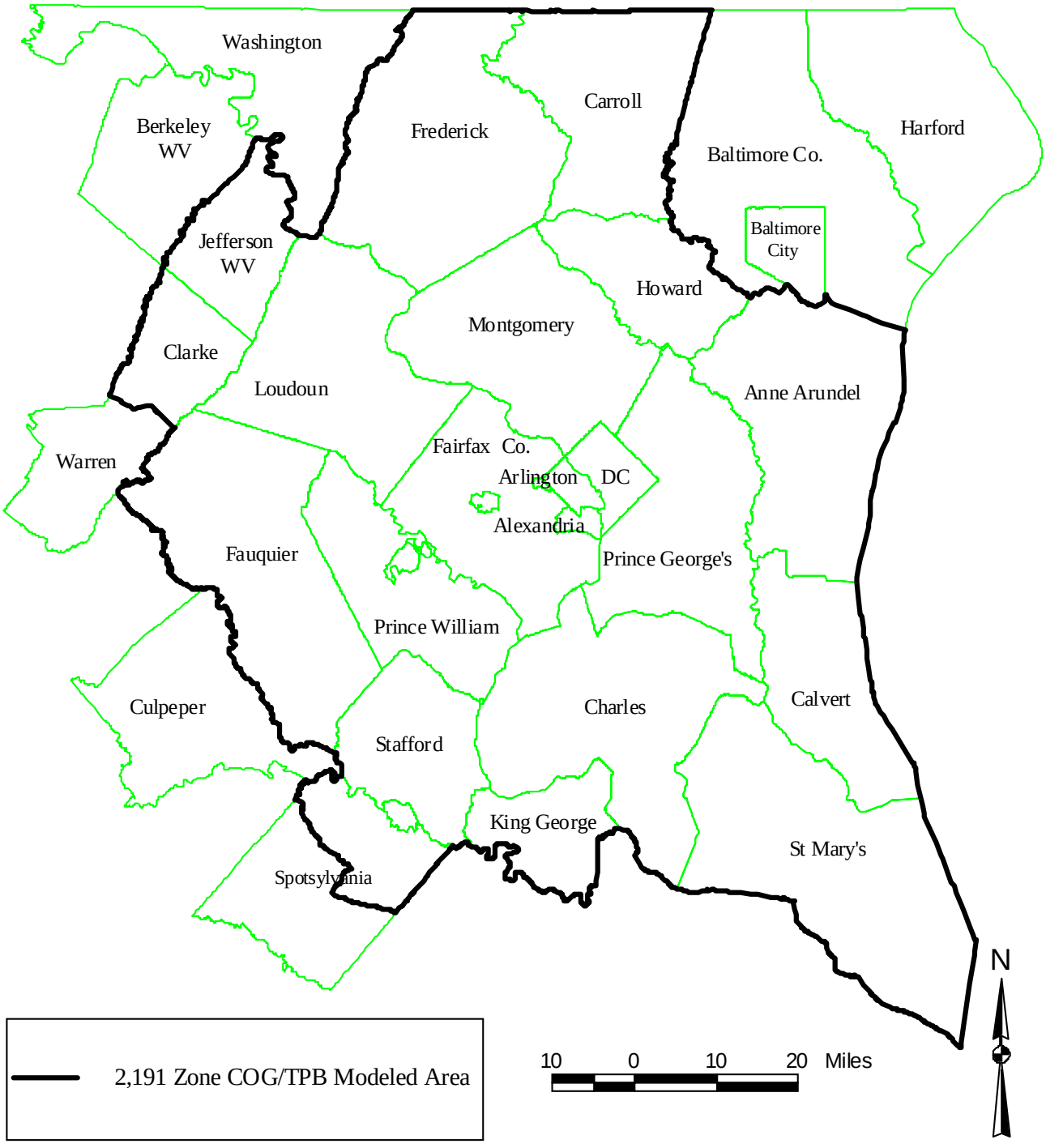
The files that result from the network development process are highway link files, transit line files, transit network support files that include rail (non-highway links) links, transfer links, and a rail station/Park-and-ride facility file. Because the transit fare estimation used by COG/TPB models is derived from transit path-based information, transit fare development is implicitly considered as a component of the network building process. Therefore, files supporting the estimation of transit fares are also prepared in network development.

The files that support network building and the fare development processes of the Version 2.2 model are described in greater detail in Chapter 3.

[3] The expanded cordon bisects one of the 22 jurisdictions, Spotsylvania County. Its northern portion (approximately north of VA 606) is within the modeled area and the remaining area is outside. The expanded cordon includes all other jurisdictions in their entirety.

[4] In the case of secondary local and secondary express commuter bus service, which generally originates in the outer reaches of the study area and begins much earlier than 7 AM, the AM peak period definition is relaxed to an earlier period for which service is most concentrated.

Exhibit 1-2 COG/TPB Modeled Area - 2,191-Zone System



1.3 Network Numbering Systems

The current area system includes 2,191 TAZs. The area system includes both internal TAZ and external stations. Because the system provides for "spare" zones that may be utilized for future studies, the number of active internal TAZs is 1,972. The TAZs are numbered sequentially in ranges corresponding to the modeled jurisdictions. An equivalence table indicating the relationship of TAZ to jurisdictions is shown in Exhibit 1-3. The exhibit indicates that the TAZ range allocation for each jurisdiction is inclusive of both active and spare zones. The exhibit also indicates that the area system contains 47 external stations, numbered from 2145 to 2191. The locations of external stations are shown in Exhibit 1-4 and Exhibit 1-5.

A network node numbering system was established for the highway and transit networks in 1997 as a way to locate nodes and minimize the possibility of "tunnels". The node numbering system is revised yearly as nodes are added to highway and transit networks. Highway node ranges have been developed by jurisdiction, and are further distinguished as General use facilities, HOV facilities, Interchange ramps, and Regional variably priced lane facilities. Node ranges corresponding to transit network elements are also defined and represent Park-and-Ride facilities and Metrorail, Commuter rail, Light rail, and Bus rapid transit stations. Highway and transit network node ranges are summarized in Exhibit 1-6.

Exhibit 1-3 Transportation Analysis Zone (TAZ) and Jurisdiction Equivalency Table

JURISDICTION	JURIS. CODE	TAZ RANGE	No. of TAZ	UNUSED TAZ
District of Columbia	0	1-319	319	----
Montgomery Co., Md.	1	320-627	308	628-639
Prince Georges Co., Md.	2	640-1020	381	1021-1029
Arlington Co., Va.	3	1230-1311	82	1312-1329
City of Alexandria, Va.	4	1330-1389	60	1390-1399
Fairfax Co., Va.	5	1400-1755	356	1756-1779
Loudoun Co., Va.	6	1780-1905	126	1906-1919
Prince William Co., Va.	7	1920-2061	142	2062-2069
----	8	----	----	----
Frederick Co., Md.	9	1030-1053	24	1054-1059
Howard Co., Md.	10	1080-1099	20	1100-1109
Anne Arundel Co., Md.	11	1110-1142	33	1143-1149
Charles Co., Md.	12	1200-1223	24	1224-1229
----	13	----	----	----
Carroll Co., Md.	14	1060-1073	14	1074-1079
Calvert Co., Md	15	1150-1163	14	1164-1169
St. Mary's Co., Md.	16	1170-1190	21	1191-1199
King George Co., Va.	17	2070-2074	5	2075-2079
City of Fredericksburg, Va.	18	2100-2101	2	2102-2104
Stafford Co., Va.	19	2080-2093	14	2094-2099
Spotsylvania Co., Va.	20	2105-2110	6	2111-2114
Fauquier Co., Va.	21	2115-2125	11	2126-2129
Clarke Co., Va.	22	2130-2132	3	2133-2134
Jefferson Co., WVa.	23	2135-2141	7	2142-2144
TOTAL INTERNAL ZONES			**1972**	
EXTERNAL STATIONS		**2145-2191**		
TOTAL ZONES / STATIONS (Total Used&Unused)			**2019 2191**	

Ref: EXH1-3.xls

Exhibit 1-4 Location of External Stations in the Modeled Area Map 1 of 2

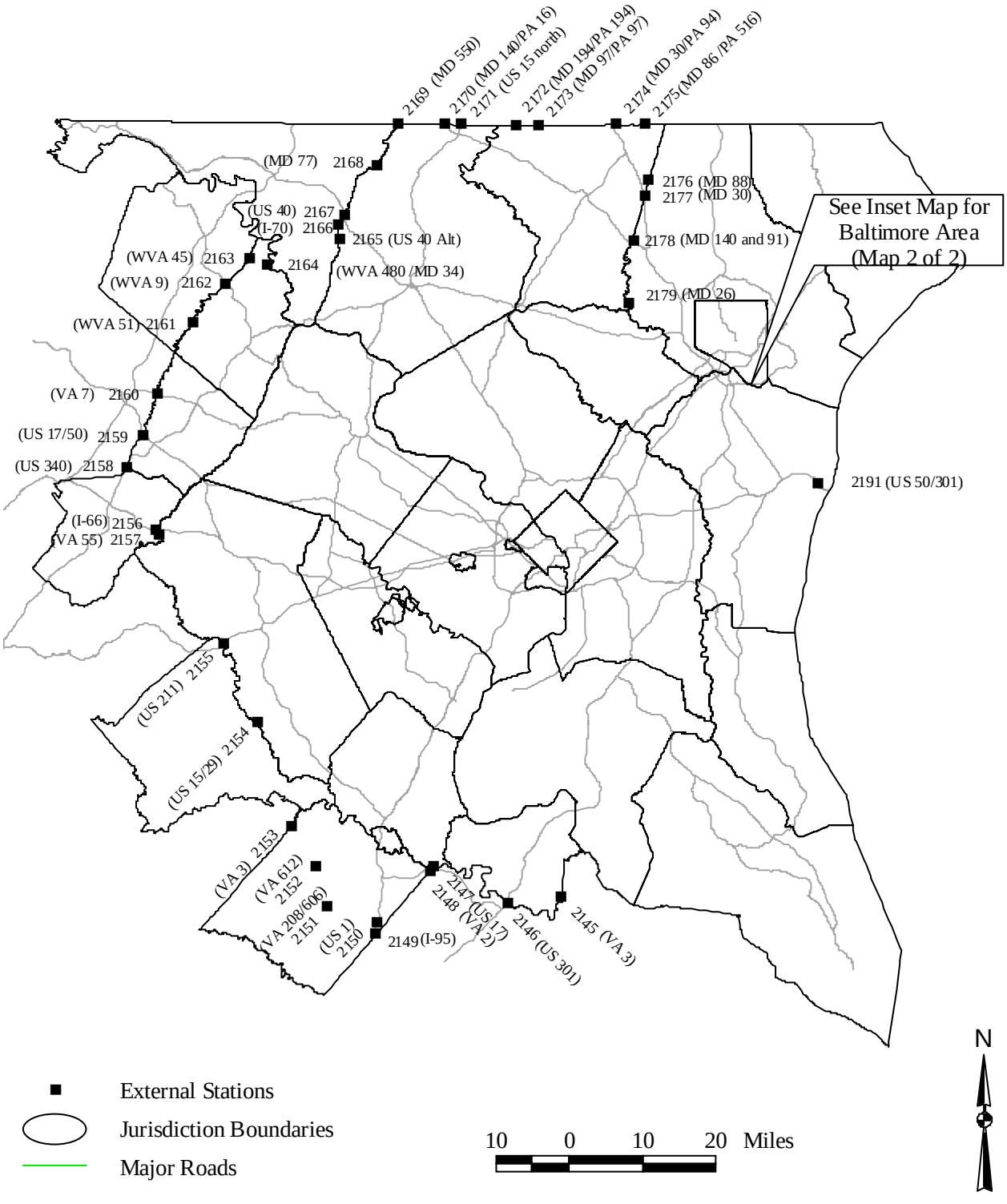
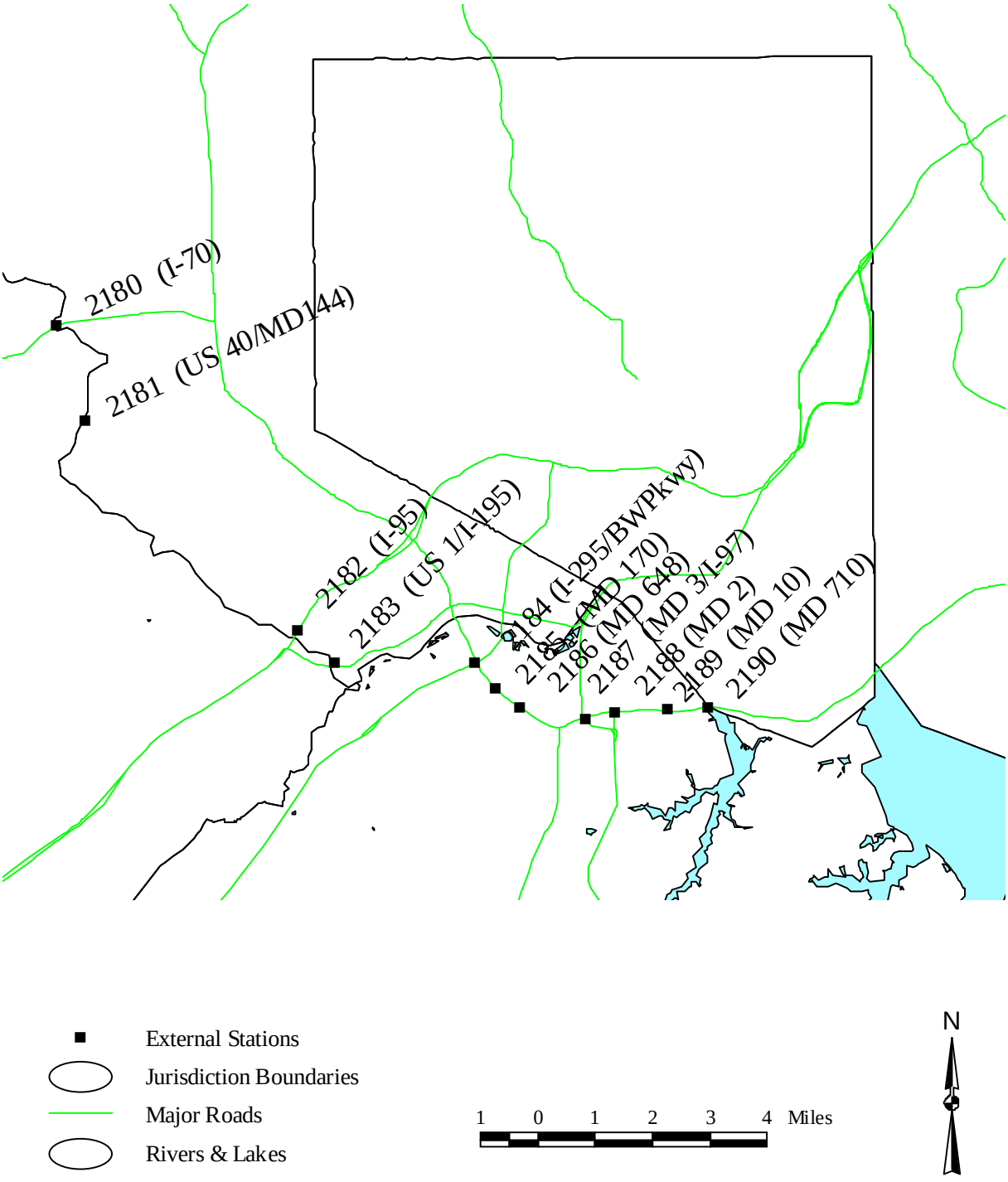


Exhibit 1-5 Location of External Stations in the Modeled Area
(Inset Map for Baltimore Area) Map 2 of 2



Ref: c9exh 1-5.xls

Exhibit 1-6 Node Ranges for the Modeled Area

I. Zone Centroids			
A. Zones	1	-	2191
II. Highway Nodes: General Use (Non-HOV) Facilities			
A. District of Columbia	8400	-	9999
B. Montgomery County	3000	-	3999
	15000	-	15299
C. Prince George's County	4000	-	4999
D. Arlington County	5000	-	5499
E. Alexandria	5500	-	5999
F. Fairfax County	6000	-	6385
	6500	-	6899
	10501	-	10900
G. Prince William County	6386	-	6499
	7000	-	7100
	10151	-	10200
	10401	-	10450
	16000	-	16199
H. Loudoun County	6900	-	6999
	7101	-	7299
	15600	-	15799
I. Frederick County	13200	-	13499
J. Carroll County	13500	-	13599
K. Howard County	13600	-	13799
L. Anne Arundel County	13000	-	13199
	13800	-	13999
M. Calvert County	14000	-	14099
N. Saint Mary's County	14100	-	14199
O. Charles County	14200	-	14399
P. King George County	14400	-	14499
Q. Stafford / City of Fredericksburg	14500	-	14699
R. Spotsylvania County	14700	-	14799
S. Fauquier County	14800	-	14899
T. Clarke County	14900	-	14949
U. Jefferson County	14950	-	14999

Ref: c9exh 1-6.xls

Exhibit 1-6: Node Ranges for the Modeled Area (continued)

III. Highway Nodes: HOV Facilities			
A. I-95 Fairfax Co., - Outside the Beltway	10000	-	10150
B. I-95 Stafford Co.	10201	-	10250
C. I-66 Fairfax Co., - Outside the Beltway	10251	-	10400
D. I-66 Fauquier Co.	10451	-	10500
E. I-267 Dulles Toll Road	10901	-	11550
F. I-95 Prince William Co.	11551	-	11650
G. US 50 (MD)	11651	-	11680
H. MD 4	11681	-	11694
I. US 50 (MD)	11695	-	11700
J. Maryland - HOV Alternatives	11701	-	11709
K. MD 210	11710	-	11753
L. Maryland ICC	11754	-	11835
M. Franconia-Springfield Parkway	11836	-	11843
N. Virginia - HOV Alternatives	11844	-	11884
O. US 1 (VA) Outside Beltway	11885	-	11893
P. Virginia - HOV Alternatives	11900	-	11999
Q. I-66 Inside the Beltway	12000	-	12099
R. District of Columbia - HOV Alternatives	12100	-	12200
S. I-395 Fairfax Co. - Inside the Beltway	12201	-	12300
T. I-395 Alexandria - Inside the Beltway	12301	-	12400
U. I-395 Arlington - Inside the Beltway	12401	-	12500
V. I-270 (MD)	12501	-	12700
W. I-495 Capital Beltway	12701	-	12882
X. US 1 (VA) Inside Beltway	12883	-	12899
Y. Maryland ICC	12900	-	12999
Z. Maryland ICC	15307	-	15449
AA. I-270 (MD)	15450	-	15475
AB. Maryland ICC	15476	-	15599
AC. Fairfax Parkway	15825	-	15860
AD. Maryland ICC	18500	-	18649
IV. Highway Nodes: Interchange Ramps			
A. Montgomery County	16500	-	16699
B. Prince George's County	16700	-	16899
C. Frederick County	16900	-	16999
D. Calvert County	17000	-	17099
E. Charles County	17100	-	17199
F. Alexandria	17200	-	17299
G. Arlington County	17300	-	17399
H. Fairfax County	17400	-	17599
I. Prince William County	17600	-	17799
J. Loudoun County	17800	-	17999
K. Stafford / City of Fredericksburg	18000	-	18199
L. District of Columbia	18200	-	18399

Ref: c9exh 1-6.xls

Exhibit 1-6: Node Ranges for the Modeled Area (continued)

V. Highway Nodes: Regional Variably Priced Lanes				
1. Capital Beltway (I-495/I-95) Inner Loop	23000			Hot-Toll Lanes
	23002			Hot-Toll Lanes
	23004			Hot-Toll Lanes
	23006	-	23093	Hot-Toll Lanes
1a. Capital Beltway (I-495/I-95) Outer Loop	23001			Hot-Toll Lanes
	23003			Hot-Toll Lanes
	23005			Hot-Toll Lanes
	23101	-	23196	Hot-Toll Lanes
2. I-270 (I-70 to Capital Beltway) South-bound	23300	-	23324	Toll Lanes
2a. I-270 (I-70 to Capital Beltway) North-bound	23350	-	23375	Toll Lanes
3. I-95 MD (Capital Beltway to Baltimore Beltway) South-bound	23400	-	23429	Toll Lanes
3a. I-95 MD (Capital Beltway to Baltimore Beltway) North-bound	23450	-	23473	Toll Lanes
4. US Route 50 (I-395 to Chesapeak Bay Bridge) East-bound	23500	-	23561	Toll Lanes
4a. US Route 50 (I-395 to Chesapeak Bay Bridge) East-bound	23580	-	23591	Parallel General Lanes
4b. US Route 50 (I-395 to Chesapeak Bay Bridge) West-bound	23600	-	23669	Toll Lanes
4c. US Route 50 (I-395 to Chesapeak Bay Bridge) West-bound	23669	-	23699	Parallel General Lanes
5. MD Route 5 (US 301 to MD Route 5 at I-495) North-bound	23700	-	23729	Toll Lanes
5a. MD Route 5 (US 301 to MD Route 5 at I-495) North-bound	23730	-	23749	Parallel General Lanes
5b. MD Route 5 (US 301 to MD Route 5 at I-495) South-bound	23750	-	23771	Toll Lanes
5c. MD Route 5 (US 301 to MD Route 5 at I-495) South-bound	23780	-	23799	Parallel General Lanes
6. Intercounty Connector (Entire Length)	12900	-	12999	Toll Facility
	15476	-	15599	Toll Facility
	18500	-	18649	Toll Facility
7. I-295/Anacostia Fwy./Kenilworth Ave/S. Capitol St. Bridge (Cap. Beltway to US 50) South-bound	23800	-	23824	Hot Lanes
7a. I-295/Anacostia Fwy./Kenilworth Ave/S. Capitol St. Bridge (Cap.Beltway to US 50) South-bound	23830	-	23849	Parallel General Lanes
7b. I-295/Anacostia Fwy./Kenilworth Ave/S. Capitol St. Bridge (Cap.Beltway to US 50) North-bound	23850	-	23874	Hot Lanes
7c. I-295/Anacostia Fwy./Kenilworth Ave/S. Capitol St. Bridge (Cap.Beltway to US 50) North-bound	23880	-	23899	Parallel General Lanes
8. I-95 (Caroline/Spotsylvania to Stafford/PW Line) North-bound	10202	-	10248	Hot Lanes (Even No's)
8a. I-95 (Caroline/Spotsylvania to Stafford/PW Line) South-bound	10201	-	10249	Hot Lanes (Odd No's)
9. I-395 (DC), 11th Street and Penn. Ave Bridge (14th St Bridge to I-295 and US Route 50) East-bound	29250	-	29270	Hot Lanes
9a. I-395 (DC), 11th Street and Penn. Ave Bridge (14th St Bridge to I-295 and US Route 50) East-bound	29350	-	29367	Parallel General Lanes
9b. I-395 (DC), 11th Street and Penn. Ave Bridge (14th St Bridge to I-295 and US Route 50) West-bound	29450	-	29471	Hot Lanes
9c. I-395 (DC), 11th Street and Penn. Ave Bridge (14th St Bridge to I-295 and US Route 50) West-bound	29550	-	29556	Parallel General Lanes
10. I-395 (Capital Beltway to 14th St Bridge) North-bound	29200	-	29249	Hot Lanes
10a. I-395 (Capital Beltway to 14th St Bridge) North-bound	29300	-	29349	Parallel General Lanes
10b. I-395 (Capital Beltway to 14th St Bridge) South-bound	29400	-	29449	Hot Lanes
10c. I-395 (Capital Beltway to 14th St Bridge) South-bound	29500	-	29549	Parallel General Lanes
11. MD Route 4 (US 301 to I-495) East-bound	23200	-	23225	Highway Nodes: Toll Lanes
11a. MD Route 4 (US 301 to I-495) East-bound	23230	-	23240	Parallel General Lanes
11b. MD Route 4 (US 301 to I-495) West-bound	23250	-	23271	Highway Nodes: Toll Lanes
11c. MD Route 4 (US 301 to I-495) West-bound	23280	-	23294	Parallel General Lanes
12. MD Route 210 (MD 228 to I-495) Southbound	24000	-	24031	Highway Nodes: Toll Lanes
12a. MD Route 210 (MD 228 to I-495) Southbound	24040	-	24047	Parallel General Lanes
12b. MD Route 210 (MD 228 to I-495) Northbound	24060	-	24091	Highway Nodes: Toll Lanes
12c. MD Route 210 (MD 228 to I-495) Northbound	24092	-	24094	Parallel General Lanes
13. US 301 (Nice Bridge to US50) South-bound	24100	-	24199	Highway Nodes: Toll Lanes
13a. US 301 (Nice Bridge to US50) South-bound	24200	-	24259	Parallel General Lanes
13b. US 301 (Nice Bridge to US50) North-bound	24300	-	24398	Highway Nodes: Toll Lanes
13c. US 301 (Nice Bridge to US50) North-bound	24400	-	24495	Parallel General Lanes

Exhibit 1-6: Node Ranges for the Modeled Area (continued)

V. Highway Nodes: Regional Variably Priced Lanes continued				
14. I-66 (Warren/Fauquier Line to TR Bridge) West-bound and (SE/SW Freeway, Maine Ave, Indep Ave, and Rock Creek Pkwy)	25000	-	25041	Hot Lanes
14a. I-66 (Warren/Fauquier Line to TR Bridge) West-bound and (SE/SW Freeway, Maine Ave, Indep Ave, and Rock Creek Pkwy)	25100	-	25115	Parallel General Lanes
14b. I-66 (Warren/Fauquier Line to TR Bridge) East-bound and (SE/SW Freeway, Maine Ave, Indep Ave, and Rock Creek Pkwy)	25200	-	25241	Hot Lanes
14c. I-66 (Warren/Fauquier Line to TR Bridge) East-bound and (SE/SW Freeway, Maine Ave, Indep Ave, and Rock Creek Pkwy)	25300	-	25350	Parallel General Lanes
15. Dulles Toll Road (VA Route 28 to I-66) West-bound	26000	-	26007	Hot Lanes
15a. Dulles Toll Road (VA Route 28 to I-66) West-bound	26100		26199	Parallel General Lanes
15b. Dulles Toll Road (VA Route 28 to I-66) East-bound	26200	-	26207	Hot Lanes
15c. Dulles Toll Road (VA Route 28 to I-66) East-bound	26300		26399	Parallel General Lanes
16. VA Route 28 (I-66 to VA Route 7) South-bound	27000	-	27047	Hot Lanes
16a. VA Route 28 (I-66 to VA Route 7) South-bound	27100	-	27137	Parallel General Lanes
16b. VA Route 28 (I-66 to VA Route 7) North-bound	27200	-	27248	Hot Lanes
16c. VA Route 28 (I-66 to VA Route 7) North-bound	27160	-	27162	Parallel General Lanes
17. VA Route 7 (Dulles Toll Road to US Route 15) West-bound	27300	-	27372	Hot Lanes
17a. VA Route 7 (Dulles Toll Road to US Route 15) West-bound	27400	-	27464	Parallel General Lanes
17b. VA Route 7 (Dulles Toll Road to US Route 15) West-bound	27500	-	27572	Hot Lanes
17c. VA Route 7 (Dulles Toll Road to US Route 15) West-bound	27600	-	27649	Parallel General Lanes
18. Fairfax County Parkway (VA Route 7 to I-66) South-bound	28100	-	28154	Hot Lanes
18a. Fairfax County Parkway (VA Route 7 to I-66) South-bound	28200	-	28233	Parallel General Lanes
18b. Fairfax County Parkway (VA Route 7 to I-66) North-bound	28300	-	28353	Hot Lanes
18c. Fairfax County Parkway (VA Route 7 to I-66) North-bound	28400	-	28440	Parallel General Lanes
19. Fran/Sprfield Pkwy (Sydenstricker Rd to Frontier Dr.) W-bound	28170	-	28192	Hot Lanes
19a. Fran/Sprfield Pkwy (Sydenstricker Rd to Frontier Dr.) W-bound	28250	-	28262	Parallel General Lanes
19b. Fran/Sprfield Pkwy (Sydenstricker Rd to Frontier Dr.) E-bound	28370	-	28392	Hot Lanes
19c. Fran/Sprfield Pkwy (Sydenstricker Rd to Frontier Dr.) E-bound	28460	-	28473	Parallel General Lanes
20. Braddock Road (Burke Lake Road to I-95) West-bound	29000	-	29009	Hot Lanes
20a. Braddock Road (Burke Lake Road to I-95) West-bound	29050	-	29059	Parallel General Lanes
20b. Braddock Road (Burke Lake Road to I-95) East-bound	29100	-	29109	Hot Lanes
20c. Braddock Road (Burke Lake Road to I-95) East-bound	29150	-	29155	Parallel General Lanes
Bridges	**A-Node**	-	**B-Node**	
21. Chain Bridge	9074	-	9238	Hot Lanes
22. Key Bridge	9000	-	9338	Hot Lanes
23. Memorial Bridge	8692	-	9327	Hot Lanes
24. East Capitol St. Bridge (Whitney Young Memorial Bridge)	9376	-	9631	Hot Lanes
25. Benning Road Bridge	9380	-	9677	Hot Lanes
26. South Capitol St. Bridge (Frederick Douglass Bridge) W-bound	23873	-	23874	Hot Lanes
26a. South Capitol St. Bridge (Frederick Douglass Bridge) W-bound	23881	-	23882	Parallel General Lanes
26b. South Capitol St. Bridge (Frederick Douglass Bridge) E-bound	23824	-	23823	Hot Lanes
26c. South Capitol St. Bridge (Frederick Douglass Bridge) E-bound	9782	-	9844	Parallel General Lanes
27. Pennsylvania Ave. Bridge (John Phillip Sousa Bridge W-bound	29471	-	29470	Hot Lanes
27a. Pennsylvania Ave. Bridge (John Phillip Sousa Bridge W-bound	9372	-	18255	Parallel General Lanes
27b. Pennsylvania Ave. Bridge (John Phillip Sousa Bridge E-bound	29269	-	29270	Hot Lanes
27c. Pennsylvania Ave. Bridge (John Phillip Sousa Bridge E-bound	29365	-	29367	Parallel General Lanes

Ref: c9exh 1-6.xls

Exhibit 1-6: Node Ranges for the Modeled Area (continued)

VI. Transit Nodes: Metrorail			
A. Stations	7301	-	7417
B. Reserved for Future Stations	7418	-	7449
	7470	-	7479
C. Parking Lots	7450	-	7469
	7500	-	7599
D. Reserved for Future Parking Lots	7480	-	7499
VII. Transit Nodes: Commuter Rail			
A. Stations	7600	-	7655
	7700	-	7739
B. Reserved for Future Stations	7740	-	7759
C. Parking Lots	7800	-	7855
	7900	-	7939
D. Reserved for Future Parking Lots	7760	-	7799
VIII. Transit Nodes: Light Rail			
A. Stations	7656	-	7699
B. Reserved Future Light Rail stations	20000	-	21500
C. Parking Lots	7856	-	7873
	8271	-	8298
D. Reserved for Future Parking Lots	7874	-	7899
IX. Transit Nodes: Bus Park-and-Ride Lots			
A. DC / MD	8000	-	8050
	8100	-	8113
B. Reserved for Future Parking Lots	8051	-	8099
	8114	-	8199
C. VA / WVA (Includes 17 MD lots)	8200	-	8298
D. Reserved for Future Parking Lots	8299	-	8399

Ref: c9exh 1-6.xls

Chapter 2 Project Elements in the 2008 Constrained Long-Range Transportation Plan (CLRP)

The Transportation Improvement Program (TIP) is a 6-year financial program that describes the schedule for obligating federal funds to state and local projects. The TIP contains funding information for all modes of transportation including highways and HOV as well as transit capital and operating costs. While estimated completion dates are given for projects in the plan, it should be noted that the TIP is not a Capital Improvement Program. The TIP represents an implementing agency's intent to construct or implement a specific project and the anticipated flow of federal funds and matching state or local contributions.

The first year of the TIP is called the Annual Element. Projects that have funds programmed in the Annual Element are eligible to receive federal funding in that fiscal year. State, regional and local transportation agencies update the program each year to reflect priority projects in the CLRP. The current TIP represents fiscal years 2009 to 2014. The CLRP must be updated at least once every four years. The practice has been to update the CLRP annually, since the TIP is being updated annually, and the TIP is a subset of the CLRP.

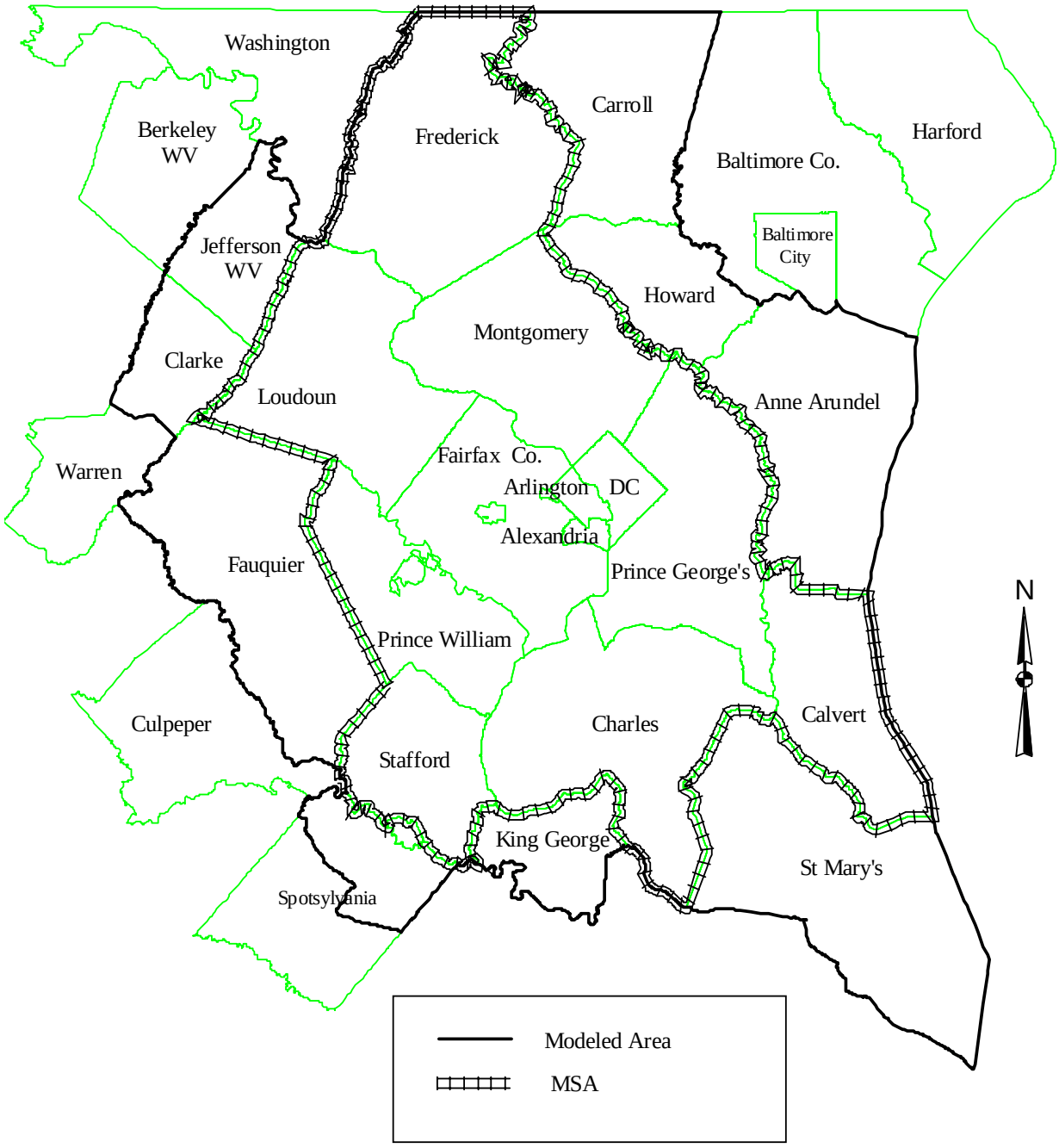
The Constrained Long-Range Transportation Plan (CLRP) is the long-term plan for transportation in the Washington metropolitan region. The plan is financially constrained to include only those projects that can be funded by revenues that are "reasonably expected to be available" as required by federal law and regulations. The 2008 CLRP identifies all regionally significant transportation projects and programs that are planned in the Washington metropolitan area between 2009 and 2030. Over 750 projects are included, ranging from simple highway landscaping to billion-dollar highway and transit projects. Some of the projects will be completed in the near future, while others are only in the initial planning stage.

The 2008 CLRP and FY2009-2014 TIP (http://www.mwcog.org/clrp/projects/tip/fy0813.asp) were approved by the TPB on November 19, 2008. Technical network development activities for the CLRP and TIP included the preparation of transportation networks for specified forecast years associated with the plan and program (base year 2002 and forecast years: 2009, 2010, 2020 and 2030). This chapter details significant changes and additions to the 2007 CLRP that informed the 2008 Constrained Long-Range Transportation Plan (CLRP).

Geographic areas that are analyzed as a part of air quality conformity assessment are presented in Exhibit 2-1. The map delineates the current COG/TPB modeled area, as well as the non-attainment or MSA area. To enable better simulation results within Montgomery and Prince George's Counties, members of the Baltimore Metropolitan Council (BMC) planning region, Carroll, Howard, and Anne Arundel counties are included within the COG/TPB modeled area.

Transportation projects were included for these areas, provided through the coordination efforts within the Maryland Department of Transportation (MDOT) and the BMC. These counties are included in the travel demand at non-attainment level, but emissions from counties outside the non-attainment area boundary are excluded.

Exhibit 2-1 COG/TPB Modeled Area



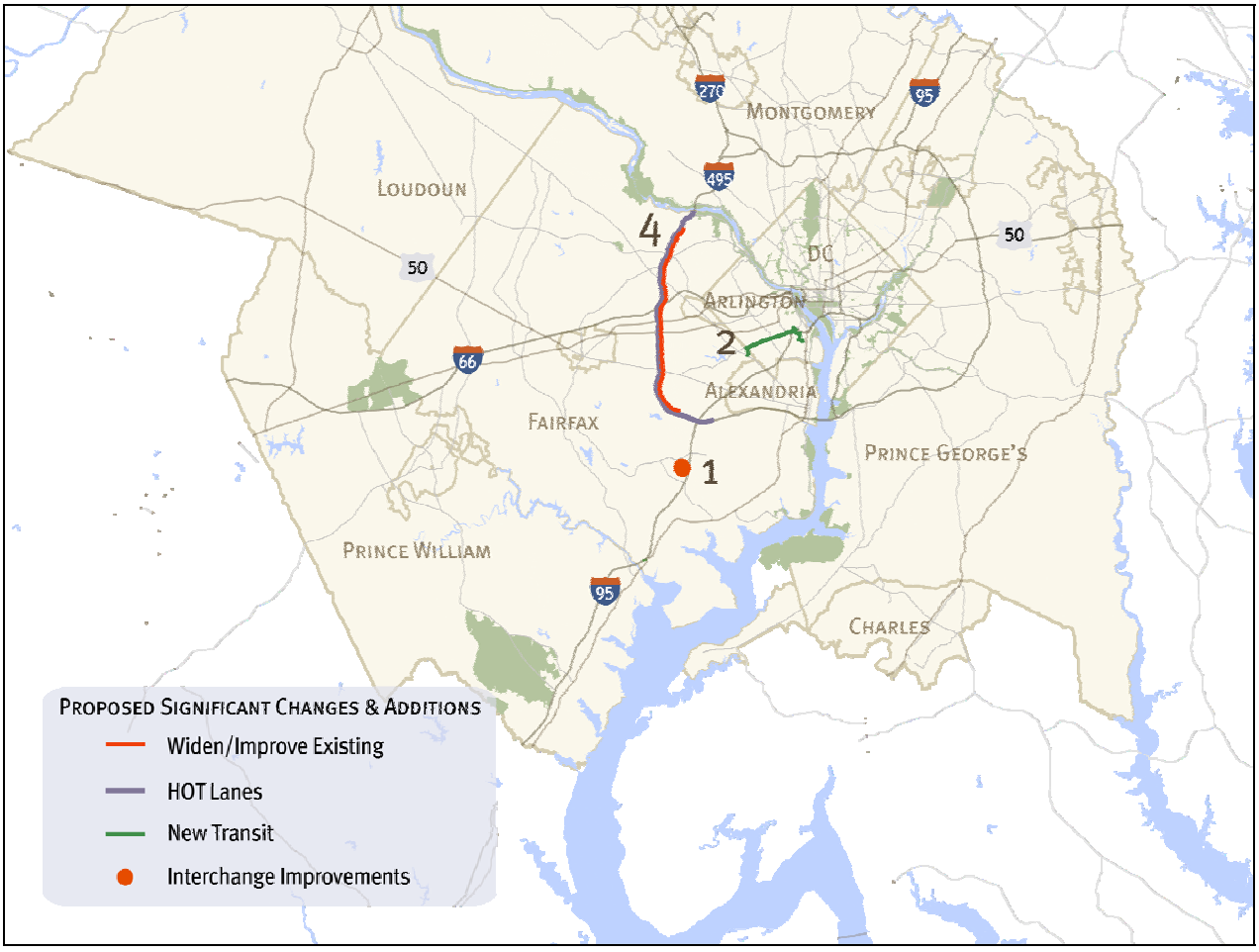
2.1 *Significant Updates to the 2008 CLRP*

There have been a number of new projects and changes advanced for the 2008 CLRP / FY 2009-2014 TIP. Exhibit 2-2 shows the locations of significant additions and changes proposed for the 2008 CLRP.

2.1.1 Significant Additions to the 2008 CLRP

1. Access to Ft. Belvoir Engineer Proving Ground (EPG): I-95 and Fairfax County Parkway (BRAC)
2. Columbia Pike Streetcar from Skyline to Pentagon City
3. Fairfax Connector Service Transit Development Plan (Not shown on map)

Exhibit 2-2 Significant Additions and Changes to the 2008 CLRP/ FY 2009-2014 TIP



Source: Long-Range Transportation Plan, 2008 Update, TPB, as adopted November 19, 2008

1. Access to Ft. Belvoir Engineering Proving Grounds (EPG): I-95 and Fairfax County Parkway (BRAC)

Two projects have been proposed to meet expected demand at the Fort Belvoir EPG due to the Base Realignment and Closures (BRAC) act.

A. I-95 Access to Fort Belvoir includes the following improvements:

- Widen the existing ramp from southbound I-95 to the Fairfax County Parkway and EPG southern loop road with an additional barrier-separated lane, providing dedicated access to the EPG for DOD personnel only.
- A new reversible, single-lane approach bridge from the northbound HOV/Bus/HOT lanes to the EPG's southern loop road. This connection will provide access from the northbound I-95 HOV lanes in the morning. In the evening, access will reverse to the northbound I-95 general purpose lanes and the southbound HOV lanes.

Complete: 2011, 2013
Cost: $28.8 million
Source: Federal funding

B. Fairfax County Parkway Access to Fort Belvoir

- A one-lane ramp from the EPG Access Road to northbound Fairfax County Parkway and a two-lane ramp from the Access Road to southbound Fairfax County Parkway. The proposed ramps will connect to the proposed interchange at Rolling Road, which is already included in the CLRP.

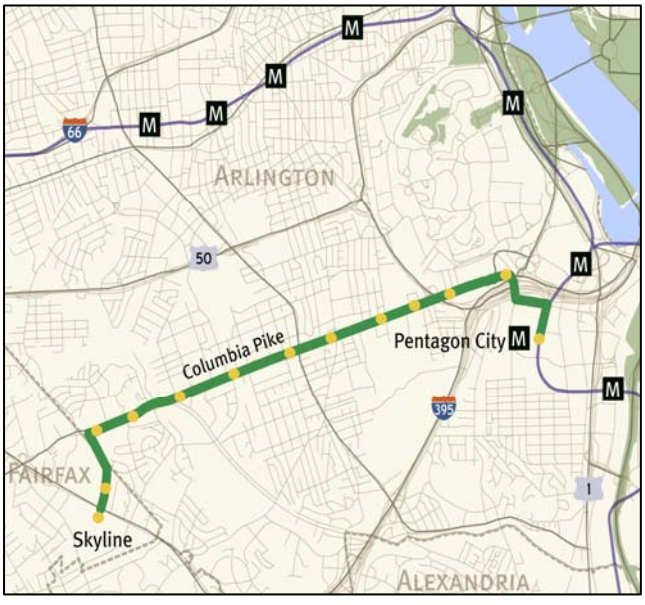
Complete: 2011
Cost: $6.8 million
Source: Federal funding

2. Columbia Pike Streetcar From Skyline to Pentagon City

Design, construct and operate a streetcar system running approximately 4.7 miles between Pentagon City in Arlington County and Skyline in Fairfax County. For most of the route, streetcars will travel in mixed traffic (Exhibit 2-3) .

Length: 4.7 miles
Complete: 2016
Cost: $138.5 million
Source: State and local funding

Exhibit 2-3 Columbia Pike Streetcar Project



Source: Long-Range Transportation Plan, 2008 Update, TPB, as adopted November 19, 2008

3. Fairfax Connector Service Transit Development Plan

Not shown on map.

Increase bus service on priority routes and purchase 35 new Fairfax Connector buses. Expand the West Ox Bus Operations Facility to accommodate new buses and increased service. Also includes bus stop access and safety improvements identified as part of the Bus Stop Inventory and Safety Study.

Complete: 2011
Cost: $91.9
Source: Local funding

2.1.2 Significant Changes to the 2008 CLRP

The following projects are included in the 2007 CLRP, but significant changes have been proposed for the 2008 CLRP.

1. I-495 Capital Beltway HOV-HOT Lanes
2. I-95/395 HOV-HOT-Bus Lanes Transit Plan Revisions (Not shown on map)

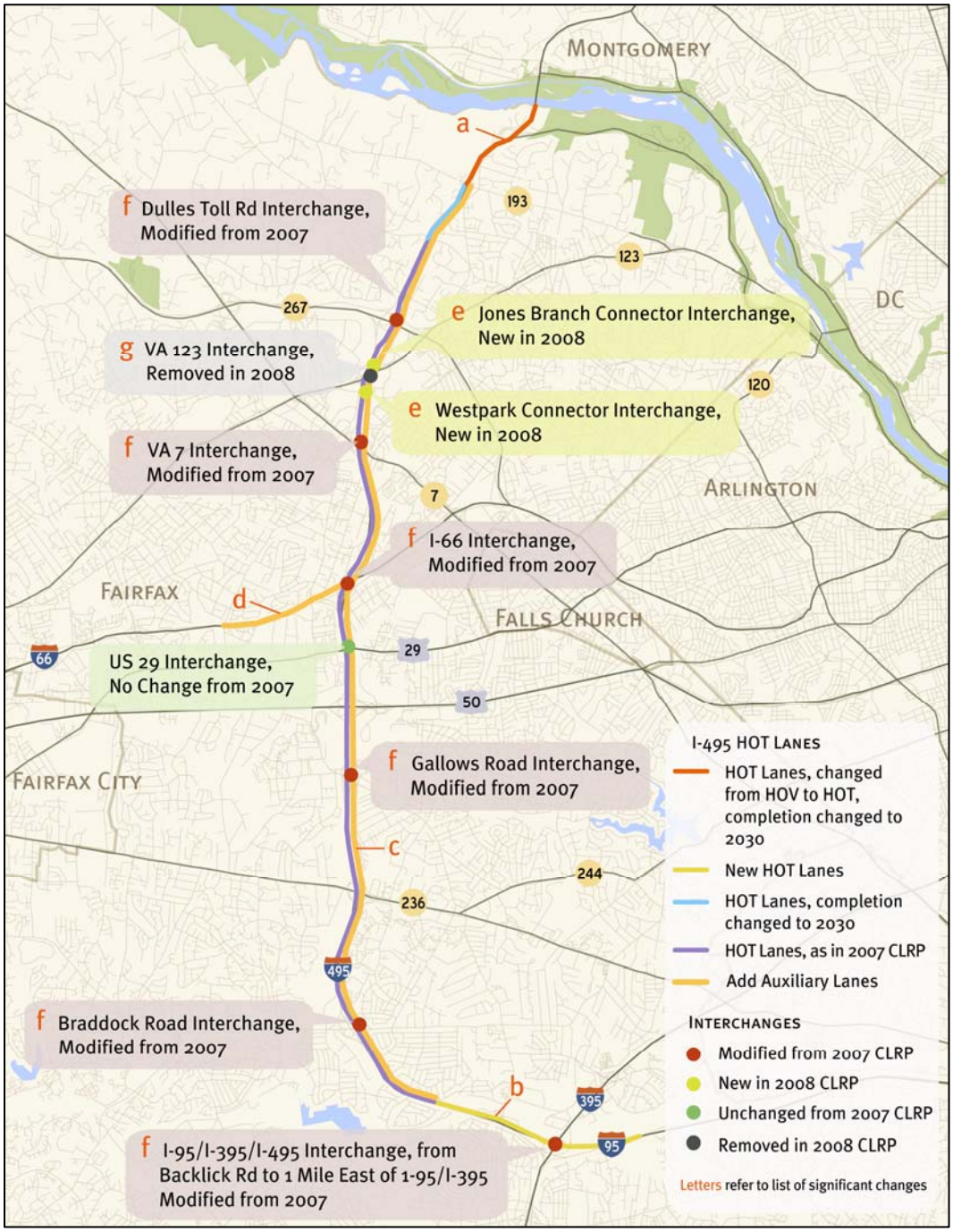
1. I-495 Capital Beltway HOV-HOT Lanes

The 14 mile stretch of HOV-HOT Lanes on the Capital Beltway between Backlick Road and Old Dominion Drive is scheduled to be complete in 2013. The following changes have been proposed for the Capital Beltway HOT-HOV Lanes Project, as shown in Exhibit 2-4 :

a) The northern terminus of the HOT lanes will extend 2 lanes from Georgetown Pike to the American Legion Bridge. These were previously planned as HOV lanes to be complete in 2015 and are now proposed as HOT lanes to be complete in 2030.
   A 4 lane stretch of HOT lanes from Georgetown Pike (193) to Old Dominion Drive will be complete in 2030 instead of 2013.
b) The southern terminus of the HOT lanes has been extended to include 2 HOT lanes from the Hemming Avenue underpass to one mile east of the I-95/395/495 Interchange. This segment is scheduled to be completed by 2013.
c) One additional general purpose auxiliary lane from Georgetown Pike to the Hemming Avenue underpass will be added in each direction to connect the on-ramps and off-ramps between interchanges.
d) Auxiliary lanes will be added on eastbound and westbound I-66 between the I-495 interchange and Cedar Lane (see accompanying CLRP description Form for details).
e) Two new interchanges are planned at the westbound Jones Branch Connector and the westbound WestPark Connector.
f) Planned HOT lane interchanges at the Dulles toll Road, VA 7, I-66, Gallows Road, Braddock Road and I-95/395 will be modified (see accompanying CLRP Description Form for details).
g) A planned HOT lane interchange at VA 123 is being removed from the project scope.

Length:	14 miles
Complete:	2013, 2030
Cost:	$1.619 billion
Source:	Federal, state, private and bond funding

Exhibit 2-4 Proposed changes to the I-495 Capital Beltway HOV-HOT Lanes Project for the 2008 CLRP



Source: Long-Range Transportation Plan, 2008 Update, TPB, as adopted November 19, 2008

1. I-95/395 HOV-HOT-Bus Lanes Transit Plan Revisions

Not shown on map.

The Transit Plan for the I-95/395 HOT Lanes project has been revised to reflect the results of the Transit/Transportation Demand Management (TDM) Study conducted by the Virginia Department of Rail and Public transportation (DRPT) and the Technical Advisory Committee. The following significant changes have been proposed for the Transit Plan.

- The Transit/TDM plan's cost and revenue estimates have been revised to reflect the revised transit investment strategy for the corridor.
  - Earlier capital investments of $76 million revised to $152 million to reflect increased investment into transit facilities
  - Earlier operating expenses of $314 million revised to $245 million to reflect revised service plan, service duration and fare box recovery

- Greater level of improvement/investment into transit facilities.
  - 3 new transit stations along the corridor
  - Improvements at 4 VRE stations – platform extension and overnight storage
  - 9 new or enhanced TDM initiatives
  - 3,750 park and ride spaces in addition to the 3,000 proposed earlier
  - 3 new/improved transit centers instead of 1 bus maintenance facility
  - 76 new buses and 6 VRE rail cars instead of 184 new buses

2.2 *General Use Highway Facilities*

TPB highway networks include all regionally significant roads, i.e., all freeways, interstates, expressways, parkways, all arterials, most collectors, and some local roads. Projects identified in the CLRP and TIP that do not involve changes in capacity (e.g., highway rehabilitation, bridge reconstruction) or are not regionally significant (e.g., intersection improvements, improvements to a facility which is not contained in the regional networks) are not coded into regional networks.

Transportation networks for years 2002, 2009, 2010, 2020, and 2030 were developed. A sample of major highway improvements included in the networks representing the 2008 CLRP and the FY 2009-2014 TIP are presented in Exhibits 2-5 and 2-6. The first section of the Major Highway Improvements exhibit lists projects contained in the year 2002 network. For example, construction of the VA 234 (Manassas Bypass), widening of the Dulles Greenway (Westbound lanes), and sections of the Fairfax County Parkway were completed. Highway networks for 2009 include the Woodrow Wilson Bridge project, a new interchange and widening of the Capital Beltway at Arena Drive, and reconstruction of the I-95/395/495 interchange. Major highway improvements programmed for completion beyond those in the 2002 and 2009 networks are also listed.

The majority of major highway projects are slated for completion between the years 2010 and 2020. One significant highway project slated for completion in 2010 is the addition of HOT

lanes in the I-395 and I-95 corridors from Eads Street to VA 610 (Garrisonville Road) in Stafford County. Also in networks for 2010, VA 28 (Sully Road) from I-66 to VA 7 (Harry Byrd Highway) is widened to 8 lanes and upgraded to freeway standards.

Networks for 2020 add the following projects in Maryland: the Intercounty Connector and widening of I-70, MD 2/4 (Solomons Island Road), MD 3 (Robert Crain Hwy, MD 4 (Pennsylvania) Ave, US 301 (Crain Hwy) and construction of C-D roads on I-95 near the relocated Contee Road. Projects in Virginia include the construction of south and north bound Auxiliary lanes on sections of I-495 (Capital Beltway VA) from Hemming Avenue to Route 193. A complete list of highway projects that were modeled in the analysis of the 2008 CLRP and the FY 2009-2014 TIP is presented in Appendix A.

Exhibit 2-5 Highway Improvements in the 2008 CLRP and FY2009-2014 TIP

Network	Facility/Service	Improv.	From	To	Facil. Type	Lanes	Comp Year
2002							
	Dulles Greenway Eastbound	(Completed)	VA 772 (Exit 6)	VA 28	1	5	2000
	Middlebrook Road	(Completed)	Great Seneca Highway	I-270	2	6	2000
	MD 228 (Berry Road)	(Completed)	W. of Mattawoman Creek	MD 210 (Indian Head Hwy.)	2	4	2000
	VA 234 (Manassas Bypass)	(Completed)	VA 28	VA 234/649 S. of Manassas	5	4	2001
	Dulles Greenway Westbound	(Completed)	VA 28	VA 772 (Exit 6)	1	6	2001
	VA 7100 (Fairfax County Parkway)	(Completed)	VA 606 (Baron Cameron Avenue)	VA 7 (Leesburg Pike)	5	4	2001
	VA 7100 (Fairfax County Parkway)	(Completed)	VA 675 (Sunset Hills Road)	VA 606 (Baron Cameron Avenue)	5	6	2001
	VA 7100 (Fairfax County Parkway)	(Completed)	VA 620 (Braddock Rd)	US 29/VA 608 (West Ox Rd)	5	5	2001
	VA 7 (Harry Byrd Highway)	(Completed)	VA 28	Algonkian Parkway	1	6	2002
2009	**Same as 2002, plus:**						
	I-95/I-495 (Capital Beltway)	(Completed)	Interchange at Ritchie Marlboro Road		1	8	2003
	US 50 (John Hanson Highway)	(Completed)	Columbia Park Road		1	3	2003
	VA 267 (Dulles Toll Road) Ramps	(Completed)	I-495 Interchange		1	-	2004
	I-95 interchange	(Completed)	at VA 627		1	-	2004
	I-270 (West Spur) Reconstr/Constr.	(Completed)	Interchanges at Democracy Blvd and Westlake Terrace		1	6	2004
	I-270 (East Spur) Reconstr/Constr.	(Completed)	Rockledge Dr. Connector and MD 187		1	6	2004
	Dulles Greenway Interchanges	Construct	VA 653 &Battlefield Pkwy.		1	-	2005
	MD 27 (Ridge Road)	Widen	MD 355 (Rockville Pike)	A-305	2	6	2006
	MD 5 Relocated at Hughesville	Construct	End of divided highway south of Hughesville	End of divided highway north of Hughesville	5	4	2007
	I-95/I-495 Woodrow Wilson Bridge	Widen	MD 210 Interchange	US 1	1	12	2008
	I-95/I-495/Arena Drive Interchange	Construct	MD 214	MD 202	1	8+2	2009
	I-95/I-495 (Capital Beltway)	Construct	Branch Avenue Metro Access		1	8	2009
2010	**Same as 2009, plus:**						
	I-95 (provide 4th lane)	Widen	Newington	VA 123	1	8	2011
	I-395/I-95 HOT Lanes	Widen/Constr	Eads St.	VA 234	1	3	2010
	I-95 HOT Lanes	Construct	VA 234	VA 610 Stafford Co.	1	2-1	2010
	I-66 (HOV during AM peak 5 lanes EB)	Widen	US 29 (Gainesville)	VA 234 (Prince William Pkwy.)	1	8	2010
	Dulles Airport Access Road	Widen	Dulles Airport	VA 123	1	6	2010
	I-70 - Phases 2B,2C, 2D, 3, 4, & East Street Extension.	Widen	Mount Phillip Road	MD 144FA	1	6	2020
	MD 2/4 at Lusby Southern Connector Road	Construct	MD 765	MD 2/4 at Lusby	2	3	2010
	VA 28 PPTA (Phase II)	Widen/Upgrd	I-66	VA 7	1	8	2010

Ref: C9Exh2-5.xls

Exhibit 2-5 Highway Improvements in the 2008 CLRP and FY2009-2014 TIP (continued)

Network	Facility/Service	Improv.	From	To	Type	Lanes	Year
2020	**Same as 2010, plus:**						
	I-95 (Wilson Bridge)	Widen	VA 241 (Telegraph Rd.)	US 1	1	12	2011
	VA 234 (Dumfries Road)	Widen	I-95	US 1	5	6	2011
	US 29 (Lee Highway)	Widen	VA 898 (Old Centreville Road)	WCL of Fairfax Co.	2	6	2011
	VA 7100 (Fairfax County Parkway)	Construct	VA 4600 (Fullerton Road)	VA 7900 (Franconia-Springfield Parkway)	1	6	2011
	VA 234 (Manassas Bypass)	Construct	I-66	Loudoun County Line	1	6	2012
	Intercounty Connector	Construct	I-270	I-95 / US 1	1	6	2012
	I-495 HOT Lanes	Construct	I-395	S. of VA 193 (Georgetown Pike)	1	8+4	2013
	I-495 HOT Lanes Interchange	Construct	Provides SB to WB, SB to EB, EB to SB, & NB to WB HOV to HOT or HOT to HOV	at VA 267 (Dulles Toll Road)	1	-	2013
	I-495 HOT Lanes Interchange	Construct	All movements	at VA 123 (Chain Bridge Road)	1	-	2013
	I-495 HOT Lanes Interchange	Construct	Provides SB to WB, WB to SB, EB to SB, NB to WB, & EB to NB HOV to HOT	at I-66 HOV LanesVA 267 (Dulles Toll Road)	1	-	2013
	I-495 HOT Lanes Interchange	Construct	HOT movements to and from South Only	at VA 29 (Lee Highway)	1	-	2013
	I-495 HOT Lanes Interchange	Construct	All movements	at VA 620 (Braddock Road)	1	-	2013
	I-66 Interchange	Reconstruct	@ I-495 (Capital Beltway)		1	0	2013
	VA 3000 (Prince William Pkwy.)	Widen	VA 776 (Liberia Road)	VA 640 (Minnieville Rd.)	2	6	2013
	US 29 (Lee Highway)	Widen	Virginia Oaks Drive	I-66	5	6	2014
	M-83 (Midcounty Hwy) Extended	Construct	MD 27 (Ridge Road)	Middlebrook Road	2	4-6	2015
	VA 7 Bypass	Widen	VA 7 West	VA 7/US 15 East	1	6	2015
	VA 7 (New Interchanges)	Upgrade	VA 7/15 (Leesburg Bypass)	VA 28	1	6	2015
	US 50 (Arlington Blvd.)	Reconstruct	ARL/FFX Line	Washington Blvd.	2	6	2015
	US 50 (Arlington Blvd.)	Reconstruct	Pershing Dr.	Ft. Myer Dr.	2	6	2015
	VA 7100 (Fairfax County Parkway)	Widen	I-66	VA 123 (Ox Road)	5	6	2015
	VA 7900 (Franconia/Springfield Pkwy.)	Upgrade	VA 638 (Rolling Road)	VA 617 (Backlick Road)	1	6+2	2020
	VA 7900 (Franconia/Springfield Pkwy.)	Construct	Interchange at Neuman Street		1	1	2020
	I-95 (Collector/Distributor Roads)	Construct	Contee Road Relocated		1	8+4	2020
	US 29, Columbia Pike	Upgrade	Sligo Creek Parkway	South of MD 193	5	6	2020
	US 29, Columbia Pike	Upgrade	North of MD 193	South of MD 650	5	6	2020
	US 29, Columbia Pike	Upgrade	North of MD 650	Howard County Line	5	6	2020
	M-83 (Midcounty Highway Ext.)	Construct	Middlebrook Road	Montgomery Village Ave.	2	4-6	2020
	VA 234 (Manassas Bypass)	Widen/Upgrd	VA 234 S. of Manassas	I-66	1	6	2020
	I-270 (Interchange)	Construct	At Watkins Mill Road Extended		1	8+2	2020
	MD 28 (Norbeck Rd) / MD 198	Construct	MD 97	I-95	2	4-6	2020
	MD 4 (Pennsylvania Ave.)	Widen	MD 223	I-95/I-495	1	6	2020
	MD 450 Annapolis Road	Widen	Stonybrook Drive	West of MD 3	2	4	2020
	MD 3 (Robert Crain Highway)	Construct	US 50	Anne Arundel Co. Line	2	6	2020
	US 301 (Crain Highway)	Widen	North of Mount Oak Road	US 50	5	6+2	2020
2030	**Same as 2020, plus:**						
	VA 28 (Centreville Rd.)	Widen	N.City Limits of Manassas Pk.	Old Centreville Road	2	6	2025
	I-66 EB Auxiliary Lanes	Widen	South of Gallows Rd	Off Ramp I-495 SB	1	3+1+2	2030
	I-66 WB Auxiliary Lanes	Widen	On Ramp from SB I-495	South of Gallows Rd	1	3+1+2	2030
	I-66 EB Auxiliary Lanes	Widen	Cedar Lane	South of Gallows Rd	1	3+1+2	2030
	I-66 WB Auxiliary Lanes	Widen	South of Gallows Rd	Cedar Lane	1	3+1+2	2030
	US. 1 (Jefferson Davis Hwy.)	Widen	US 17 (Business)	Princess Anne Street	2	6	2030
	MD 210 Indian Head Highway	Upgrade	MD 228	I-495 (Capital Beltway)	5	6	2030
	MD 5 (Branch Avenue)	Upgrd/Widen	US 301	North of Capital Beltway	5	6	2030
	US 29 (Columbia Pike)	Widen	I-70	MD 100	5	8	2030
	MD 32	Widen	I-70	Carroll County	2	4	2030

Ref: C9Exh2-6.xls

2.3 *HOV/HOT/TOLL Facilities*

Existing and planned HOV and HOT lane facilities are discussed in this section and presented in Exhibit 2-6. Base year networks for 2002 include peak period HOV operations on I-95/I-395 from Quantico Creek (Prince William County) to the Potomac River (exclusive right-of-way 3+ minimum occupancy requirement). HOV lanes on I-66 from Route 234 to the Potomac River operate as combination diamond lanes and exclusive right-of-way with 2+ minimum occupancy requirements. Diamond HOV lane operations also existed on I-270 from MD 121 to the Capital Beltway, and on the Dulles Toll Road (VA267) from VA 28 to the Capital Beltway, both requiring a 2+ minimum occupancy.

HOV facilities in the 2009 network include 2002 base HOV plus diamond lane operations on US 50 in Maryland from US 301 to the Capital Beltway and on I-66 from VA 234 (Prince William Parkway) to VA 234 Business (Sudley Road).

The 2010 Network include an extension of HOV lanes on I-66 from VA 234 (Prince William Parkway) to US 29 (Gainesville) and on VA 7100 (Fairfax Parkway) and VA 7900 (Franconia-Springfield Parkway). Existing HOV lanes on I-395 and I-95 are re-striped and reconstructed to a three lane capacity, and converted to HOT lane operations. HOT lanes are also constructed on I-95 between VA Route 234 in Prince William County to VA Route 610 Garrisonville Road in Stafford County. It is important to note that the minimum occupancy requirement for all future HOV facilities will be 3+ beginning in 2010.

In the 2020 network the expansion of HOV and HOT lane facilities continues with the construction of HOT lanes on I-495 (Capital Beltway) from I-395/I-95 to Old Dominion Drive, to be completed in 2013. The northern terminus of the HOT lanes will extend 2 lanes from Georgetown Pike to the American Legion Bridge. These were previously planned as HOV lanes to be complete in 2015 and are now proposed as HOT lanes to be complete in 2030. Networks for 2020 also add HOV lanes on I-270 and I-66.

The 2008 CLRP includes the construction of HOT lane interchange improvements in Virginia that are added to 2030 network. These improvements facilitate HOT/HOV/Transit movements on I-495 (Capital Beltway) at the VA 267 (Dulles Toll Road) and VA 620 (Braddock Road) interchanges.

Exhibit 2-6 HOV/HOT/Toll Facilities

Network	Facility	Improvement	Limits	Requirements	Comp Year
2002					
	I-95/I-395	Base	Potomac River to Springfield, VA	3+	NA
	I-95 VA	Construct	Springfield to Quantico Creek	3+	NA
	I-66	Base	Inside Beltway	2+	NA
	I-66	Construct	I-495 to US 50	2+	NA
	I-66	Construct	US 50 to VA 234	2+	NA
	I-270	Construct	Eastern Spur	2+	NA
	I-270	Construct	I-370 to MD 121	2+	NA
	I-270	Construct	Western Spur	2+	NA
	US 1 VA	Base	Wilkes Street to Vernon Street	2+	NA
	Dulles Toll Road	Construct	VA 28 to I-495	2+	NA
2009	**Same as 2002, plus the following:**				
	US 50 (Maryland)	Construct	E. of US 301 / MD 3 to E. of I-95/I-495	2+	Completed
	I-66	Construct	VA 234 (Sudley Rd.) to VA 234 (PW.Pkwy.)	3+	Completed
2010	**Same as 2009 (except, all HOV facilities were tested as HOV 3+) Plus:**				
	I-66	Construct	US 29 (Gainesville) to VA 234 (PW Parkway)	3+	2010
	I-395/I-95	Widen/Constr.	Eads St. to VA 234 (HOV3/ HOT/Bus Lanes)	3+	2010
	I-95 VA	Construct	VA 234 to VA 610 Stafford Co. (HOV3/ HOT/Bus Lanes)	3+	2010
	I-95 (Woodrow Wilson Bridge)	Construct	US 1 (VA) to MD 210	3+	2009
	VA 7100 (Fairfax County Pkwy.)	Upgrd/Widen	US 50 to I-66	3+	2010
	VA 7900 (Fran./Sprfld. Pkwy.)	Construct	Fairfax County Pkwy. to Frontier Drive	3+	2010
2020	**Same as 2010 Plus:**				
	I-95 (Woodrow Wilson Bridge)	Construct	VA 241 (Telegraph Rd) to US 1 (VA)	3+	2011
	I-495 (Capital Beltway) VA	Construct	I-395/I-95 to S. of Old Dominion Drive (HOV3/HOT/Bus)	3+	2013
	I-66	Construct	US 15 to US 29 (Gainesville)	3+	2015
	VA 7100 (Fairfax County Pkwy.)	Convert	VA 267 (Dulles Toll Rd.) to Sunrise Valley Dr.	3+	2015
	VA 7100 (Fairfax County Pkwy.)	Widen	Sunrise Valley Dr. to Rugby Rd.	3+	2015
	VA 7100 (Fairfax County Pkwy.)	Widen	Rugby Road to US 50	3+	2015
	VA 7100 (Fairfax County Pkwy.)	Construct	VA 640 to VA 7900 (Franconia/Springfield Pkwy.)	3+	2015
	VA 7900 (Fran./Sprfld. Pkwy.)	Upgrade	VA 638 (Rolling Rd.) to VA 617 (Backlick Rd.)	3+	2020
	I-270	Construct	Shady Grove Metro to I-70	3+	2020
2030	**Same as 2020 Plus:**				
	I-495 (Capital Beltway) VA	Construct	Old Dominion Drive to American Legion Bridge (HOV3/HO	3+	2030

Ref: C9Exh2-4.xls

2.4 *Transit Service*

Major transit improvements are also programmed for completion in the 2008 CLRP and FY-2009-2014 TIP and are listed in Exhibit 2-7. Base year networks for year 2002 include the full 103-mile Metrorail system, three MARC commuter rail lines in Maryland (Penn, Camden, and Brunswick Lines), and two VRE commuter rail lines in Virginia (Fredericksburg and Manassas Lines). Upgraded bus and express service in the Dulles corridor are also included.

Transit networks for FY-2009 include an extension of the Metrorail Blue Line from Addison Road to Largo, a new Red Line station at New York Avenue between Union Station and Rhode Island Avenue Stations, and the extension of MARC service from Point of Rocks to the City of Frederick in Maryland. Rapid Bus services were added in the Georgia and Pennsylvania Avenue

Exhibit 2-7 Major Transit Service Improvements

Network	Facility/Service	Improvement	Limits	Comp Year
2002				
	Metrorail	Construct	Complete 103-mile system	Completed
	MARC, Penn Line	Upgrade Service	Union Station to Perryville, MD	Implimented
	MARC, Camden Line	Upgrade Service	Union Station to Camden Station (Balt.)	Implimented
	MARC, Brunswick Line	Upgrade Service	Union Station to Martinsburg, WV	Implimented
	VRE, Manassas Line	Upgrade Service	Union Station to Broad Run Airport	Implimented
	VRE, Fredericksburg Line	Upgrade Service	Union Station to Fredericksburg, VA	Implimented
	VRE, Fredericksburg Line	Construct	Franconia/Springfield Commuter Rail Station	Completed
	VRE, Fredericksburg Line	Construct	Lorton Commuter Rail Station	Completed
	Express Bus - BRT Elements	Upgrade Service	E. Falls Church Metrorail Sta. to VA 772	Implimented
2009	**Same as 2002 base, plus the following:**			
	MARC, City of Frederick Line	Construct	Frederick to Point of Rocks	2003
	Metrorail, Blue Line	Construct	Addison Road to Largo	2004
	Metrorail, Red Line	Construct	NY Avenue Station	2004
	PRTC/Omni Bus	Implement	Corridor Service Improvements	2005
	Georgia Avenue Rapid Bus	Reconstruct	Silver Spring Metro Station to Archives Metro	2007
	Pennsylvania Avenue Rapid Bus	Reconstruct	Naylor Road Metro to Archives Metro Station	2007
	Southern MD Commuter Bus	Constr/Upgrade	Park & Ride Lots and increase bus Service	2008
2010	**Same as 2009, plus the following:**			
	K Street Busway	Reconstruct	Mt. Vernon Sq./ 7th St. NW to Wash.Circle NW	2010
	VRE, Fredericksburg Line	Construct	Cherry Hill Commuter Rail Station	2010
	Anacostia Streetcar Proj. Phase I	Construct	Firth Sterling/S.Capital St to Howard Rd./ML King Jr.	2010
	Crystal C./Potomac Yard Busway	Construct	Vicinity of Glebe Rd. Ext. to Crystal City Metro	2010
	Revised Metrorail Operating Plan	Modify	Blue and Orange Lines	2010
	I-95/I-395 HOV/BUS/HOT Lanes	Implement	Transit Service - Buses and add VRE Railcars	2010
	VRE Commuter Rail	Upgrade Service	Fredericksburg and Manassas Lines	2010
	VRE Commuter Rail	Construct	Cherry Hill Commuter Rail Station	2010
	ICC Corridor Bus Service Improvem	Implement	ICC Corridor	2010
	Southern MD Commuter Bus	Constr/Upgrade	Park & Ride Lots and increase bus Service	2010
	Randolph Bus Enhancement	Implement	Randolph Road Corridor	2010
2020	**Same as 2010, plus the following:**			
	Metrorail (Red) / MARC	Construct	Silver Spring Transit Center Phase II	2011
	Dulles Corridor Rail	Construct	E. Falls Church Metrorail Sta. to Wiehle Ave. Sta.	2011
	Fairfax Connector Service	Implement	Service Enhancements	2011
	Silver Spring Transit Center	Construct	Phase II	2011
	Potomac Yard Transit Bus	Construct	Four Mile Run to Braddock Road	2013
	I-495 VA Beltway HOT Lanes	Implement	HOT Lanes Transit Service	2013
	Purple Line Transitway	Construct	Bethesda to Silver Spring	2015
	Dulles Corridor Rail	Construct	Wiehle Ave. to VA 772 Station	2015
	Corridor Cities Transitway	Construct	Shady Grove to COMSAT	2016
	VA 244 (Columbia Pike Streetcar	Implement	Skyline Center to Pentagon City	2016
	I-95/I-395 HOV/BUS/HOT Lanes	Implement	Transit Service - Buses and add VRE Railcars	2020
	I-495 VA Beltway HOT Lanes	Implement	HOT Lanes Transit Service	2020
	Viers Mill Rd. Bus Enhancement	Construct	Rockville to Wheaton	2020
	University Blvd. Bus Enhancement	Construct	Kensington to Silver Spring	2020
	Norbeck Rd. Bus Enhancement	Implement	Norbeck Road Corridor	2020
	Corridor Cities Transitway	Construct	Metropolitan Grove to COMSAT	2020
2030	**Same as 2020**			
	US 1 (bus\right-turn lanes)	Widening	Va 235 North to SCL Alex. (I-95 Capital Beltway)	2025
	I-95/I-395 HOV/BUS/HOT Lanes	Implement	Transit Service - Buses and Additional VRE Railcars	2030
	I-495 VA Beltway HOT Lanes	Implement	HOT Lanes Transit Service	2030
	Metrorail Station (Proposed)	Construct	Potomac Yards Station	2030

corridors in the District of Columbia. Corridor service improvements were added for PRTC/Omni Bus service.

Transit projects in 2010 networks include Phase I of the Anacostia Streetcar project (replaces the CSX Shepherd Branch project) and K Street Busway project are now slated for completion in the District of Columbia. In Maryland, bus service is upgraded and enhanced in the ICC corridor, Randolph Road corridor, and in Southern Maryland. Transit improvements in Virginia include the Cherry Hill VRE station, Crystal City/Potomac Yards Busway, and service improvements for PRTC/Omni Bus and VRE commuter rail. Additional projects in 2010 transit networks include changes in service patterns on WMATA's Blue and Orange lines, to optimize passenger loads through Rosslyn. The Blue line is reconfigured so that half the trains follow the Green line alignment to Greenbelt and some Orange line trains are diverted to Largo. Exhibit 2-8 displays Metrorail Service Changes.

The first phase of the Dulles Corridor rail line is planned to open between West Falls Church and Wiehle Avenue in 2011. The second phase, from Wiehle Avenue to VA 772 is scheduled to open in 2015. Both are included in the 2020 transit network. The 2020 transit network also include the service upgrade of Crystal City/Potomac Yards Busway to BRT, construction of the Potomac Yards Metrorail Station, the Bi-County Transit-way from Silver Spring to Bethesda, and completion of Corridor Cities Transit-way from the COMSAT Station to Shady Grove Metrorail Station in Montgomery County.

Four transit projects are added to the 2030 transit network; Potomac Yards Metrorail Station, bus\right-turn lanes on Route 1 between Route 235 north and I-95 Capital Beltway in Virginia, new busses, transit services and additional VRE rail cars are added as improvements in the I-95/395 HOV/HOT Lanes project, and additional transit service on I-495 VA Beltway HOT lanes. A complete list of the transit projects included in the 2008 CLRP and the FY 2009-2014 TIP is shown in Appendix B.

Exhibit 2-8 Metrorail Service Changes

		2010 network		2020 & 2030 networks	
O-Station	D-Station	am hdwy	op hdwy	am hdwy	op hdwy
Shady Grove (1)	Glenmont (26)	6	12	2.5	6
Grosvenor (5)	Silver Spring (23)	6	12	--	--
Greenbelt (27)	Branch (45)	6	12	7	12
Mt. Vn Sq.-UDC (35)	Huntington (48)	7	12	7	12
FranSpgfld (47)	Largo (87)	14	12	14	12
FranSpgfld (47)	Greenbelt (27)	14	--	14	--
Vienna (57)	New Carrollton (80)	7	12	7	12
Dulles GrnWay (98)	Stadium-Armory (75)	--	--	7	12
Vienna (57)	Largo (87)	14	--	14	--

2.5 *Highway and Rail Statistics for Improvements Coded in 2008 CLRP Transportation Networks*

Base-year networks for 2002 are comprised of 20,488 directional (one-way) links, excluding centriod connectors. Networks for 2009, 2010, 2020 and 2030 contain 20,830 links, 21,173 links, 21,614 links, and 21,671 links respectively. Exhibit 2-9 shows a summary of the number of transit lines coded. Exhibit 2-10 shows mileage summaries for LOV and HOV/HOT lane miles, and rail miles for light and heavy rail service.

Exhibit 2-9 AM and Off-Peak Transit Line Summaries

Network Year	AM Transit Line	Off-Peak Transit Line	Transit Line
	TOTAL	TOTAL	TOTAL
2002	987	717	1704
2009	1,041	762	1803
2010	1,051	769	1820
2020	1,099	813	1912
2030	1,099	822	1921

Exhibit 2-10 Highway and Rail Network Statistics (Modeled Area)

	LOV LANE MILES	HOV/HOT LANE MILES	METRORAIL MILES	MD/DC* NON-METRO RAIL MILES	VA** NON-METRO RAIL MILES
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
2002	19,208	187	103	116	95
2009	19,868	217	106	132	95
2010	20,310	281	106	132	95
2020	21,862	382	131	149	100
2030	22,100	389	131	149	100

* Includes MARC, Bi-County Transitway, and Corridor Cities Transitway in Maryland, and Anacostia Street Car in the District of Columbia

** Includes VRE and Arlington Streetcar (Columbia Pike)

Chapter 3 Version 2.2 Model Network Development

The COG/TBP regional travel demand forecasting processes were employed in the air quality conformity assessment of the 2008 CLRP and FY2009-2014 TIP. The latest version of these procedures (referred to as the Version 2.2 model) is documented in the *TPB Travel Forecasting Model, Version 2.2, Specification, Validation, and User's Guide, March 1, 2008.* This document is placed on MWCOG website in PDF file format http://www.mwcog.org/uploads/committee-documents/kl5fWlle20080303164551.pdf.

The model requires the development of a single highway network file containing attributes that represent three time periods: the AM peak period (6:00-9:00 AM), the PM peak period (4:00-7:00 PM), and the off-peak period (comprised of the remaining 18 hours). Highway network coding reflects operational differences between the three periods. The model also requires peak and off-peak transit networks.

Transit networks are built "over" highway network links and are designed to represent service conditions during the two time periods. The AM peak-hour is defined service occurring between 7 AM-7:59 AM[5]. The off-peak period frequencies are based on service occurring between 10:00 AM-2:59 PM. Although the off-peak period covers 5 hours, the maximum headway coded on the transit line files is 60 minutes. Transit in-vehicle times are controlled by the RUNTIME parameter coded on each transit line. This means that bus running times are not computed on the basis of highway link-coded speeds over which lines are coded, but rather, are based on actual bus schedule times.

The transit fare computation process, sometimes referred to as the *MFARE1/2* process, serves to compute transit fares used in the mode choice process. The process ultimately produces four total fare files representing walk/drive-access transit fares for the AM peak period, and walk/drive-access transit fares for the off-peak period.

This chapter describes files that support network building and fare development in greater detail. The network and fare development process, supporting the Version 2.2 model, requires files in text format, which are necessary for highway and transit network building/skimming and transit fare development. The following section describes the model's network building process and is followed by a section containing detailed format descriptions of each file. A list of network files and their input types filenames, and descriptions are shown in Exhibit 3-1, and further discussion is provided in the Version 2.2 model User's Guide.

[5] In the case of express bus service, which generally originates in the outer reaches of the study area and begins much earlier than 7 AM, the AM peak period definition is relaxed to an earlier period for which service is most concentrated.

Exhibit 3-1 List of Network and Fare Files Prepared for the Version 2.2 Model

Input Type	Filename	Description	Text or Binary
Land use	ZONE.ASC	Zonal Land Use	Text
Network, highway	LINK.ASC	Highway Links	Text
Network, highway	NODE.ASC	Highway Node File	Text
Network, transit	MODE1-9AM.TP	AM Mode 1-9 Transit Lines	Text
Network, transit	MODE1-9OP.TP	Off-Pk Mode 1-9 Transit Lines	Text
Network, transit	STA_TPP.BSE	Rail Station/PNR File	Text
Network, transit	RAIL_LNK.BSE	Rail Links	Text
Network, transit	GISWKAAM.ASC	GIS AM Zonal Transit Access File	Text
Network, transit	GISWKAOP.ASC	GIS Off-Peak Zonal Transit Access File	Text
Network, transit	GISWKLAM.ASC	GIS AM Walk Link File	Text
Network, transit	GISWKLOP.ASC	GIS Off-Peak Walk Link File	Text
Network, transit	TAZFRZN.ASC	TAZ/Bus Fare Zone Equivalency	Text
Network, transit	BUSFARAM.ASC	MFARE2 AM Bus Fare Zone Matrix	Text
Network, transit	BUSFAROP.ASC	MFARE2 Off-Peak Fare Zone Matrix	Text
Network, transit	TARIFF.TXT	WMATA Tariff Policy Control File	Text

3.1 Highway Network Building Overview

The network building process begins with the creation of a single binary highway network containing AM, PM, and off-peak highway network attributes that is developed from a single highway link file. The link file includes directional link attributes that vary in accordance with actual highway operations in effect for each time period. Network building also requires a node file containing the x/y coordinate units of each highway node (Maryland State Plane, NAD83, in whole feet).

Highway network files are managed and pre-processed in COG/TPB's GIS. The application consists of the master highway network database and GIS application tools. The coverage-based database and the GIS application tools are intended to integrate the TPB transportation planning procedures with CUBE/TP+, TPB. A two-stage integration process for transportation network modeling is used. In the first stage, ArcInfo is used for highway network development and maintenance.

The GIS-based master highway network (MAN) consists of a coverage of links and nodes. Each link represents a roadway facility with the roadway attributes of that facility coded on the link. The node coverage consists of X and Y coordinates for each junction/intersection. The link and node coverage's are maintained separately. The system consists of a 2000 base highway network and a database of all future link changes. Generally, the base network remains unchanged and the database file is updated as needed to reflect CLRP and TIP inputs. Within the process, the following applications exist: 1) a conformity table and highway link comparison procedure that relates a modified conformity table (see Exhibit 3-2) to the database and updates the database with project completion dates, facility types, and number of lanes, 2) GIS-based application tools that provide a graphical means for users to add or delete nodes and links and to edit the attributes of these features, and 3) capability to generate highway link and node files for

any specified year beyond the base year (i.e. 2001 or beyond). During the second stage of the process, a set of conversion tools and export procedure are used to export network link and node ASCII files, for any year specified by the user, as TP+ format text files that meet coding specifications employed by CUBE TP+ and Version 2.2 Model specifications.

Exhibit 3-2 Example of CLRP/TIP Project List

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Compl. Date or Status	In TIP?
MDSHA	M2r	Reconstru	Approved	I-270	Interchange at MD 117 including park and ride lot		1	1	8	8	Completed	2004	Yes
MDSHA	M2q	Construct	Approved	I-270	Interchange at Watkins Mill Road Extended		1	1	8	8+2	No	2020	Yes
MDSHA	M2n	Recon/Cor	Approved	I-270 (East Spur)	Rockledge Dr. Connector and MD 187		1	1	6	6	Completed	2004	Yes
MDSHA	M2l	Recon/Cor	Approved	I-270 (West Spur)	Interchanges at Democracy Blvd and Westlake Terrace		1	1	6	6	Completed	2004	Yes
MDSHA	M2SHOV M2S	Construct	Pending	I-270/US 15 Corridor	Shady Grove Metro	I-70	1	1	varies		No	2020	Yes
MDSHA	M4	Widen	Approved	I-70 - Phases 2B, 2C, 2D, 3, 4, and East St. Extension	Mount Phillip Road	MD 144FA	1	1	4	6	No	2010	Yes
MDSHA	M4c	Construct	Approved	I-70 (Phase IIA)	MD 85 Extended/MD 355		2	2	0	4	Completed	2005	Yes
MDSHA	M1f	Construct	Pending	I-95	Contee Road Relocated w CD Roads		1	1	8	8+4	No	2020	Yes
MDSHA	M1k	Construct	Approved	I-95/I-495 (Capital Beltway)	Branch Avenue Metro Access		1	1	8	8	No	2010	Yes
MDSHA	M1p	Construct	Pending	I-95/I-495 (Capital Beltway)	Interchange at Greenbelt Metro		1	1	8	8+2	No	2010	Yes
MDSHA	VA	Widen	Approved	I-95/I-495 Woodrow Wilson Bridge	MD 210 Interchange	Virginia Line	1	1	6	12	Yes	2008	Yes
MDSHA	M1m	Construct	Pending	I-95/I-495/Arena Drive Interchange	MD 214	MD 202	1	1	8	8+2	No	2010	Yes
MDSHA	M1a	Study	Pending	I-95/I-495 (Capital Beltway)	American Legion Bridge	Woodrow Wilson Bridge	1	1	6	6+4	No	not coded	Yes
MDSHA	MP12	Construct	Pending	Intercounty Connector	I-270	I-95 / US 1	0	1	0	6	No	2010	Yes
VDOT	Vi3b	Restripe	PCE-1	I-395 HOV (3 lanes total)	I-95	DC	1	1	2	3	No	2010	No
VDOT	Vi13c	Study	PCE-1	I-395 HOV ramp connections	HOV access in Alexandria		1	1	-	-	No	not coded	No
VDOT	Vi4i	Construct	EA-2	I-495 HOT (peak)	I-395	S. of VA 193 (Georgetown Pike)	1	1	8	8+4	No	2010	Yes

Ref: c8exh3-2.xls

3.2 Highway Network Link Attributes

The highway network files that result from the GIS network conversion and export procedures are a set of nodes (ASCII input file node.asc) and a set of links (ASCII input file link.asc) that represent connections between those nodes. Each record represents one direction of the link containing directional link characteristics or attributes such as distance, number of lanes, operational codes, and functional classification. These highway network link attributes are described in the following chapter.

Highway network link distances are developed from arcs built on TIGER centerline files and calculated (in feet). However, link distances are coded in whole miles with an explicit decimal. The speed class, capacity class, and TAZ are added to the highway network during the highway network building phase, so they are not present in the ASCII input file (link.asc). Unused columns have been defined for these three attributes and their subsequent population.

Highway operations are represented in networks using link attributes corresponding to AM peak, PM peak, and off-peak time periods. Two link attributes used to represent operational characteristics of each time period are "lanes" and "limit" codes. Lanes describe the number of through lanes and the limit code describes special vehicle prohibitions. During network development process, each link is assigned three lane codes and three limit codes, corresponding to each modeled time period. Operational changes of regional significance are represented in the highway networks and include facilities that convert from two-way to one-way operations and/or facilities that change in lane configuration during peak traffic periods. Limit codes are presented below:

Limit Code	**Vehicles Allowed**	**Vehicles Disallowed**
0	All Vehicles	No Vehicles
2	HOV 2+ Occ. Vehicles	1-Occ. Vehicles, Trucks
3	HOV 3+ Occ. Vehicles	1, 2 Occ. Vehicles, Trucks
4	All Vehicles, other than trucks	Trucks
5	Airport Passenger Auto Driver Trips	All other Vehicles
9	Transit Only	All other Vehicles

Limit codes are also used to model HOV operations, truck prohibitions (primarily on Parkways), and I-66 inside the beltway. Other designated facilities and streets are added to the networks to enable transit routes to be coded accurately relative to zonal activity centers. For these links, a Limit code 9 ('Transit Only') is used to more accurately depict coded transit routes, that are below the grain of the zone system; these links are not included in the highway assignment process).

There are numerous cases in the Washington region where through traffic is prohibited from entering into residential neighborhoods during peak periods. These types of prohibitions are typically not of regional significance, and therefore, are not explicitly coded in the highway network. Exhibit 3-3 displays HOV/HOT lane facilities coded in 2030 networks and Exhibit 3-4 shows truck prohibited links.

Exhibit 3-3 HOV and HOT-Lane Facilities – 2030 AM Highway Network

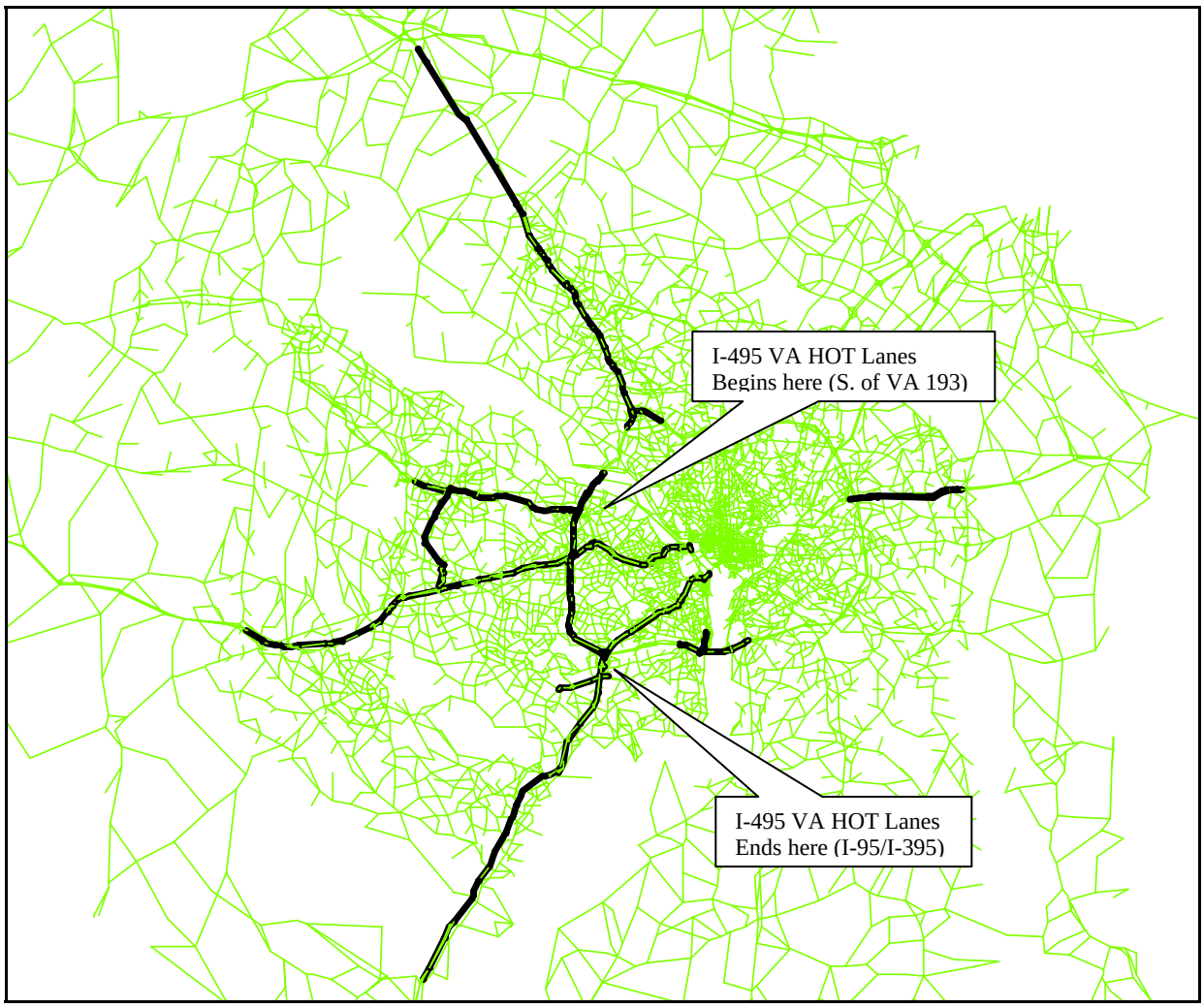


Exhibit 3-4 Truck Prohibited Network Links (Limit Code 4)

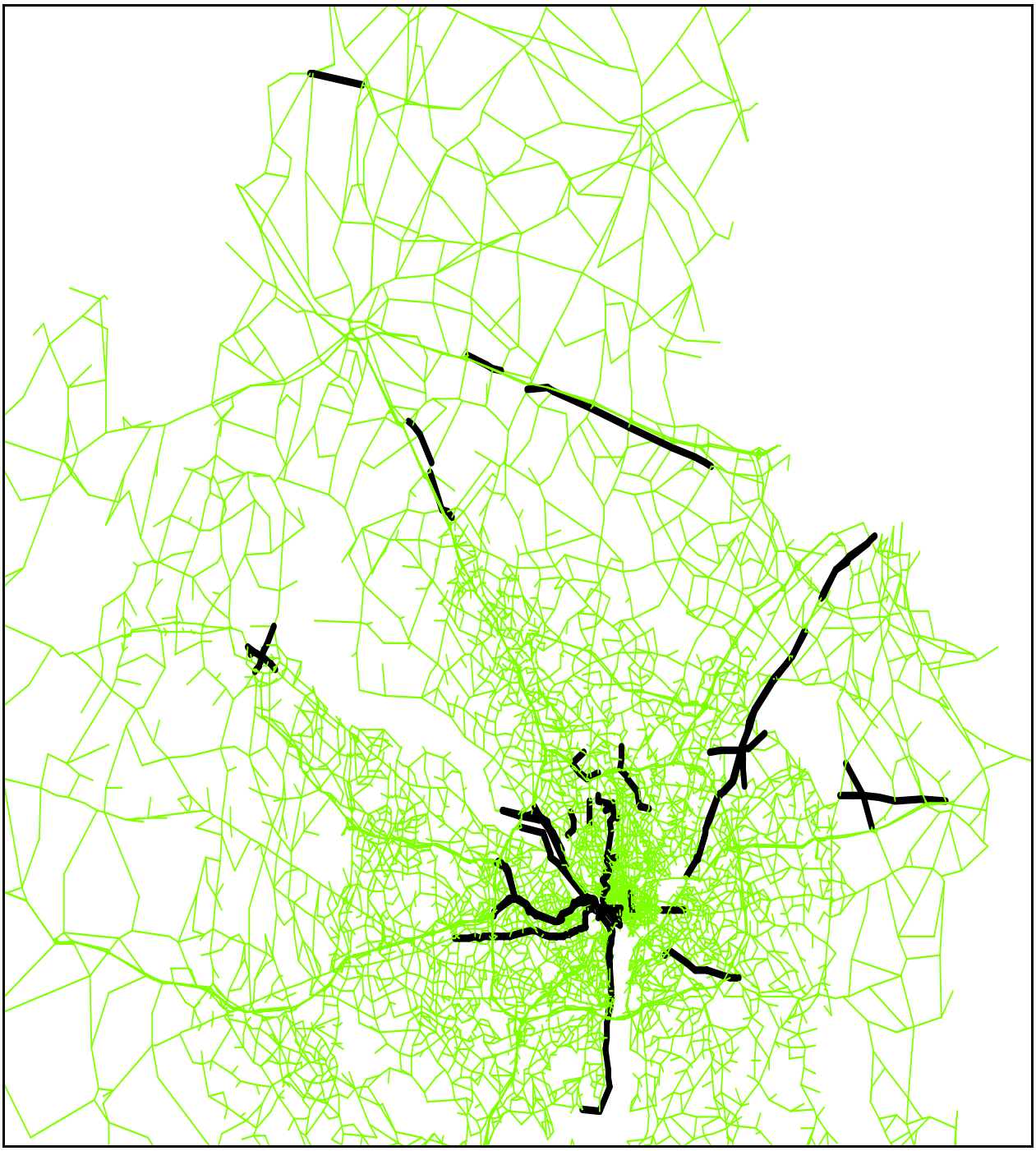
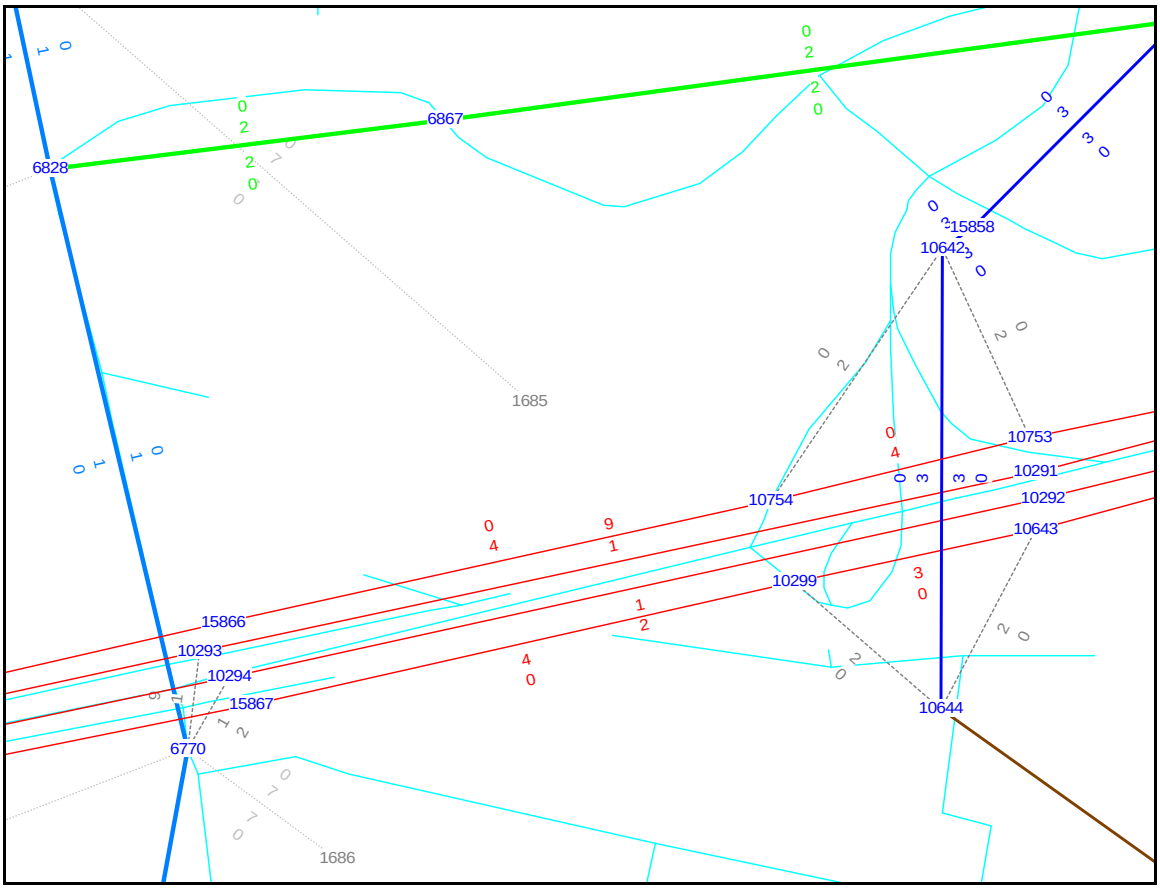


Exhibit 3-5 displays an example of specialized network coding for HOV facilities. During non-peak periods, 8 conventional lanes are provided on the I-66 segment from the Fairfax County Parkway to VA Route 645 Stringfellow Road. During the peak periods, the median lane operates as a concurrent HOV lane in the peak direction. The schematic diagram shows lane configuration for the AM peak period.

Link 15867-10299 operates with 4 LOV lanes eastbound and Limit Code 0 (all vehicles permitted) and link 10294-10292 operates as 1 HOV lane and Limit Code 2 (HOV 2+ vehicles only). Westbound, link 10754-15866 operates with 4 LOV lanes and Limit Code 0 (all vehicles permitted) and link 10291-10293 as 1 HOV lane and Limit Code 9 (all vehicles prohibited). Although transit service is permitted on links with Limit Code 9, transit service is not coded on I-66's westbound HOV links.

Exhibit 3-5 Year 2000 Highway Network (AM Peak Period)



Link attributes "FTYPE" and "AREATP" (facility type and area type) are used to determine the free-flow speed and hourly capacity of each link. Facility type codes are based on 7 categories (0/centroid connectors, 1/freeways, 2/major arterials, 3/minor arterials, 4/ collectors, 5/expressways, and 6/freeway-arterial ramps) and are manually coded into networks on a link-by-link basis.

A facility type 6 was added to networks in FY2003 to represent freeway-arterial ramps. The code was assigned to meet an Air Quality model requirement for the calculation of ramp-specific emissions for freeways. The ramp designation is presently used for accounting purposes in the air quality emissions calculations of ramps. It has no relevance with respect to capacity or speed in the current travel model. The existing freeway capacities and free flow speeds are presently used for ramps.

Free-flow speeds (speed class) and hourly capacities (capacity class) are established during traffic assignments based upon facility type and area type codes. Area type values are assigned during the network building process, on the basis of employment and population density of the TAZ centroid that is nearest to the link. Area type codes range in value from 1 to 7, as indicated in Exhibit 3-6.

The determination of the nearest TAZ, the density calculations, and subsequent area type value assignment are undertaken with a series of computer programs. The program first determines the nearest zone centroid associated with each link in the highway network.[6] It then determines the area type of each zone in the region based on land activity density. The density measure is defined jointly by population and employment densities for a one-mile 'floating' radius about each zone. Therefore, a zonal land use file containing land area and land activity information must be provided. A coordinate file is also necessary in order to enable graphical viewing of the network and to perform a number of other modeling tasks, which require information regarding network node positions.

Exhibit 3-6 Area Type Definitions

One-Mile 'Floating' Pop. Density (Pop/Sq mi.)	One-Mile 'Floating' Employment Density (Emp / Sq mi)						
	0-100	101-500	501-1,500	1,501-5,000	5,001-15,0000	15,001-35,000	35,001+
0-100	7	7	5	5	2	2	2
101-350	7	5	5	5	2	2	2
351-1,500	6	6	5	5	2	2	2
1,501-3,500	6	6	4	3	2	2	2
3,501-6,500	4	4	3	3	2	2	1
6,501-10,000	4	3	3	3	2	2	1
10,001+	3	3	3	2	2	2	1

[6] Each link is associated with one zone, but there is no guarantee that each zone is associated with a link.

Tolls are coded in the highway network by utilizing two highway link attributes: TOLL and TOLLGRP. TOLL is the monetary value of the fee charged at the link location in current year cents. The Dulles Toll Road (VA 267) is an example of a facility where Tolls/Fees are charged at specific link locations. The current year should be consistent with the transit fare tariff year assumed in the development of transit fares. TOLLGRP is a 4-digit facility type index. The TOLLGRP value should be coded with a non-zero value if the TOLL value is non-zero. (If the TOLL value of a given link is non-zero and the TOLLGRP value equals zero, the highway network building process automatically imposes a TOLLGRP override value of '1'). TOLLGRP codes are employed for variably priced links representing I-95, I-395, and I-495 HOT/HOV-lanes.

If there is a desire to reflect a per-mile TOLL value on a link, there is no need to code a manually calculated TOLL value on the link. In this instance, the TOLL value should not be coded, but a unique TOLLGRP code should be assigned to the link and an associated per-mile rate should be specified in the TOLL.ESC file (described below). The highway building process ultimately creates six period-specific toll attributes: AMTOLL, PMTOLL, OPTOLL (tolls by time-of-day on all toll facilities) and AMTOLL_VP, PMTOLL_VP, OPTOLL_VP (tolls by time-of-day on variable priced facilities only).

Three toll facilities are modeled in base year highway networks: the Dulles Toll Road (VA 267), the Dulles Greenway, and the Harry W. Nice Memorial Bridge (between Charles County, Maryland and King George County, Virginia). Although a toll is levied on the Chesapeake Bay Bridge (Eastbound), no toll has been coded since the facility is located at an external station.

The Dulles Toll Road involves both access and egress tolls which vary by location. In 2005, tolls were increased on the Dulles Toll Road (VA 267). The entry and exit charge at the Main Toll Plaza end of the facility is increased from 50 cents to 75 cents, levied in both directions. A toll charge of 50 (from 25 cents) cents is now charged at all westbound off-ramps and eastbound on-ramps and at the Sully Road (Route 28) Toll Plaza. Dulles Greenway tolls are coded in COG networks based on the *average* of the cash rates and "SmartTag" rates. This assumes that the "SmartTag" market accounts for roughly half of all Greenway users.

The 14-mile Greenway connects to the Dulles Toll Road at Route 28 at the Dulles International Airport and extends west to Route 15 at Leesburg. The main toll facility is represented north of the Route 28 interchange with a toll of $1.88. This toll applies to cars only and represents an average of $2.00 cash and $1.75 for Smart Tag. A toll of $1.53 is used for all westbound and eastbound on-ramps at Routes 28, 606, and 607. A toll of $1.00 is coded for all westbound and eastbound on-ramps at Routes 772, 659, and Claiborne Parkway. A toll of $1.00 is coded on the Harry W. Nice Bridge, in both directions. A list of the toll values coded on base network links is presented in Exhibit 3-7. Toll information is reviewed every year and furnished by state DOT's.

Exhibit 3-7 Highway Network Toll Links

Seg	Anode	Bnode	Facility	Limits	Direction	Operation	2000	2005	2010	2015	2020	2025	2030	Notes
1	10701	10704	Dulles Toll Road	Main Toll Plaza - Rt 684 Interchange	Inbound	LOV	50	75	75	75	75	75	75	
2	10707	10700	Dulles Toll Road	Main Toll Plaza - Rt 684 Interchange	Outbound	LOV	50	75	75	75	75	75	75	
3	10917	10918	Dulles Toll Road	Main Toll Plaza - Rt 684 Interchange	Inbound	HOV	50	75	75	75	75	75	75	
4	11004	11006	Dulles Toll Road	Main Toll Plaza - Rt 684 Interchange	Outbound	HOV	50	75	75	75	75	75	75	
5	10701	10703	Dulles Toll Road	Spring Hill Rd - Off Ramp	Inbound	LOV	25	50	50	50	50	50	50	
6	10702	10700	Dulles Toll Road	Spring Hill Rd - On Ramp	Outbound	LOV	25	50	50	50	50	50	50	
7	10703	10704	Dulles Toll Road	Spring Hill Rd - On Ramp	Inbound	LOV	25	50	50	50	50	50	50	
8	10707	10702	Dulles Toll Road	Spring Hill Rd - Off Ramp	Outbound	LOV	25	50	50	50	50	50	50	
9	10667	10666	Dulles Toll Road	Hunter Mill Rd - Off Ramp	Inbound	LOV	25	50	50	50	50	50	50	
10	10765	10665	Dulles Toll Road	Hunter Mill Rd - On Ramp	Outbound	LOV	25	50	50	50	50	50	50	
11	10671	10670	Dulles Toll Road	Wiehle Rd - On Ramp	Inbound	LOV	25	50	50	50	50	50	50	
12	10767	10669	Dulles Toll Road	Wiehle Rd - Off Ramp	Outbound	LOV	25	50	50	50	50	50	50	
13	10675	10674	Dulles Toll Road	Reston Pkwy - On Ramp	Inbound	LOV	25	50	50	50	50	50	50	
14	10769	10673	Dulles Toll Road	Reston Pkwy - Off Ramp	Outbound	LOV	25	50	50	50	50	50	50	
15	10679	10678	Dulles Toll Road	Centerville Rd - On Ramp	Inbound	LOV	25	50	50	50	50	50	50	
16	10771	10677	Dulles Toll Road	Centerville Rd - Off Ramp	Outbound	LOV	25	50	50	50	50	50	50	
17	10862	10866	Dulles Toll Road	Fairfax Pkwy - On Ramp	Inbound	LOV	25	50	50	50	50	50	50	
18	10864	10861	Dulles Toll Road	Fairfax Pkwy - Off Ramp	Outbound	LOV	25	50	50	50	50	50	50	
19	6921	6913	Dulles Toll Road	Rt 28 Toll Plaza - On Ramp	Inbound	LOV	35	50	50	50	50	50	50	
20	6942	6914	Dulles Toll Road	Rt 28 Toll Plaza - Off Ramp	Outbound	LOV	35	50	50	50	50	50	50	
21	14400	14200	Govenor Nice Bridge	Virginia - Maryland	Inbound	LOV	100	100	100	100	100	100	100	
22	14200	14400	Govenor Nice Bridge	Virginia - Maryland	Outbound	LOV	100	100	100	100	100	100	100	
23	6942	6995	Dulles Greenway	Rt 28	Outbound	LOV	188	188	188	188	188	188	188	
24	15601	6913	Dulles Greenway	Rt 28	Inbound	LOV	188	188	188	188	188	188	188	
25	6939	6995	Dulles Greenway	Dulles Greenway to Airport Ramp	Outbound	LOV	153	153	153	153	153	153	153	
26	15601	6943	Dulles Greenway	Airport to Dulles Greenway Ramp	Inbound	LOV	153	153	153	153	153	153	153	
27	6961	6995	Dulles Greenway	Rt 28 to Dulles Greenway On-Ramp	Outbound	LOV	153	153	153	153	153	153	153	
28	15601	6961	Dulles Greenway	Dulles Greenway to Rt 28 Off-Ramp	Inbound	LOV	153	153	153	153	153	153	153	
29	6925	15606	Dulles Greenway	Rt 606 On-Ramp	Outbound	LOV	153	153	153	153	153	153	153	
30	15607	15608	Dulles Greenway	Rt 606 Off-Ramp	Inbound	LOV	153	153	153	153	153	153	153	
31	6962	15616	Dulles Greenway	Rt 772 On-Ramp	Outbound	LOV	100	100	100	100	100	100	100	
32	15617	15618	Dulles Greenway	Rt 772 Off-Ramp	Inbound	LOV	100	100	100	100	100	100	100	
33	15625	15626	Dulles Greenway	Claiborn Pkwy On-Ramp	Outbound	LOV	153	153	153	153	153	153	153	
34	6966	15624	Dulles Greenway	Claiborn Pkwy Off-Ramp	Inbound	LOV	153	153	153	153	153	153	153	
35	6967	15629	Dulles Greenway	Belmont Rd On-Ramp	Outbound	LOV	100	100	100	100	100	100	100	
36	15630	15631	Dulles Greenway	Belmont Rd Off-Ramp	Inbound	LOV	100	100	100	100	100	100	100	
37	6997	15611	Dulles Greenway	Rt 607 (LDN Co Pkwy) On-Ramp	Outbound	LOV	-	153	153	153	153	153	153	VSL39
38	15612	15613	Dulles Greenway	Rt 607 (LDN Co Pkwy) Off-Ramp	Inbound	LOV	-	153	153	153	153	153	153	VSL39
39	6969	15639	Dulles Greenway	Battlefield Pkwy On-Ramp	Outbound	LOV	-	100	100	100	100	100	100	VP21b
40	15640	15641	Dulles Greenway	Battlefield Pkwy Off-Ramp	Inbound	LOV	-	100	100	100	100	100	100	VP21b
41	6968	15634	Dulles Greenway	Rt 653 (Shreve Mill Rd) On-Ramp	Inbound	LOV	-	100	100	100	100	100	100	VP21b
42	15635	15636	Dulles Greenway	Rt 653 (Shreve Mill Rd) Off-Ramp	Outbound	LOV	-	100	100	100	100	100	100	VP21b

Ref: TOLLNK07.xls

One toll facility and two variably priced (HOT) lane facilities are added to forecast year networks. In 2010, HOT/HOV-lanes replace HOV-only lanes on I-95 and I-395, from the 14th Street Bridge to VA 234 Dumfries Road. Additional HOT/HOV lanes are constructed on I-95 from VA 234 to VA 610 (Garrisonville Road) in Stafford County. The Inter-County Connector in Maryland is added to 2012 networks, as a tolled facility and HOV/HOT lane operations begin on I-495 (Capital Beltway) in Virginia, from I-95/I 395 to south of Old Dominion Drive, in 2013.

For the variably priced lane facilities, I-95/I-395 and I-495 Capital Beltway in Virginia, the network link toll value (TOLL) is left blank and the toll facility type variable (TOLLGRP) is used to access a lookup table of fixed fees and per-mile rates.

The ICC in Maryland is modeled as TOLLGRP code 2 with fixed tolls of 15 and 20 cents for the peak and off-peak periods respectively, in 2010 cents. HOT-Lanes on I-95 and I 395 are modeled as variably priced lanes with TOLLGRP codes 30-60 and variably priced HOT-Lanes on Virginia's I-495 Capital Beltway are modeled as TOLLGRP codes 3-26.

The remaining fixed toll facilities in the region, the Dulles Toll Road (VA 267), the Dulles Greenway, and the Harry W. Nice Memorial Bridge, are modeled as TOLLGRP code 1. Exhibit 3-8 through Exhibit 3-10 display tolls per mile (in 2010 cents) for the Beltway and Shirley Highway HOT Lanes.

Exhibit 3-8 Hot Lane Tolls on Shirley Highway (in 2010 cents per mile) in 2008 CLRP

(A) Northbound

			2010		2020		2030	
No.	**HOT Lane Segment**	**Toll Group**	**AM Peak**	**Off Peak**	**AM Peak**	**Off Peak**	**AM Peak**	**Off Peak**
1	Pentagon Ramp --> S. Eads St.	67	20	15	20	15	20	15
2	VA 27 --> Pentagon Ramp	65	20	15	20	15	20	15
3	Shirlington Rd. --> VA 27	63	20	15	100	15	100	15
4	Seminary Rd. --> Shirlington Rd.	61	120	15	160	15	160	15
5	S. of VA 236 (Duke St.) --> Seminary	59	110	15	70	15	70	15
6	I-495 --> S. of VA 236 (Duke St.)	57	110	15	20	15	20	15
7	I-495 Ramp	55	120	15	20	15	20	15
8	N. of Franconia Rd. --> S. of I-495	53	120	15	660	83	710	113
9	S. of Franconia Rd. --> N. of Franconia Rd.	51	20	15	160	15	250	15
10	Franconia SF Pkwy Ramp	49	20	15	110	15	70	15
11	N. of Backlink Rd. --> Franconia SF Pkwy	47	20	15	20	15	60	15
12	N. of Rolling Rd. --> N. of Backlick Rd.	45	70	15	110	15	110	15
13	N. of Lorton Rd. --> N. of Rolling Rd.	43	60	15	60	15	60	15
14	US 1 --> N. of Lorton Rd.	41	160	15	110	15	150	15
15	VA 123 (Ox Rd.) --> US 1	39	70	15	70	15	70	15
16	PW Pkwy -->VA 123 (Ox Rd.)	37	20	15	20	15	60	15
17	N. of Dale Blvd. --> PK Pkwy	35	20	15	20	15	20	15
18	S. of Dale Blvd. --> N. of Dale Blvd	33	20	15	20	15	20	15
19	S. of Dumfries Rd. --> S. of Dale Blvd.	31	20	15	20	15	20	15

(B) Southbound

			2010		2020		2030	
No.	**HOT Lane Segment**	**Toll Group**	**PM Peak**	**Off Peak**	**PM Peak**	**Off Peak**	**PM Peak**	**Off Peak**
1	S. Eads St. --> VA 27	30	20	15	20	15	20	15
2	VA 27 --> Pentagon Ramp	32	20	15	20	15	20	15
3	Pentagon Ramp --> Shirlington Rd	34	260	15	220	15	260	15
4	Shirlington Rd. -->Seminary Rd.	36	350	15	360	15	360	15
5	Seminary Rd. --> S. of VA 236	38	220	15	210	15	210	15
6	S. of VA 236. -->I-495	40	220	15	170	15	220	15
7	I-495 Ramp	42	220	15	20	15	20	15
8	I-495 -->Franconia Rd.	44	220	15	1010	113	1,100	150
9	Franconia Rd. Ramp	46	20	15	550	15	560	15
10	Franconia Rd. --> Franconia S.F. Pkwy	48	20	15	20	15	20	15
11	Franconia S.F. Pkwy -->N. of Backlick Rd.	50	20	15	20	15	20	15
12	N. of Backlick Rd. --> Rolling Rd. (Phoick Rd.)	52	20	15	60	15	60	15
13	Rolling Rd. --> US 1	54	210	15	170	15	220	15
14	US 1 --> VA 123 (Ox Rd.)	56	170	15	170	15	210	15
15	VA 123 (Ox Rd.) --> PW Pkwy	58	20	15	60	15	110	15
16	PW Pkwy --> S. of Russel Rd.	60	20	15	20	15	20	15

Exhibit 3-9 Hot Lane Tolls on the Virginia Beltway (in 2010 cents per mile) in 2008 CLRP

(A) 2020 Northbound

			2020		
No.	**HOT Lane Segment**	**Toll Group**	**AM**	**PM**	**OP**
1	I-395 Ramp	3	20	20	15
2	I-395 --> Hemming Ave.	5	20	20	15
3	Hemming Ave. --> Braddock Rd.	7	20	20	15
4	Braddock Rd. --> Gallows Rd.	9	20	20	15
5	Gallows Rd. --> Lee Hwy	11	170	120	15
6	Lee Hwy --> I-66	13	20	20	15
7	I-66 --> Leesburg Pike	15	160	70	15
8	Leesburg Pike --> S. of VA 123	17	20	20	15
9	S. of VA 123 --> S. of Dulles Toll Rd.	19	20	20	15
10	S. of Dulles Toll Rd. --> Dulles Toll Rd.	21	20	20	15
11	Dulles Toll Rd. --> S. of VA 193	23	20	20	15

(B) 2020 Southbound

			2020		
No.	**HOT Lane Segment**	**Toll Group**	**AM**	**PM**	**OP**
1	VA 193 (Georgetown Pike) --> Dulles Toll Rd.	8	20	20	15
2	Dulles Toll Rd. --> S. of Dulles Toll Rd.	10	20	20	15
3	S. of Dulles Toll Rd. --> VA 123	12	20	20	15
4	VA 123 --> Leesburg Pike	14	20	70	15
5	Leesburg Pike --> I-66	16	20	270	15
6	I-66 --> Lee Hwy	18	20	160	15
7	Lee Hwy --> Gallows Rd.	20	20	410	15
8	Gallows Rd. --> Braddock Rd.	22	20	160	15
9	Braddock Rd. --> Hemming Ave.	24	20	20	15
10	Hemming Ave. --> W. of I-395	26	20	20	15

Exhibit 3-10 Hot Lane Tolls on the Virginia Beltway (in 2010 cents per mile) in 2008 CLRP

(C) 2030 Northbound

			2030		
No.	**HOT Lane Segment**	**Toll Group**	**AM**	**PM**	**OP**
1	I-395 Ramp	3	20	20	15
2	I-395 --> Hemming Ave.	5	60	20	15
3	Hemming Ave. --> Braddock Rd.	7	20	20	15
4	Braddock Rd. --> Gallows Rd.	9	20	20	15
5	Gallows Rd. --> Lee Hwy	11	170	110	15
6	Lee Hwy --> I-66	13	20	20	15
7	I-66 --> Leesburg Pike	15	220	110	15
8	Leesburg Pike --> S. of VA 123	17	20	20	15
9	S. of VA 123 --> S. of Dulles Toll Rd.	19	20	20	15
10	S. of Dulles Toll Rd. --> Dulles Toll Rd.	21	20	110	15
11	Dulles Toll Rd. --> GW Pkwy	23	20	150	15
12	GW Pkwy --> Am. Legion Bridge	25	120	410	45

(D) 2030 Southbound

			2030		
No.	**HOT Lane Segment**	**Toll Group**	**AM**	**PM**	**OP**
1	Am. Legion Bridge --> GW Pkwy	4	70	520	15
2	GW Pkwy --> VA 193 (Georgetown Pike)	6	60	690	15
3	VA 193 (Georgetown Pike) --> Dulles Toll Rd.	8	20	70	15
4	Dulles Toll Rd. --> S. of Dulles Toll Rd.	10	20	20	15
5	S. of Dulles Toll Rd. --> VA 123	12	20	20	15
6	VA 123 --> Leesburg Pike	14	20	120	15
7	Leesburg Pike --> I-66	16	20	370	15
8	I-66 --> Lee Hwy	18	20	210	15
9	Lee Hwy --> Gallows Rd.	20	20	550	15
10	Gallows Rd. --> Braddock Rd.	22	20	110	15
11	Braddock Rd. --> Hemming Ave.	24	20	20	15
12	Hemming Ave. --> W. of I-395	26	20	20	15

Screenline codes are included as highway network link attributes. Screenlines are used for comparing trip and vehicle crossings during model calibration and validation purposes. The highway network includes 38 screen-lines throughout the modeled area. Screenlines 21 and 30 are not used. The screenline locations currently analyzed by TPB staff are provided in Exhibit 3-11 and Exhibit 3-12.

Exhibit 3-11 Highway Network Screen lines: Map 1 of 2

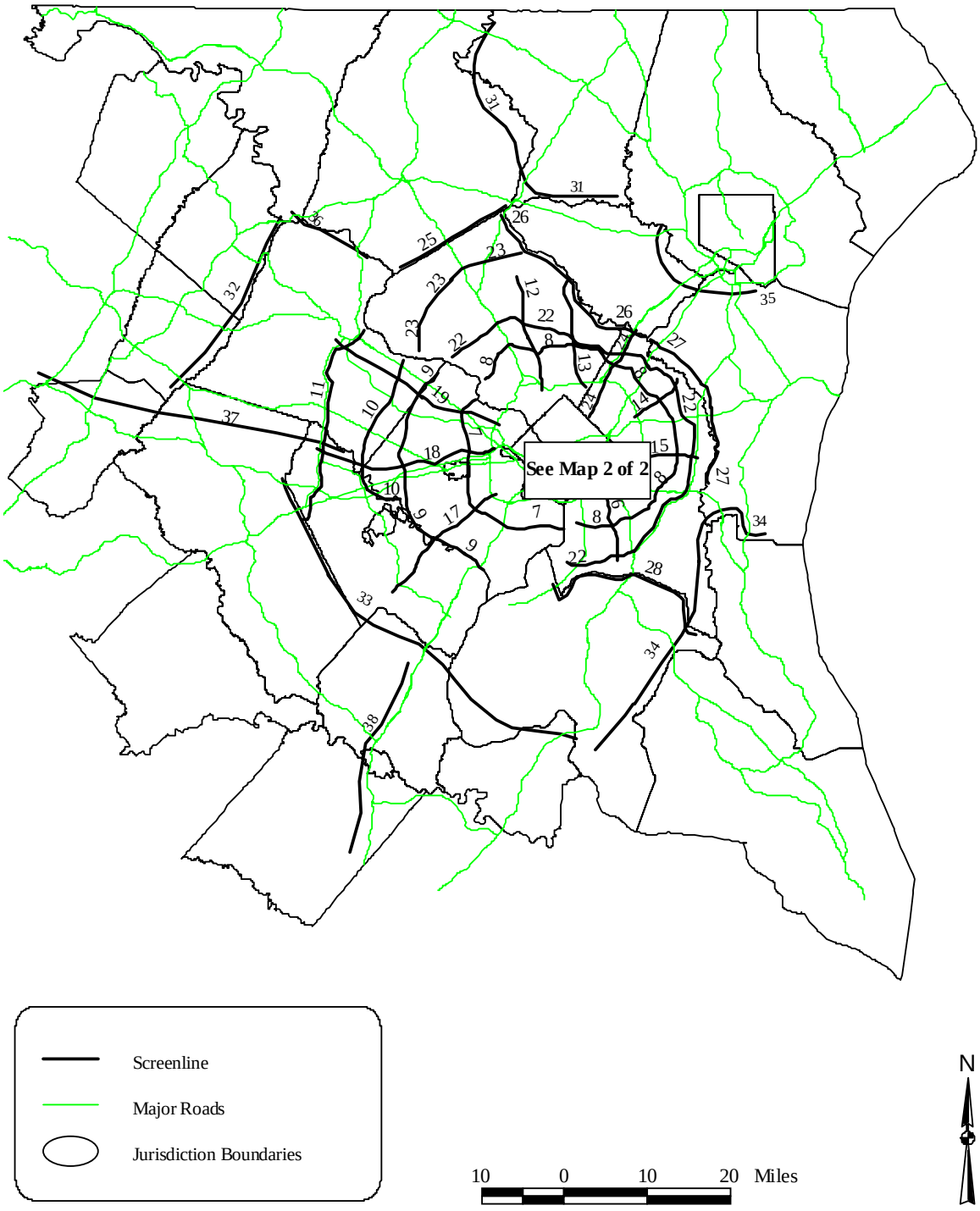
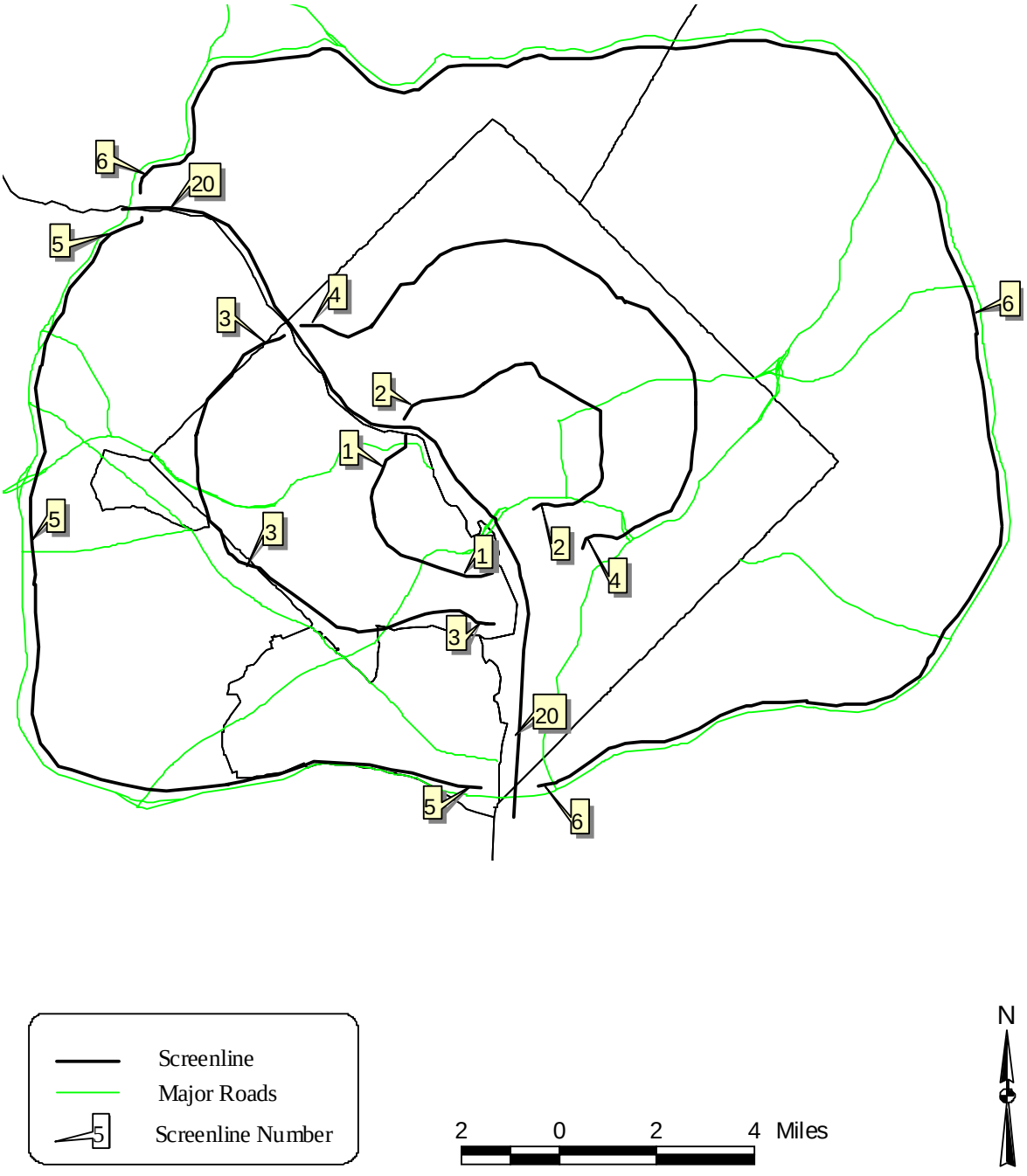


Exhibit 3-12 Highway Network Screen lines (Inside the Capital Beltway) Map 2 of 2



3.3 Transit Network Building Overview

The development of bus and rail inputs for CLRP networks begins with the compilation of local and commuter bus and rail service data for all regional transit providers in the Metropolitan Washington region. Although transit service is changing throughout the year, we update our transit networks in the fall of each year. This updated information informs both our base-year network (e.g. 2007) and forecast-year networks (e.g. 2009, 2010, 2020, and 2030).

Two types of data are needed to model transit service: schedule data and spatial data (the path each route takes). Historically, we have obtained these two types of data by collecting paper schedules provided by the transit providers and manually calculating headways and run times from the paper timetables. "Headway" is the time between successive arrivals (or departures) of transit vehicles on a given route and "Run time" is the time in minutes that it takes for the transit vehicle to go from the start to the finish of its route and is a measure of the average speed of the vehicle on that route.

Since 1999, we have obtained schedule information from WMATA (and later Ride On) in a computer-readable format. WMATA bus routes and Ride On bus routes, represent the lion's share of transit routes in a given transit network. Although the data provided by WMATA and Montgomery County contain more detail than we need, we use SAS programs to calculate, for each route, the average headway and average run time during the AM peak period and the off peak period. Examples of WMATA's Braille file, Ride On's comma delimited text file, and an internet-based paper schedule for Fairfax Connector are presented in Exhibit 3-13 and Exhibit 3-14, respectively.

This automated process has ensured consistency of transit networks across network years for WMATA bus routes and Ride On bus routes. The headways and run times for the twenty remaining transit providers in the Metropolitan Washington region were calculated manually using published transit provider information. Transit files employed in assessment of the 2008 CLRP and FY2009-2014 TIP were based on 2007 transit data.

During FY2009, staff made several presentations to the Regional Bus Subcommittee that focused on facilitating the transfer of information from regional transit providers to COG/TPB and revolved around the following topics,

- What GIS systems are used by the providers?
- What other software is used to manage bus routes (e.g. Trapeze)
- Are there or could we come up with standards for transmitting schedule data and spatial data about transit routes?

In response, members of the subcommittee, who represent state and local transit agencies, provided transit schedule data in two formats; excel spread sheets and as computer-readable comma delimited files generated by trapeze programs. The later format was most desirable. In a new development WMATA made schedule and route data available via Web.

WMATA has posted information about WMATA transit routes in the open Google Transit Feed Specification (GTFS). Staff imagines that future programs written to summarize bus run times and headways by time-of-day period would be written to take advantage of these files. If other transit providers also provide their schedule data in GTFS format, we would have a common format across providers and could develop one program which could handle all of the transit providers (instead of a separate program for each provider).

Exhibit 3-13 Example of WMATA's Braille Text File

DAY OF	THE WEEK: WEEKDY HUNTING TOWERS	KING & WASHINGTON STS	PENDLETON & COLUMBUS
?10A*2A	-	-	4:54
?10A*2A	-	-	5:24
?10A*2A	-	-	5:54
?10A*2A	-	-	6:15
10E A	-	-	-
?10E A	-	-	-
?10A A	6:38	6:42	6:45
?10E A	-	-	-
10E A	-	-	-
?10A A	7:08	7:12	7:15
?10E A	-	-	-
?10E A	-	-	-
?10A A	7:38	7:42	7:45
10E A	-	-	-
?10A A	7:56	8:01	8:05
?10E A	-	-	-
?10A A	8:30	8:35	8:39
?10A A	9:00	9:05	9:09
?10A A	9:30	9:35	9:39
?10A A	10:00	10:05	10:09
?10A A	10:29	10:34	10:38
?10A A	11:00	11:05	11:09
?10A A	11:30	11:35	11:39
?10A P	12:00	12:05	12:09
?10A P	12:30	12:35	12:39
?10A P	1:00	1:05	1:09
?10A P	1:30	1:35	1:39
?10A P	2:00	2:05	2:09
?10A P	2:32	2:37	2:41
?10A P	3:00	3:05	3:09
?10A P	3:30	3:35	3:39
?10A P	4:00	4:05	4:09
?10A P	4:30	4:34	4:39
?10A P	5:00	5:04	5:09
?10A P	5:31	5:35	5:41
?10A P	6:00	6:04	6:10
?10A P	6:30	6:34	6:39
?10A P	7:00	7:04	7:09
?10A P	7:30	7:34	7:39
?10A P	8:00	8:04	8:09
?10A P	9:00	9:04	9:07
?10A P	10:00	10:04	10:07
?10A P	11:00	11:04	11:07
?10A X	12:00	12:04	12:07

Ref: c9exh3-13.xls

Exhibit 3-14 Example of RideOn Text

Block Name	Departure Terminal	Route Number	Departure Time	Arrival Time	Arrival Terminal	Direction Code	Run Number
A6,	SS,	1C,	507,	526,	FH,	I,	16 X
E5,	SS,	1C,	537,	556,	FH,	I,	23 X
A7,	SS,	11 ,	552,	609,	FH,	I,	8 X
A3,	SS,	1C,	603,	624,	FH,	I,	21 X
D9,	SS,	11 ,	613,	630,	FH,	I,	403 X
B6,	SS,	1C,	623,	646,	FH,	I,	11 X
C4,	SS,	11 ,	633,	652,	FH,	I,	12 X
B1,	SS,	11 ,	640,	659,	FH,	I,	3 X
H3,	SS,	11 ,	646,	705,	FH,	I,	54SX
D8,	SS,	1 ,	652,	718,	FH,	I,	40SX
D4,	SS,	11 ,	658,	720,	FH,	I,	38 X
B5,	SS,	11 ,	704,	726,	FH,	I,	14 X
E9,	SS,	11 ,	710,	732,	FH,	I,	42SX
E4,	SS,	1 ,	716,	744,	FH,	I,	68SX
I4,	SS,	11 ,	722,	747,	FH,	I,	408 X
C7,	SS,	11 ,	728,	754,	FH,	I,	1 X
A1,	SS,	11 ,	734,	801,	FH,	I,	20 X
J9,	SS,	1 ,	740,	811,	FH,	I,	76SX
D3,	SS,	11 ,	746,	813,	FH,	I,	13 X
A7,	SS,	11 ,	752,	819,	FH,	I,	8 X
I8,	SS,	11 ,	759,	826,	FH,	I,	74SX
G3,	SS,	1 ,	807,	838,	FH,	I,	52SX
B2,	SS,	11 ,	815,	842,	FH,	I,	25 X
F4,	SS,	11 ,	823,	850,	FH,	I,	48SX
I3,	SS,	1 ,	832,	901,	FH,	I,	79SX
J7,	SS,	11 ,	841,	907,	FH,	I,	81SX
J2,	SS,	1 ,	850,	917,	FH,	I,	78SX
J4,	SS,	11 ,	900,	922,	FH,	I,	80SX
K2,	SS,	1 ,	910,	936,	FH,	I,	89SX
A6,	SS,	11 ,	920,	942,	FH,	I,	16 X
H4,	SS,	1 ,	930,	956,	FH,	I,	71SX
F5,	SS,	11 ,	940,	1002,	FH,	I,	84 X
C1,	SS,	1 ,	951,	1017,	FH,	I,	15 X
B4,	SS,	1 ,	1005,	1031,	FH,	I,	93 X
H7,	SS,	1 ,	1021,	1047,	FH,	I,	65SX
E6,	SS,	1 ,	1041,	1107,	FH,	I,	43 X
I5,	SS,	1 ,	1101,	1127,	FH,	I,	61 X
A6,	SS,	1 ,	1121,	1147,	FH,	I,	16 X
K3,	SS,	1 ,	1151,	1217,	FH,	I,	96 X
B2,	SS,	1 ,	1221,	1247,	FH,	I,	25 X
F1,	SS,	1 ,	1251,	1317,	FH,	I,	97 X
A8,	SS,	1 ,	1321,	1347,	FH,	I,	10 X
D6,	SS,	1 ,	1351,	1417,	FH,	I,	32 /
D5,	SS,	1 ,	1421,	1447,	FH,	I,	37 X
C8,	SS,	1 ,	1451,	1520,	FH,	I,	422 X
K4,	SS,	1C,	1521,	1549,	FH,	I,	101 X

Ref:c9exh3-14.xls

The AM Peak and Off-Peak transit line files are text files containing information about transit lines, such as the headway, the run time, and the itinerary (i.e., the sequence of nodes taken by the transit vehicle as it travels its route). Line files are time-of-day specific, so there is one set of line files for the AM peak period and one set for the off-peak period. These bus line files are established 'over' the AM and off-peak highway networks, respectively.

The highway network contains some links that are coded below the grain of the TAZ system, so that the proximity of transit service to zonal activity centers can be more accurately represented[7]. In accordance with the requirements of the mode choice model, both 'walk access' and 'drive access' versions of both the AM and off-peak networks are prepared. The AM peak period is represented by the headways and run times in effect from 7-8 AM,[8] and transit service in the off-peak period is represented by the headways and run times in effect from 10 AM - 3 PM.

TPB transit line files are developed using mode codes, which designate a specific provider (or provider group) and represent operations for twenty-three transit service providers. Nine mode codes are employed: 1) local Metrobus routes, 2) Express Metrobus routes that traverse HOV lanes, 3) Metrorail lines, 4) Commuter Rail lines, 5) Light Rail and Transitway service, 6) Primary local bus lines and 7) Primary express bus lines for the inner jurisdictions, and 8) Secondary local bus lines for the outer jurisdictions and 9) Secondary express commuter bus lines. Exhibit 3-15 presents a summary of in-vehicle and out-of-vehicle mode conventions used in coding transit line files.

Light rail and transit systems using transitways are represented using Mode code "5". Transit services coded as mode 5 are not modeled as premium rail (Metrorail and Commuter Rail). However, in the COG/TPB travel model, each transit line is coded with specific operating characteristics on a line by line basis. Exhibit 3-16 some of the planning guidelines for transit vehicles that are used in cases where COG/TPB staff lack detailed coding instructions.

[7] The sub-zonal highway links used to more accurately reflect transit route alignments are disallowed from use during normal highway path building and highway assignments, however.

[8] This peak period definition is relaxed, however, to reflect earlier hourly periods for some express services that originate in the outer fringes of the study area.

Exhibit 3-15 Transit Network Mode Codes

In-Vehicle Mode Codes			
Mode No.	**Mode Description**	**Abbreviation/ Prefix**	**Transit Service**
1	Local Metrobus	"WM01 - 97, A - Z"	WMATA (DC, Alex., Falls Church, & MTG, PG, ARL, FFX Counties)
		"DCC"	District of Columbia Circulator
2	Express Metrobus	"WM05 - 29"	WMATA (ARL, ALEX, FFX)
		"REX"	WMATA (FFX. Co.)
3	Metrorail	"MRED"	RED Line
		"MBLU"	BLUE Line
		"MGRN"	GREEN Line
		"MORN"	ORANGE Line
		"MYEL"	YELLOW Line
		"MDULL"	DULLES Line
4	Commuter Rail	"FRED"	Frederick Line (VRE)
		"MASS"	Manassas Line (VRE)
		"MBRU"	Brunswick Line (MARC)
		"MCAM"	Camden Line (MARC)
		"MPENN"	Penn Line (MARC)
		"MFRED"	Frederick City Line (MARC)
		"AMTRAK"	AMTRAC Service
5	Light Rail	"MTGLRT"	Georgetown Branch Light Rail (MTA)
		"LRTDC"	Anacostia Light Rail Line (DDOT / WMATA)
		"CCTLRT"	Montgomery Co. Corridor Cities Light Rail Line (MTA)
6	Other Primary - Local Bus	"ART"	Arlington County Bus
		"DAT"	City of Alexandria Bus
		"F"	Fairfax County Bus
		"GO"	Prince Georges County Bus
		"RO"	Montgomery Co. Ride On Bus
		"SG"	Fairfax City Bus
		"TYSL"	Tyson's Circulator
7	Other Primary - Express Bus	"DAT"	City of Alexandria Bus
		"F"	Fairfax County Bus
8	Other Secondary - Local Bus	"CC"	Calvert County Bus
		"FT"	Frederick County Bus
		"HT"	Howard County Bus
		"L"	City of Laurel Bus
		"LT"	Loudoun County Local Bus
		"OL"	OMNI-LINK (PrinceWilliam Co. Local)
		"VG"	Charles County Bus (VanGO)
		"ST"	St Mary's County Bus
9	Other Secondary - Express Bus	"LC"	Lee Coaches Commuter Bus
		"LCS"	Loudoun Co. Commuter Bus
		"LINK"	Washington Flyer- Dulles/WFC
		"MT"	Maryland MTA Bus (Frederick, Howard, Anne Arundel, Calvert, St Mary's, &
			Charles Counties)
		"OR"	OMNI-RIDE (Prince William Co. Commuter Bus)
		"PQ"	Quicks Commuter Bus (Fredericksburg, Spotsylvania & Stafford Counties)
		"SDC"	Nat'l Coach Commuter Bus (Fredericksburg, Spotsylvania & Stafford Co's)
Out-of-Vehicle Mode Codes			
10	(Unused)		
11	Drive Access Links		
12	Bus-toRail transfer Link		
13	Walkinfg Link		
14	(Unused)		
15	PNR-to_Bus Stop		
16	Zonal Access or Egress		

Ref:C9exh3-15.xls

Exhibit 3-16 Planning Guidelines for Transit Vehicles, U.S. Averages

	Bus	BRT	Light Rail	Heavy Rail	Commuter Rail
Speed, max. operational	65 mph	65 mph	50 to 60 mph	55 to 65 mph	70 to 125 mph
Speed, average operating (stops included)	13 mph	Freeway: * Non-stop: 40-50 mph * All-stop: 25-35 mph Arterial: 15 mph	21 mph	28 to 33 mph	36 mph
Acceleration rate	2.5 to 2.7 mph/s (2.9 to 4.0 ft/s^2)	2.5 to 2.7 mph/s (2.9 to 4.0 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)
Deceleration rate	2.5 to 2.7 mph/s (2.9 to 4.0 ft/s^2)	2.5 to 2.7 mph/s (2.9 to 4.0 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)	2.5 to 3.0 mph/s (2.9 to 4.3 ft/s^2)
Vehicle capacity, crush (persons/vehicle)	60 to 85	60 to 130	100 to 175	175 to 187	132 to 255
Dwell time	35 to 45 s	35 to 45 s	35 to 45 s	35 to 45 s	35 to 45 s
Capital costs: Total	N/A	21.2 million $/mi for a Busway (4, 8)	25.4 million $/mi (4, 9)	158.8 million $/mi (4, 9)	N/A
Theoretical line capacity (persons/hour)	60,600 per freeway lane (4, 10)	60,600 per freeway lane (4, 10)	36,000 (4, 10)	69,000 (4, 10)	46,000 (4, 10)

Ref: c9exh3-16.xls

Notes:

1. Dollar values are for 2002, unless otherwise stated.
2. N/A: Not applicable or not available.

Sources:

1. Light rail: The Urban Transportation Monitor, September 3, 2004.
2. Heavy rail: The Urban Transportation Monitor, January 23, 2004.
3. Commuter rail: The Urban Transportation Monitor, April 4, 2003.
4. Modal Master Table, The Urban Transportation Monitor, May 2, 2003.
5. Bus rapid transit: Bus Rapid Transit, Volume 1: Case Studies in Bus Rapid Transit, TCRP Report 90, Transportation Research Board, 2003.
6. Bus rapid transit: Characteristics of Bus Rapid Transit for Decision-Making, Roderick B. Diaz (editor), prepared for the Federal Transit Administration, August 2004.
7. Acceleration/deceleration rates: Transit Capacity and Quality of Service Manual, 2nd Edition, Transit Cooperative Research Program (TCRP) Report 100, Transportation Research Board, 2003. Part 4: Bus Transit Capacity (pp 4-39 to 4-53) and Part 5: Rail Transit Capacity (p 5-50).
8. Characteristics of Urban Transportation Systems, Federal Transit Administration, 1992.
9. Includes guideway elements, yards and shops systems, stations, vehicles, special conditions, right of way, soft costs. Source: No. 8 above.
10. Obtained by taking the minimum headway and the maximum seating/standing capacity into account. This capacity is generally not obtained in actual operations of buses. Assumes 6 cars per train for LRT, 10 for rapid rail, and 6 for commuter rail.

The prospect of manually coding the various access-to-transit and transfer links associated with transit networks is especially onerous, because of the size and complexity of the COG/TPB transit networks. To facilitate coding requirements, several automated procedures are used as part of the transit network building process to enable automatic generation of auxiliary transit links, including walk-connect links, auto-connect links, transfer links, and downtown walk links.

Two file types, transit line files and a single station/PNR file are required for the automatic generation of auxiliary transit links. The station/PNR file contains a list of all rail stations and park-and-ride lots (both existing and future) included in the transit network. It also contains an array of information that is associated with each station, including bus transfer nodes and the nearest TAZ. An example of a Station and Park-and-ride file is displayed in Exhibit 3-17. A description of the station/PNR file format can be found in Exhibit 3-34.

It is assumed that travelers access the transit system by either walking or driving, so zone centroids are connected to the transit system via a series of walk-access links and drive-access links. If a traveler accesses the transit system by auto, the traveler must go via a designated park-and-ride (PNR) lot, so these drive-access links are also called PNR access links. An automated procedure is used to generate drive-access links for both the peak and off-peak time periods. In the past, such as for the Version 2.0/TP+ model, we generated up to four drive-access links, for each zone, to the four "closest" rail or bus station's park-and-ride lot. However, using such a procedure ("best N stations") can lead to a phenomenon known as the "transit paradox," when one applies the procedure to multiple network scenarios (years).

An example of the transit paradox is a case where a major rail extension is added to a network, but the extension results in a *loss* in transit trips for some zones, instead of the increase that would be expected. The paradox is caused by inconsistent coding of transit access links, usually drive-access links, where, instead of simply adding new drive-access links that are associated with the rail extension, the modeler both adds some drive-access links and removes some existing drive-access links. The removal of some links usually occurs at end-of-the-line stations that, because of the extension, are no longer end-of-the-line stations. Thus, in adding the new rail extension, some drive-access links that existed in the base scenario were removed by the modeler (or modeler's software) as the rail line is extended, instead of simply adding new drive-access links in addition to the existing ones. The result is that, for some interchanges, the drive-access transit travel time goes up and transit trips are reduced, despite the addition of the transit service.

To minimize the occurrence of the transit paradox, we developed a new routine for generating drive-access links that is based on one or more set distances from each zone. Specifically, two conditions apply:

1. The straight-line distance from a zone to a PNR lot must be: (1) within 4 miles for DC, Arlington Co., and Alexandria; (2) within 5 miles for Montgomery Co., Fairfax Co., and Prince George's Co.; and (3) within 8 miles for all remaining jurisdictions.
2. Zone to PNR connections will not cross the Potomac River, except for origin zones in Loudoun Co. and Jefferson Co., since the MARC commuter rail system in Maryland does serve commuters from those jurisdictions.

Exhibit 3-17 Station/Park-and Ride File

Seq. No.	Mode	PNR Y/N	Sta Y/N	Station / Park-n-Ride	Sta. Cent.	Zone	Station No.	PNR No.	Stop Node#1	Stop Node#2	Stop Node#3	Stop Node#4	X Coord.	Y Coord.	Operation
81	M	Y	Y	Shady Grove	2331	482	7301	7501	3402	3404			1265612	529165	1990
82	M	Y	Y	Rockville	2332	478	7302	7502	3358	7605	3377		1270634	516535	1990
83	M	Y	Y	Twinbrook	2333	413	7303	7503	3351	3684			1278226	508219	1990
84	M	Y	Y	White Flint	2334	405	7304	7504	3339	3682			1280534	503092	1990
85	M	Y	Y	Grosvenor	2335	403	7305	7505	3334				1282836	496371	1990
86	M		Y	Medical Center	2336	346	7306		3054				1284770	485106	1990
87	M	Y	Y	Bethesda	2337	344	7307	7507	3048				1285562	479783	1990
88	M		Y	Friendship Heights	2338	204	7308		9140				1288006	471198	1990
89	M		Y	Tenleytown	2339	207	7309		9117				1289640	466682	1990
90	M		Y	Van Ness-UDC	2340	122	7310		9153				1294409	464951	1990
91	M		Y	Cleveland Park	2341	117	7311		9156				1295609	462324	1990
92	M		Y	Woodley Park-Zoo	2342	117	7312		9163				1297352	458473	1990
93	M		Y	Dupont Circle	2343	46	7313		8901	8905			1299825	453021	1990
94	M		Y	Farragut North	2344	9	7314		8440				1301031	450307	1990
95	M		Y	Metro Center	2345	19	7315		8912	8919			1304332	448558	1990
96	M		Y	Gallery Place	2346	23	7316		8955				1306089	448605	1990
97	M		Y	Judiciary Square	2347	26	7317		8474				1307581	447815	1990
98	M		Y	Union Station	2348	64	7318		8656	8654	7601		1310220	448408	1990
99	M	Y	Y	Rhode Island Ave	2349	145	7319	7519	9422				1313227	456640	1990
100	M		Y	Brookland-CUA	2350	139	7320		9575				1313751	461393	1990
101	M	Y	Y	Fort Totten	2351	248	7321	7521	9544				1311788	467989	1990
102	M		Y	Takoma	2352	242	7322		9273				1307187	476759	1990
103	M	Y	Y	Silver Spring	2353	361	7323	7523	3178	7602	3900	3901	1303398	483452	1990
104	M	Y	Y	Forest Glen	2354	429	7324	7524	3605				1300177	491390	1990
105	M	Y	Y	Wheaton	2355	425	7325	7525	3607				1297955	499408	1990
106	M		Y	Archives	2356	25	7336		8458	8494			1306106	446727	1990
107	M		Y	L'Enfant Plaza	2357	77	7337		8444	8445	7701		1306103	443645	1990
108	M	Y	Y	Huntington	2358	1468	7348	7548	6121				1290877	410419	1990
109	M		Y	Eisenhower Avenue	2359	1366	7349		5678				1291897	413065	1990
110	M		Y	King Street	2360	1364	7350		5660	7704			1294645	414996	1990
111	M		Y	Braddock Road	2361	1336	7351		5661				1296953	417688	1990
112	M		Y	National Airport	2362	1240	7352		5200				1299828	432187	1990
113	M		Y	Crystal City	2363	1242	7353		5304	5307	7702		1298129	433637	1990
114	M		Y	Pentagon City	2364	1243	7354		5211				1295342	435270	1990
115	M		Y	Pentagon	2365	1230	7355		5225	5389	5390		1297011	437934	1990

Ref: c9exh3-17.xls

One other enhancement used in automated coding of drive-access links in the model involves the time and distance coded on drive-access links. Although drive-access links were always coded with a time and distance representing the over-the-road travel between the zone and the PNR, in the past, this time and distance were based on a lookup table of speeds. Now, however, the time and distance values are updated based on the output speeds from the initial "pump prime" traffic assignment. This means that the times and speeds on drive-access links should reflect the fact that they will congest as roadway links congest. Further details can be found in the Version 2.2 model User's Guide, which discusses the automatic generation of both auto-access links and walk-access links.

Transit network data is shown for the Metrorail system in Exhibit 3-18. Metrorail system information is displayed for base year 2002, and forecast 2009, 2010, 2020, and 2030 networks. The Exhibit lists COG's transit route name, origin and destination stations, headways, run-times, line distances, and average line speed for service during the AM peak hour and Off-peak period. Note, Metrorail runtimes were revised in transit networks developed during FY2007 for the following lines: Green Line (Greenbelt-Branch Ave.) 47 minutes, Blue-B Line (Franconia/Springfield-Greenbelt) 60 minutes, and Orange-C Line (Vienna-Largo) 65 minutes.

Commuter rail and light rail transit line data is based on schedule information obtained in the fall/winter of 2007 and 2008 CLRP inputs and shown in Exhibit 3-19 through Exhibit 3-21. Rail line characteristics are displayed for base year 2002, and forecast 2009, 2010, 2020, and 2030. These Exhibits list COG's transit route name, origin and destination stations, headways, run-times, line distances, and average line speed for service during the AM peak hour and Off-peak period.

As a note, MARC commuter rail's Brunswick line MBRU2O was re-designated as MBRU1O, Penn Line MPEN3I was merged with MPEN1I, lines MPEN2O (Local service) and MPEN4O (Limited service) were re-designated as MPEN1O and MPEN2O, in all transit networks developed for and after 2004. MCAM3I was removed from transit networks in 2001 and MCAM4O was removed from transit networks in 2004. AMTRAC routes are also modeled and are designated with the line prefix identifier "AMTK".

A file named "rail_lnk.bse" is required in the transit building process and contains link data for Metrorail, commuter rail, and light rail services. Rail link attributes consist of simply the a-node, b-node, distance and average speed. Exhibit 3-35 displays a rail link file format description. Rail link data for Metrorail and commuter rail service is supplied by the Washington Metropolitan Area Transit Authority (WMATA), Maryland Transit Administration (MTA), and Virginia Department of Rail and Public Transportation (VDRPT). Data for light rail service is provided by implementing agencies.

Exhibit 3-18 Metrorail Data for 2008 CLRP and FY2009-2014 TIP Transit Networks

	2002						
Line	**O-Sta.**	**D-Sta.**	**am hdwy**	**op hdwy**	**time (min)**	**dist (mi)**	**spd (mph)**
Red-A	Shady Grove (1)	Glenmont (26)	6	12	62	31.38	30.37
Red-B	Grosvenor (5)	Silver Spring (23)	6	12	40	19.27	28.91
Grn-A	Greenbelt (27)	Branch (45)	6	12	47	22.45	28.66
Yel-A	Mt. Vn Sq.-UDC (35)	Huntington (48)	6	12	26	10.6	24.46
Blu-A	FranSpgfld (47)	Addison Rd. (83)	6	12	60	26.85	26.9
Oran-A	Vienna (57)	New Carrollton (80)	6	12	57	25.8	27.16
	Year 2009						
Line	**O-Sta.**	**D-Sta.**	**am hdwy**	**op hdwy**	**time (min)**	**dist (mi)**	**spd (mph)**
Red-A	Shady Grove (1)	Glenmont (26)	6	12	62	31.38	30.37
Red-B	Grosvenor (5)	Silver Spring (23)	6	12	40	19.29	28.94
Grn-A	Greenbelt (27)	Branch (45)	6	12	47	22.45	28.66
Yel-A	Mt. Vn Sq.-UDC (35)	Huntington (48)	6	12	26	10.6	24.46
Blu-A	FranSpgfld (47)	Largo (87)	6	12	62	29.27	28.33
Oran-A	Vienna (57)	New Carrollton (80)	6	12	57	25.8	27.16
	Year 2010						
Line	**O-Sta.**	**D-Sta.**	**am hdwy**	**op hdwy**	**time (min)**	**dist (mi)**	**spd (mph)**
Red-A	Shady Grove (1)	Glenmont (26)	6	12	62	31.38	30.37
Red-B	Grosvenor (5)	Silver Spring (23)	6	12	40	19.29	28.94
Grn-A	Greenbelt (27)	Branch (45)	6	12	47	22.45	28.66
Yel-A	Mt. Vn Sq.-UDC (35)	Huntington (48)	7	12	26	10.6	24.46
Blu-A	FranSpgfld (47)	Largo (87)	14	12	62	29.27	28.33
Blu-B	FranSpgfld (47)	Greenbelt (27)	14	--	60	28.19	28.19
Oran-A	Vienna (57)	New Carrollton (80)	7	12	57	25.8	27.16
Oran-C	Vienna (57)	Largo (87)	14	--	65	26.37	24.34
	Year 2020						
Line	**O-Sta.**	**D-Sta.**	**am hdwy**	**op hdwy**	**time (min)**	**dist (mi)**	**spd (mph)**
Red-A	Shady Grove (1)	Glenmont (26)	2.5	6	62	31.38	30.37
Red-B	Grosvenor (5)	Silver Spring (23)	--	--	--	--	--
Grn-A	Greenbelt (27)	Branch (45)	7	12	47	22.45	28.66
Yel-A	Mt. Vn Sq.-UDC (35)	Huntington (48)	7	12	26	10.6	24.46
Blu-A	Franconia (47)	Largo (87)	14	12	62	29.27	28.33
Blu-B	Franconia (47)	Greenbelt (27)	14	--	60	28.19	28.2
Oran-A	Vienna (57)	New Carrollton (80)	7	12	57	25.8	27.16
Oran-B	Dulles GrnWay (98)	Stadium-Armory (75)	7	12	75	34.74	27.79
Oran-C	Vienna (57)	Largo (87)	14	--	65	26.37	24.34
	Year 2030						
Line	**O-Sta.**	**D-Sta.**	**am hdwy**	**op hdwy**	**time (min)**	**dist (mi)**	**spd (mph)**
Red-A	Shady Grove (1)	Glenmont (26)	2.5	6	62	31.38	30.37
Red-B	Grosvenor (5)	Silver Spring (23)	--	--	--	--	--
Grn-A	Greenbelt (27)	Branch (45)	7	12	47	22.45	28.66
Yel-A	Mt. Vn Sq.-UDC (35)	Huntington (48)	7	12	26	10.6	24.46
Blu-A	FranSpgfld (47)	Largo (87)	14	12	62	29.27	28.33
Blu-B	FranSpgfld (47)	Greenbelt (27)	14	--	60	28.16	28.16
Oran-A	Vienna (57)	New Carrollton (80)	7	12	57	25.8	27.16
Oran-B	Dulles GrnWay (98)	Stadium-Armory (75)	7	12	75	34.74	27.79
Oran-C	Vienna (57)	Largo (87)	14	--	65	26.37	24.34

Exhibit 3-19 Commuter Rail and Light Rail Network Data for 2002

* Express ** Limited Stops			*Year 2002*						
Line	**Origin Station**	**Destination Station**	am hdwy	op hdwy	amRT (min)	opRT (min)	dist (mi)	amspd (mph)	opspd (mph)
FRED1I	Fredericksburg	Union Station (01)	30	--	88	--	53.92	36.76	--
FRED1O	Union Station (01)	Fredericksburg	--	60	--	86	53.92		37.62
FRED2I	Fredericksburg	Union Station (01)	60	60	75	75	53.92	43.14	43.14
FRED3O**	Union Station (01)	Fredericksburg	--	60	--	67	53.92	--	48.29
FRED4O	Union Station (01)	Fredericksburg	--	60	--	70	53.92	--	46.22
MASS1I	Broad Run Airport	Union Station (01)	30	60	75	75	34.34	27.47	27.47
MASS1O	Union Station (01)	Broad Run Airport	--	60	--	73	34.34	--	28.22
MASS2I**	Broad Run Airport	Union Station (01)	--	--	--	--	--	--	--
MASS2O**	Union Station (01)	Broad Run Airport	60	--	75	--	34.34	27.47	--
MFREDI	Frederick City (18)	Union Station (01)	--	--	--	--	--	--	--
AMTK1I**	Fredericksburg	Union Station (01)	--	--	--	--	--	--	--
AMTK1O**	Union Station (01)	Fredericksburg	--	--	--	--	--	--	--
AMTK2I**	Fredericksburg	Union Station (01)	--	--	--	--	--	--	--
AMTK2O**	Union Station (01)	Fredericksburg	--	--	--	--	--	--	--
AMTK3O**	Union Station (01)	Manassas	--	--	--	--	--	--	--
AMTK4O**	Union Station (01)	Manassas	--	--	--	--	--	--	--
MBRU1I	Duffields (16)	Union Station (01)	--	--	--	--	--	--	--
MBRU1O	Union Station (01)	Brunswick (14)	--	--	--	--	--	--	--
MBRU2O	Union Station (01)	Brunswick (14)	--	60	--	78	47.02	--	36.17
MBRU2I	Brunswick (14)	Union Station (01)	60	--	78	--	47.02	36.17	--
MBRU3I**	Brunswick (14)	Union Station (01)	60	--	87	--	47.02	32.43	--
MBRU4I**	Brunswick (14)	Union Station (01)	60	--	81	--	47.02	34.83	--
MCAM1I	Elkridge (32)	Union Station (01)	60	--	55	--	26.80	29.24	--
MCAM1I	Dorsey (34)	Union Station (01)	--	--	--	--	--	--	--
MCAM1O**	Union Station (01)	Dorsey (34)	60	--	39	--	26.80	41.23	--
MCAM2I	Elkridge (32)	Union Station (01)	60	--	50	--	26.80	32.16	--
MCAM2I	Dorsey (34)	Union Station (01)	--	--	--	--	--	--	--
MCAM3I**	Dorsey (34)	Union Station (01)	60	--	43	--	26.80	37.40	--
MCAM1I	Elkridge (32)	Union Station (01)	--	--	--	--	--	--	--
MCAM3O	Union Station (01)	Elkridge (32)	--	60	--	80	26.80	--	20.10
MCAM3O**	Union Station (01)	Dorsey (34)	--	--	--	--	--	--	--
MCAM4O	Union Station (01)	Laurel Race Tk. (36)	--	60	--	50	18.70	--	22.44
MFREDI**	Frederick City (18)	Union Station (01)	--	--	--	--	--	--	--
MPEN1I	BWI Station (55)	Union Station (01)	60	60	41	39	27.03	39.56	41.58
MPEN1O	Union Station (01)	BWI Station (55)	--	--	--	--	--	--	--
MPEN2I	BWI Station (55)	Union Station (01)	--	--	--	--	--	--	--
MPEN2O	Union Station (01)	BWI Station (55)	60	60	26	36	27.03	62.38	45.05
MPEN3I *	BWI Station (55)	Union Station (01)	60	--	40	--	27.03	40.55	--
MPEN4O *	Union Station (01)	BWI Station (55)	60	--	33	--	27.03	49.15	--
CCTLRT	Metro Grove	Shady Grove	--	--	--	--	--	--	--
CCTPY1	Crystal City Metro	Glebe Rd Ext.	--	--	--	--	--	--	--
CCTPY2	Crystal City Metro	Braddock Rd Metro	--	--	--	--	--	--	--
DCSTCAR	Anacostia	Bolling AFB	--	--	--	--	--	--	--
LRTMTG	Bethesda(70)	Silver Spring (73)	--	--	--	--	--	--	--

Ref: c7exh3-18.xls

Exhibit 3-20 Commuter Rail and Light Rail Network Data for 2009 and 2010

* Express ** Limited Stops			*Year 2009*							*Year 2010*						
Line	**Origin Station**	**Destination Station**	am hdwy	op hdwy	amRT (min)	opRT (min)	dist (mi)	amspd (mph)	opspd (mph)	am hdwy	op hdwy	amRT (min)	opRT (min)	dist (mi)	amspd (mph)	opspd (mph)
FRED1I	Fredericksburg	Union Station (01)	30	--	90	--	53.92	35.95		20	--	90	--	53.92	35.95	--
FRED1O	Union Station (01)	Fredericksburg	--	60	--	91	53.92	--	35.55	--	60	--	91	53.92	--	35.55
AMTK1I**	Fredericksburg	Union Station (01)	60	--	80	--	53.92	40.44		60	--	80	--	53.92	40.44	--
AMTK1O**	Union Station (01)	Fredericksburg	60	60	65	65	53.92	49.77	49.77	60	60	65	65	53.92	49.77	49.77
AMTK2I**	Fredericksburg	Union Station (01)	--	60	--	91	53.92	--	35.55	--	60	--	91	53.92	--	35.55
AMTK2O**	Union Station (01)	Fredericksburg	--	60	--	62	53.92	--	52.18	--	60	--	62	53.92	--	52.18
MASS1I	Broad Run Airport	Union Station (01)	30	60	75	75	34.34	27.47	27.47	20	--	75	--	34.34	27.47	--
MASS1O	Union Station (01)	Broad Run Airport	--	60	--	73	34.34	--	28.22	--	60	--	73	34.34	--	28.22
MASS2I**	Broad Run Airport	Union Station (01)	--	60	--	70	34.34	--	29.43	--	60	--	70	34.34	--	29.43
MASS2O**	Union Station (01)	Broad Run Airport	60	--	75	--	34.34	27.47	--	60	--	75	--	34.34	27.47	--
AMTK3O**	Union Station (01)	Manassas	--	60	--	69	53.92		46.89	--	60	--	69	53.92		46.89
AMTK4O**	Union Station (01)	Manassas	--	60	--	52	31.82		36.72	--	60	--	52	31.82		36.72
MBRU1I	Brunswick (14)	Union Station (01)	60	--	92	--	47.02	30.67	--	60	--	92	--	47.02	30.67	--
MBRU1O	Union Station (01)	Brunswick (14)	--	60	--	83	47.02	--	33.99	--	60	--	83	47.02	--	33.99
MBRU2O	Union Station (01)	Brunswick (14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MBRU2I**	Duffields (16)	Union Station (01)	60	--	104	--	58.62	33.82	--	60	--	104	--	58.62	33.82	--
MCAM1I	Dorsey (34)	Union Station (01)	60	--	60	--	26.80	26.80	--	60	--	60	--	26.80	26.80	--
MCAM1O	Union Station (01)	Dorsey (34)	60	--	42	--	26.80	38.29	--	60	--	42	--	26.80	38.29	--
MCAM2I**	Dorsey (34)	Union Station (01)	60	--	55	--	26.80	29.24	--	60	--	55	--	26.80	29.24	--
MCAM3I**	Dorsey (34)	Union Station (01)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MCAM3O**	Union Station (01)	Dorsey (34)	--	60	--	75	26.80	--	21.44	--	60	--	75	26.80	--	21.44
MCAM4O	Union Station (01)	Laurel Race Tk. (36)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MFREDI**	Frederick City (18)	Union Station (01)	60	--	100	--	55.15	33.09	--	60	--	100	--	55.15	33.09	--
MPEN1I	BWI Station (55)	Union Station (01)	30	60	40	39	27.03	40.55	41.58	30	60	40	39	27.03	40.55	41.58
MPEN1O	Union Station (01)	BWI Station (55)	60	60	34	34	27.03	47.70	47.70	60	60	34	34	27.03	47.70	47.70
MPEN2I	BWI Station (55)	Union Station (01)	60	--	30	--	27.03	54.06	--	60	--	30	--	27.03	54.06	--
MPEN2O	Union Station (01)	BWI Station (55)	60	--	30	--	27.03	54.06	--	60	--	30	--	27.03	54.06	--
AMTK3O**	BWI Station (55)	Union Station (01)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AMTK4O**	Union Station (01)	BWI Station (55)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Light Rail																
CCTLRT	Metro Grove	Shady Grove	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CCTPY1	Crystal City Metro	Glebe Rd Ext.	6	12	10	10	1.10	6.60	6.60	6	12	10	10	1.10	6.60	6.60
CCTPY2	Crystal City Metro	Braddock Rd Metro	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DCSTCAR	Anacostia	Bolling AFB	15	30	7	7	0.30	2.57	2.57	15	30	7	7	0.3	2.57	2.57
LRTMTG	Bethesda(70)	Silver Spring (73)	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Exhibit 3-21 Commuter Rail and Light Rail Network Data for 2020 and 2030

* Express ** Limited Stops			*Year 2020*							*Year 2030*						
Line	**Origin Station**	**Destination Station**	am hdwy	op hdwy	amRT (min)	opRT (min)	dist (mi)	amspd (mph)	opspd (mph)	am hdwy	op hdwy	amRT (min)	opRT (min)	dist (mi)	amspd (mph)	opspd (mph)
FRED1I	Fredericksburg	Union Station (01)	20	--	90	--	53.92	35.95	--	20	--	90	--	53.92	35.95	--
FRED1O	Union Station (01)	Fredericksburg	--	60	--	91	53.92	--	35.55	--	60	--	91	53.92	--	35.55
AMTK1I**	Fredericksburg	Union Station (01)	60	--	80	--	53.92	40.44	--	60	--	80	--	53.92	40.44	--
AMTK1O**	Union Station (01)	Fredericksburg	60	60	65	65	53.92	49.77	49.77	60	60	65	65	53.92	49.77	49.77
AMTK2I**	Fredericksburg	Union Station (01)	--	60	--	91	53.92	--	35.55	--	60	--	91	53.92	--	35.55
AMTK2O**	Union Station (01)	Fredericksburg	--	60	--	62	53.92	--	52.18	--	60	--	62	53.92	--	52.18
MASS1I	Broad Run Airport	Union Station (01)	20	--	75	--	34.34	27.47	--	20	--	75	--	34.34	27.47	--
MASS1O	Union Station (01)	Broad Run Airport	--	60	--	73	34.34	--	28.22	--	60	--	73	34.34	--	28.22
MASS2I**	Broad Run Airport	Union Station (01)	--	60	--	70	34.34	--	29.43	--	60	--	70	34.34	--	29.43
MASS2O**	Union Station (01)	Broad Run Airport	60	--	75	--	34.34	27.47	--	60	--	75	--	34.34	27.47	--
AMTK3O**	Union Station (01)	Manassas	--	60	--	69	53.92	--	46.89	--	60	--	69	53.92	--	46.89
AMTK4O**	Union Station (01)	Manassas	--	60	--	52	31.82	--	36.72	--	60	--	52	31.82	--	36.72
MBRU1I	Brunswick (14)	Union Station (01)	60	--	92	--	47.02	30.67	--	60	--	92	--	47.02	30.67	--
MBRU1O	Union Station (01)	Brunswick (14)	--	60	--	83	47.02	--	33.99	--	60	--	83	47.02	--	33.99
MBRU2O	Union Station (01)	Brunswick (14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MBRU2I**	Duffields (16)	Union Station (01)	60	--	104	--	58.62	33.82	--	60	--	104	--	58.62	33.82	--
MCAM1I	Dorsey (34)	Union Station (01)	60	--	60	--	26.80	26.80	--	60	--	60	--	26.80	26.80	--
MCAM1O	Union Station (01)	Dorsey (34)	60	--	42	--	26.80	38.29	--	60	--	42	--	26.80	38.29	--
MCAM2I**	Dorsey (34)	Union Station (01)	60	--	55	--	26.80	29.24	--	60	--	55	--	26.80	29.24	--
MCAM3I**	Dorsey (34)	Union Station (01)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MCAM3O**	Union Station (01)	Dorsey (34)	--	60	--	75	26.80	--	21.44	--	60	--	75	26.80	--	21.44
MCAM4O	Union Station (01)	Laurel Race Tk. (36)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MFREDI**	Frederick City (18)	Union Station (01)	60	--	100	--	55.15	33.09	--	60	--	100	--	55.15	33.09	--
MPEN1I	BWI Station (55)	Union Station (01)	30	60	40	39	27.03	40.55	41.58	30	60	40	39	27.03	40.55	41.58
MPEN1O	Union Station (01)	BWI Station (55)	60	60	34	34	27.03	47.70	47.70	60	60	34	34	27.03	47.70	47.70
MPEN2I	BWI Station (55)	Union Station (01)	60	--	30	--	27.03	54.06	--	60	--	30	--	27.03	54.06	--
MPEN2O	Union Station (01)	BWI Station (55)	60	--	30	--	27.03	54.06	--	60	--	30	--	27.03	54.06	--
AMTK3O**	BWI Station (55)	Union Station (01)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AMTK4O**	Union Station (01)	BWI Station (55)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Light Rail																
CCTLRT	Metro Grove	Shady Grove	6	10	40	40	13.31	19.97	19.97	6	10	40	40	13.3	19.95	19.95
CCTPY1	Crystal City Metro	Glebe Rd Ext.	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CCTPY2	Crystal City Metro	Braddock Rd Metro	6	12	21	21	3.55	10.14	10.14	6	12	21	21	3.55	10.14	10.14
DCSTCAR	Anacostia	Bolling AFB	15	30	7	7	0.30	2.57	2.57	15	30	7	7	0.3	2.57	2.57
LRTMTG	Bethesda(70)	Silver Spring (73)	6	12	12	12	3.75	18.75	18.75	6	12	12	12	3.75	18.75	18.75

3.4 Transit Fare Building Overview

A series of files is needed to support the fare building process. COG's transit fare process consists of two programs known as MFARE1 and MFARE2, which operate in sequence to estimate Metrorail station-to-station fares and to estimate total (bus and rail) fares between TAZs. A more rigorous description of the MFARE1 and 2 processes can be found in Chapter 15 (Transit Fare Development) of the Version 2.2 model User's Guide.

The files needed to support the fare building process include a transit walk area percentage file, a zone file indicating the equivalence between each TAZ and its associated bus fare zone, a Metrorail network link file and coordinate file, and a bus fare matrix indicating fares between large pre-defined super zones (bus-fare-zone to bus-fare-zone fare matrix). Descriptions of the assumptions employed in the development of bus fare matrices are presented in the following pages.

The year 2002 served as the base year for the air quality conformity assessment of the 2008 CLRP and FY2009-2014 TIP. So, fare matrices are based on WMATA tariffs in effect for base years and the current tariff in effect at the time of network development. The WMATA fare tariffs used for FY2009 follows: year 2002 (Tariff Number 19, effective June 1999), and in forecast years 2008-2030 (Tariff Number 23 effective June 2004). In FY2006, the bus-fare-zone to bus-fare-zone matrix for Tariff Number 23 was modified to reflect a modification in fares for VRE railway express operations. Tariff #23 was revised again in January 2008 and included an increase in the peak base boarding charge. No changes were made to the off-peak Metrorail fare. Exhibit 3-22 displays WMATA's Metrorail and bus fare policy for the peak and off-peak periods and control parameters for the MWCOG's transit fare computation process.

Fares for service outside the WMATA compact area are developed using passenger costs for transit available in each area. Currently, fares for MARC, VRE, MTA, PRTC/Omni, and other transit providers are the same for the peak and off-peak periods. These fares are provided in cents for the year that the Tariff was in effect. The least expensive fares available are used to reflect what the majority of regular work trip commuters would pay and are averaged for areas with multiple services and fare structures.

Areas with multiple services and fare structures are represented as being in a primary and secondary fare zone. For example, S.E. Fairfax County is served by Fairfax Connector (bus fare zone 1) and VRE commuter rail service (bus fare zone 18). Therefore in this area, each TAZ would have two bus fare zones (a primary and a secondary) listed in the TAZ/bus fare equivalence file. MFARE2 would calculate the cost of a trip from a TAZ in this area to downtown D.C. (bus fare zone 1) by averaging the cost of a trip from bus fare zone 1 to bus fare zone 1 with the cost of a trip from bus fare zone 18 to bus fare zone 1.

COG/TPB's bus fare zones are designed to reflect transit service areas. These areas are based on WMATA tariffs, fares for MARC, VRE, and remaining transit providers. The numbering scheme for bus fare zones was revised for use with the Version 2.2 model. Bus fare zones are now numbered 1 - 21 as opposed to 1,1 – 3,7.

Exhibit 3-22 WMATA Metrorail and Bus Fare Policy* and MFARE1/2 Control Parameters

Process	Time Period	Control	Name	Policy Variable	Tariff #19 6/20/1999	Tariff #23 1/6/2008
MFARE1	**AM**	**MFARE1**	UPARMS (7)	Boarding Distance	3 miles	3 miles
			UPARMS (8)	Secondary Distance	3 miles	3 miles
			UPARMS (1)	Boarding Fare	$1.10	$1.65
			UPARMS (3)	Maximum Fare	$3.25	$4.50
			UPARMS (2)	Secondary Fare	$0.19	$0.27
			UPARMS (9)	Tertiary Fare	$0.165	$0.240
MFARE1	**OFF-PEAK**	**MFARE1OP**	UPARMS (7)	Boarding Distance	7 miles	7 miles
			UPARMS (8)	Secondary Distance	3 miles	3 miles
			UPARMS (1)	Boarding Fare	$1.10	$1.35
			UPARMS (3)	Maximum Fare	$2.10	$2.35
			UPARMS (2)	Secondary Fare	$0.50	$0.50
			UPARMS (9)	Tertiary Fare	$0.50	$0.50
MFARE2	**AM/OFF-PEAK**	**MFARE2TP**	UPARMS (2)	Deflator		
			UPARMS (4)	DC Rail-Bus Discount	$0.85	$0.90
			UPARMS (5)	MD Rail-Bus Discount	$0.85	$0.90
			UPARMS (6)	Va/1 Rail-Bus Discount	$0.85	$0.90
			UPARMS (7)	Va/2 Rail-Bus Discount	$0.85	$0.90

The WMATA Metrorail and bus fare policy and control parameters are taken from the Tariff of the Washington Metropolitan Area Transit Authority for the Metrorail and Metrobus operations within the Washington Area, Tariff 19 (effective June 1999), and Tariff 23 (effective January 2008).

The following sections describe the development of bus fare zones and service areas for various tariff and fare scenarios. Bus fare zones/service areas and fare matrices for year 2002 networks (WMATA's Tariff #19) are described in Exhibit 3-23 through Exhibit 3-26. Information is displayed for forecast year networks (Tariff #23) in Exhibit 3-27 through Exhibit 3-30.
In June of 1999, the Washington Metropolitan Area Transit Authority published a new tariff #19 for Metrorail and Metrobus operations. The Metrobus fare structure was changed to integrate the Metrobus and Metrorail system and foster seamless travel with other local transit providers. The Metrorail fare structure featured regular fares and reduced fares by time-of-day, based on composite miles. Fares are provided in year 1999 cents (or the year that the tariff was in effect). A flat fare of $1.10 for Metrobus trips was created by eliminating all zone charges in Maryland and Virginia as well as eliminating interstate charges for trips traversing the regions major jurisdictions. The tariff also eliminated the 10-cent Metrobus transfer fee, reduced fares on regular and express Metrobus routes, and cut most local bus fares. In addition, transfers from Metrorail to Metrobus cost 25 cents and Metrobus transfers on Montgomery County's Ride-On bus system, as well as other local bus systems such as DASH, Fairfax Connector, CUE, ART, Connect-A-Ride, and PRTC OmniRide were honored.

Fares for MARC, VRE and other transit providers are the same for the peak and off-peak. These fares are based on those in effect during 1999. The least expensive fares available were used to reflect what the majority of regular work trip commuters would pay. Fares were averaged for areas with multiple services. Exhibit 3-22 shows the basic peak and off-peak period fare policies addressed in the modeling procedures for tariff #19.

Bus fare zones/service areas were redesigned to reflect the new Metrobus fare tariff and changes in fares for the remaining transit providers in the modeled area. In addition to new bus fare zones/service areas, the new regional fare structure removed the need for separate matrices for peak period fares and off-peak period fares. This was made possible by creating a flat fare of $1.10 for Metrobus trips by eliminating all zone charges in Maryland and Virginia as well as eliminating interstate charges for trips traversing the regions major jurisdictions.

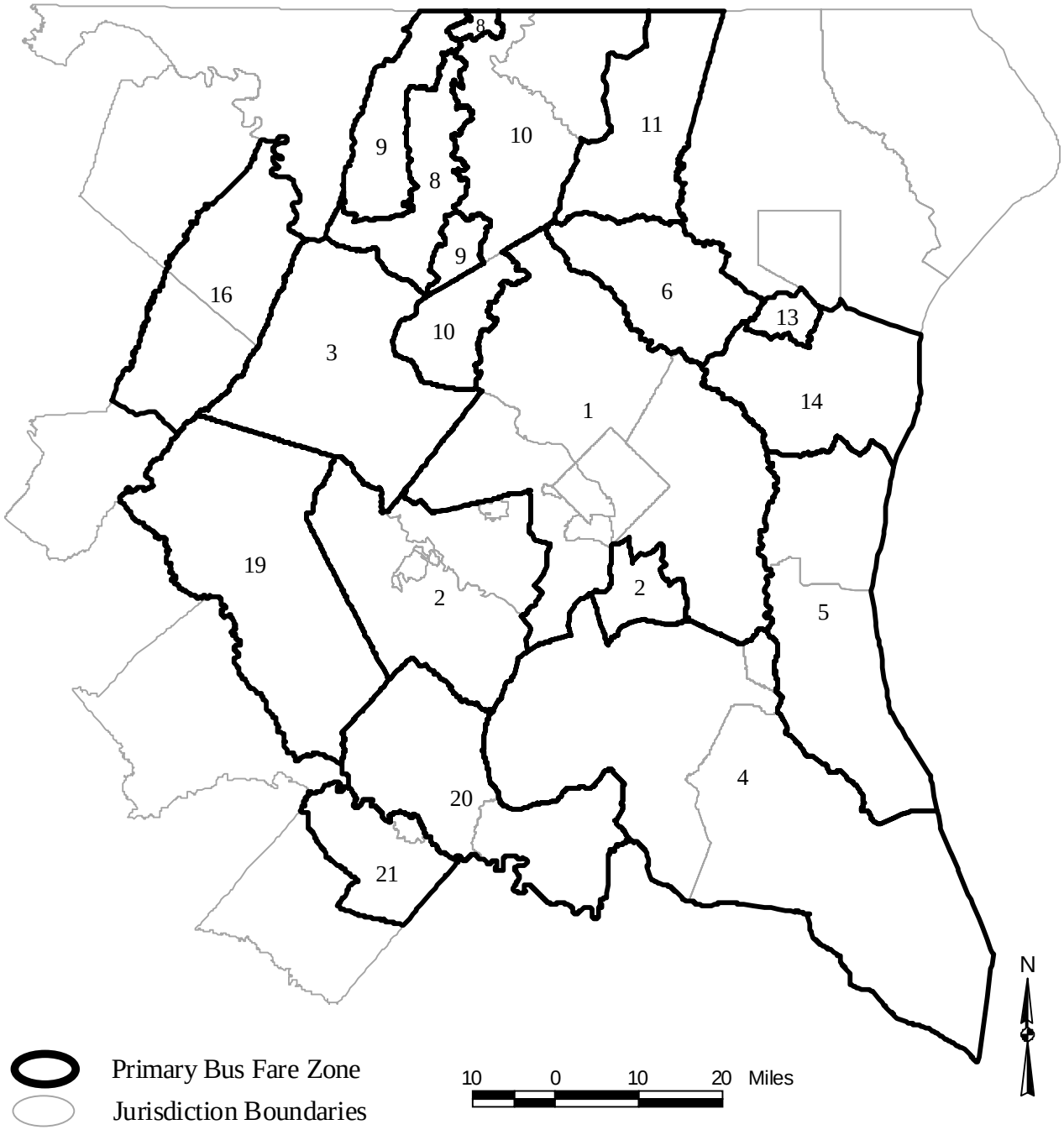
Bus fare zones/service areas for WMATA Tariff #19 are defined in Exhibit 3-23. Regional bus fare zone maps showing primary and secondary fare zones are displayed in Exhibit 3-24 and Exhibit 3-25, respectively. The bus fare matrix is shown in Exhibit 3-26.

Exhibit 3-23 Bus Fare Zones/Service Areas for WMATA Tariff #19

1st Fare Zone	Bus/Rail Service[9]	Approximate Service Area
Fare Zone 1	WMATA Regular Service	DC, MTG, PG, ALEX, ARL, & FFX
Fare Zone 2	WMATA Express & Special Fare Service, & OMNI	Inner Maryland, Fairfax Suburbs, & Prince William County
Fare Zone 3	Loudoun Commuter Bus Service	Loudoun County
Fare Zone 4	MTA Commuter Bus	Charles / St Mary's Counties
Fare Zone 5	MTA Commuter Bus	S. Anne Arundel / Calvert Counties
Fare Zone 6	MTA Commuter Bus	Howard County
Fare Zone 7	MTA Commuter Bus	Frederick County
Fare Zone 8	Frederick Co Local Bus	Frederick County
Fare Zone 9	MARC Rail / Brunswick Line	W. Frederick / N. Loudoun Counties
Fare Zone 10	MARC Rail / Brunswick Line	MTG. Co. (Ring 8) / E. Frederick & W. Carroll Counties
Fare Zone 11	MARC Rail / Brunswick Line	MTG. Co. (Mid County) /W. Howard Co. & E. Carroll Co.
Fare Zone 12	MARC Rail / Brunswick Line	Montgomery Co. (Inner County)
Fare Zone 13	MARC / Penn, Camden Lines	NE. Howard /NW Anne Arundel Co.
Fare Zone 14	MARC / Penn, Camden Lines	SE. Howard/Anne Arundel Co. & NE. Prince Georges Co.
Fare Zone 15	MARC / Penn, Camden Lines	N. Central Prince Georges Co. & SW. Anne Arundel Co.
Fare Zone 16	MARC/Brunswick Line	Jefferson W.VA. & Clarke Co. VA.
Fare Zone 17	VRE Rail Zones 1&2	Inside Beltway
Fare Zone 18	VRE Rail Zones 3&4	Fairfax & Prince William Counties
Fare Zone 19	VRE Rail Zones 5&6	Prince William & Fauquier Counties
Fare Zone 20	VRE Rail Zones 7&8	Stafford & King George Counties
Fare Zone 21	VRE Rail Zone 9	City of Fredericksburg & Spotsylvania Co.

[9]This rail service includes MARC and VRE. Metrorail is not included, but is modeled in the RPFARE1 process.

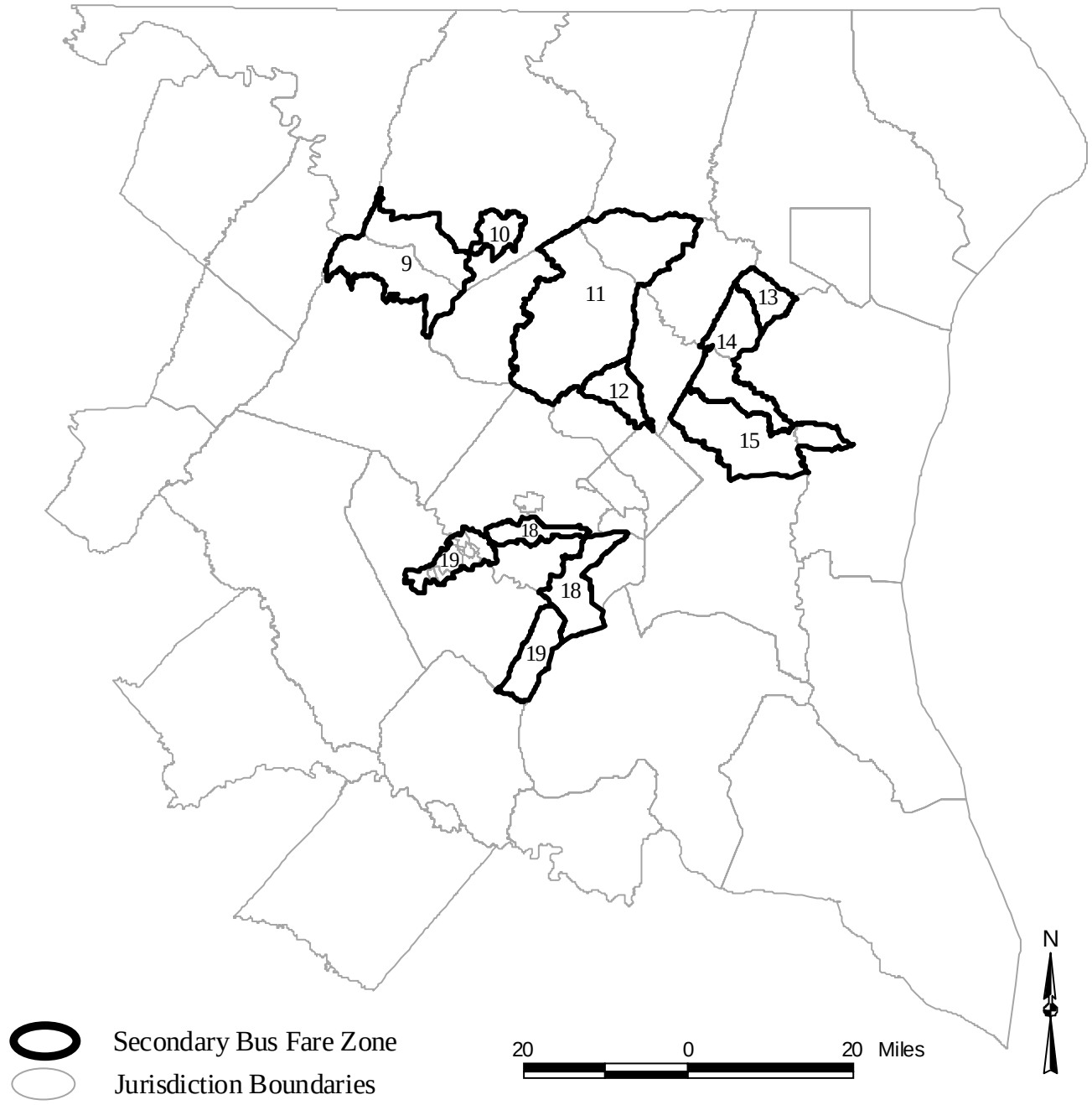
Exhibit 3-24 Primary Bus Fare Zone Map for Tariff #19



Ref: 2002_primary_bfzn_#19.wmf

WMATA's Tariff Number 19 (effective June 1999)

Exhibit 3-25 Secondary Bus Fare Zone Map for Tariff #19



Ref: 2002_secondary_bfzn_#19.wmf
WMATA's Tariff Number 19 (effective June 1999)

Exhibit 3-26 Regional AM Peak and Off-Peak Bus Fare Matrix for 2002
Between MWCOG Fare Zones
(Expressed in 1999 cents)

	WMATA Regular Service	WMATA Express Ser.&Internal Metrobus Special Fare Service	Loudoun Com. Bus	Charles&St. Mary's Com. Bus (MTA)	Calvert & Southern AA Com. Bus (MTA)	Howard Com. Bus (MTA)	Frederick Com. Bus (MTA)	Frederick Internal Bus	MARC Rail Brunswick (Frederick)	MARC Rail Brunswick (Mont. R8)	MARC Rail Brunswick (Mid Mont.)	MARC Rail Brunswick (Inner)	MARC Rail Penn/ Camden (Outer)	MARC Rail Penn/Camden (Mid)	MARC Rail Penn/Camden (Inner)	MARC Rail Brunswick (WVA&Clark Auto Conn.)	VRE Zones 1&2 (Inside Beltway)
Zones	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	110	200	400	278	276	259	279	433	349	279	234	186	280	234	186	434	248
2	200	50	600	478	476	459	479	633	549	479	434	386	480	434	386	634	448
3	400	600	100	678	676	629	679	833	749	679	634	586	680	634	586	834	648
4	278	478	678	278	554	537	557	711	627	557	512	464	558	512	464	712	526
5	276	476	676	554	276	535	555	709	625	555	510	462	556	510	462	710	524
6	259	459	629	537	535	259	538	692	608	538	493	445	539	493	445	693	507
7	279	479	679	557	555	538	204	204	204	204	204	234	559	513	465	713	527
8	433	633	833	711	709	692	204	84	84	294	341	619	713	667	619	867	681
9	349	549	749	627	625	608	204	84	186	210	257	303	629	583	535	210	597
10	279	479	679	557	555	538	204	294	210	186	186	234	559	513	465	294	527
11	234	434	634	512	510	493	204	341	257	186	186	420	514	468	420	340	482
12	186	386	586	464	462	445	234	619	303	234	420	186	466	420	372	373	434
13	280	480	680	558	556	539	559	713	629	559	514	466	186	186	234	714	528
14	234	434	634	512	510	493	513	667	583	513	468	420	186	186	420	668	482
15	186	386	586	464	462	445	465	619	535	465	420	372	234	420	186	620	434
16	434	634	834	712	710	693	713	867	210	294	340	373	714	668	620	186	682
17	248	448	648	526	524	507	527	681	597	527	482	434	528	482	434	682	248
18	285	485	685	563	561	544	564	718	634	564	519	471	565	519	471	719	285
19	344	544	744	622	620	603	623	777	693	623	578	530	624	578	530	778	285
20	372	572	772	650	648	631	651	805	721	651	606	558	652	606	558	806	372
21	379	579	779	657	655	638	658	812	728	658	613	565	659	613	565	813	379

Ref: BF19MTX.XLS

WMATA fares are based on Tariff #19 effective 6/20/99.
Remaining transit provider fares are based on 1999 information.

The transit fare policy assumed in the most recent Version 2.2 model forecasts are based on the Washington Metropolitan Area Transit Authority's Tariff #23 (effective June 2004) for Metrorail and Metrobus operations. In 2004, the new fare structure increased the base fare for Metrorail, from $1.20 to $1.35, a 5-cent increase for Metrobus from $1.20 to $1.25 and a 10-cent increase from $2.40 to $2.50 for Metro Access. Other service providers increased fares at that time, and those increases are reflected in the fare matrix. VRE fare increases in the summer of 2006 precipitated an update of the bus fare matrix.

Tariff #23 was revised in January 2008. The tariff included an increase in the peak base boarding charge, which covers the first 3 composite miles by $0.30 from $1.35 to $1.65. The peak period mileage charge, covering travel over 3 composite miles and up to 6 composite miles increased by 0.05/composite mile from $0.22/composite mile to $0.27/composite mile. An increase in the peak period mileage charge, covering travel over 6 composite miles by $0.045/composite mile from $0.195/composite mile to $0.24/composite mile and an increase the maximum peak period fare by $0.60 from $3.90 to $4.50. No changes have been made to the off-peak Metrorail fare parameters. The rail-to-bus discount (90 cents, globally) has not changed, but there is language in documentation that in one year it will be available *only* to Smartcard users (something to keep in mind). It is also suspected that the rail-to-bus discount may increase by 10 cents (i.e., change to 1.00) but this is not yet formalized by the WMATA board. For the time being, the 90 cent discount will be maintained.

Please note these increases are not made to other fare inputs, i.e. the bus fare matrix or the TAZ-to-bus fare zone equivalency files, used in the fare modeling process. The tariff.txt file contains the base Metrorail fares (peak and off-peak) and the rail-to-bus discounts by jurisdiction. The Metrorail fares are calculated using a combination of base fares and incremental fare charges based on the composite distance of the trip, i.e., the average of the over-the-rail and airline distance between on/off stations. The Metrorail fares are computed as follows:

Peak Metrorail Fares:

Trip Length	**General Fare Calculation**
0- 3 composite miles	Base peak period fare
3- 6 composite miles	Base peak period fare + 1st fare rate per mile, beyond 3 miles
> 6 composite miles	Base peak period fare + 1st fare rate per mile, beyond 3 miles + 2nd fare rate per mile, beyond 6 miles, subject to a maximum fare

Off-Peak Metrorail Fares:

Trip Length	**General Fare Calculation**
0- 7 composite miles	Base off-peak period fare
7-10 composite miles	Base off-peak period fare + 1st fare increment
>10 composite miles	Base off-peak period fare + 1st fare increment + 2nd fare increment

The base fares, fare rates, and fare increments are expressed in the tariff.txt file as variables that are called in the TP+ scripts. The basic peak and off-peak period fare policies addressed in the modeling procedures are shown in Exhibit 3-22. Future transit improvements in Montgomery County have been reflected in the COG fare zone system. Fare zones 1 and 7 now represent the addition of the Corridor Cities Transit-way service, and Metrorail and bus fares in that corridor.

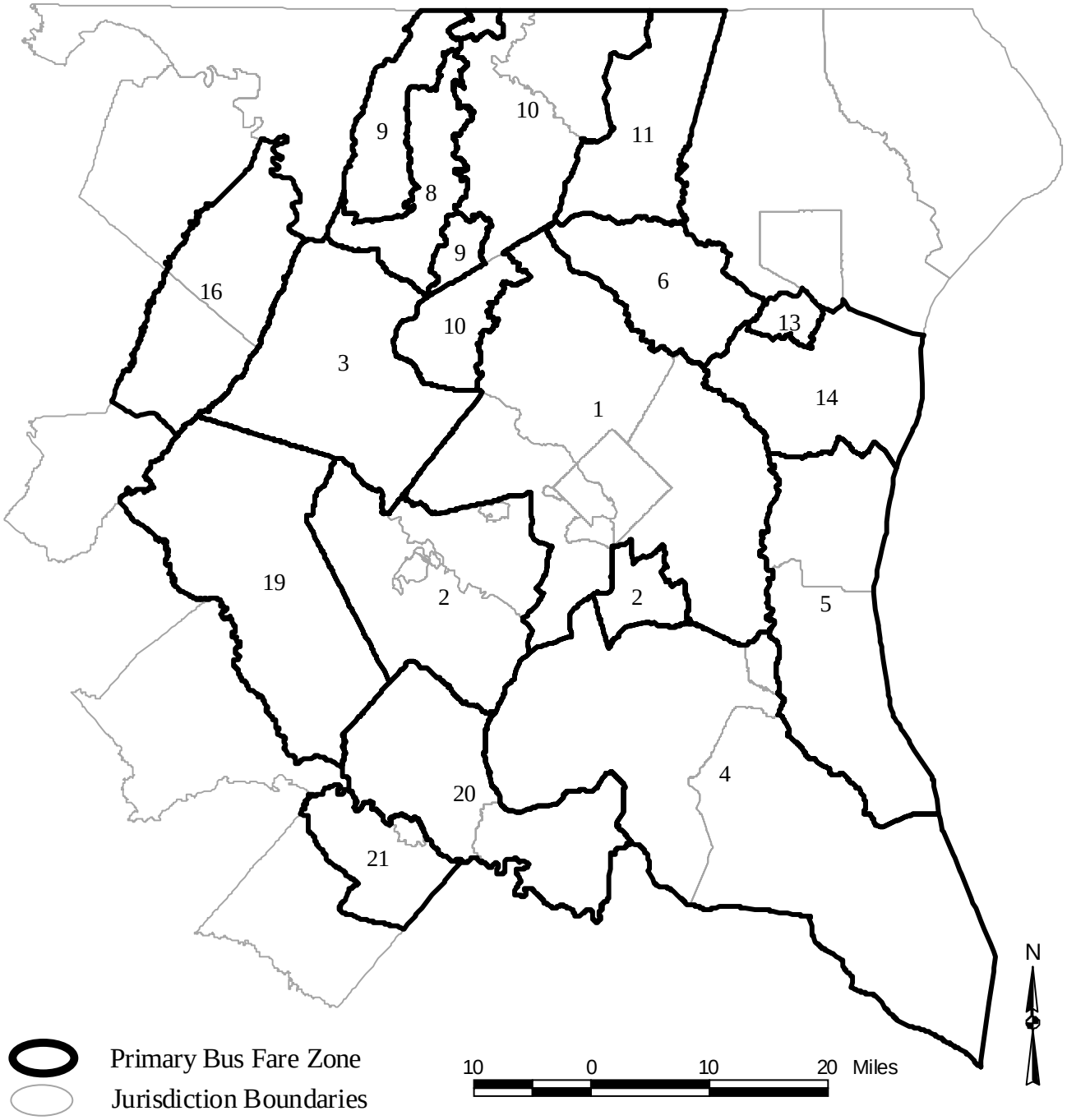
The bus fare matrix remains comprised of 21 fare zones and are defined in Exhibit 3-27. Regional bus fare zone maps showing primary and secondary fare zones are displayed in Exhibit 3-28 and Exhibit 3-29. The bus fare matrix for Tariff #23-modified is shown in Exhibit 3-30.

Exhibit 3-27 Bus Fare Zone/Service Areas for WMATA Tariff #23 (modified)

1st Fare Zone	Bus/Rail Service[10]	Approximate Service Area
Fare Zone 1	WMATA Regular Service	DC, MTG, PG, ALEX, ARL, & FFX
Fare Zone 2	WMATA Express & Special Fare Service, & OMNI	Inner Maryland, Fairfax Suburbs, & Prince William County
Fare Zone 3	Loudoun Commuter Bus Service	Loudoun County
Fare Zone 4	MTA Commuter Bus	Charles / St Mary's Counties
Fare Zone 5	MTA Commuter Bus	S. Anne Arundel / Calvert Counties
Fare Zone 6	MTA Commuter Bus	Howard County
Fare Zone 7	Corridor Cities Transit-way	Montgomery County
Fare Zone 8	Frederick Co Local Bus	Frederick County
Fare Zone 9	MARC Rail / Brunswick Line	W. Frederick / N. Loudoun Counties
Fare Zone 10	MARC Rail / Brunswick Line	MTG. Co. (Ring 8) / E. Frederick & W. Carroll Co.
Fare Zone 11	MARC Rail / Brunswick Line	MTG. Co. (Mid County) / W. Howard Co.& E. Carroll Co.
Fare Zone 12	MARC Rail / Brunswick Line	Montgomery Co. (Inner County)
Fare Zone 13	MARC / Penn, Camden Lines	NE. Howard /NW Anne Arundel Co.
Fare Zone 14	MARC / Penn, Camden Lines	SE. Howard/Anne Arundel Co. & NE. Prince Georges Co.
Fare Zone 15	MARC / Penn, Camden Lines	N. Central Prince Georges Co. & SW. Anne Arundel Co.
Fare Zone 16	MARC/Brunswick Line	Jefferson W.VA. & Clarke Co. VA.
Fare Zone 17	VRE Rail Zones 1&2	Inside Beltway
Fare Zone 18	VRE Rail Zones 3&4	Fairfax & Prince William Counties
Fare Zone 19	VRE Rail Zones 5&6	Prince William & Fauquier Counties
Fare Zone 20	VRE Rail Zones 7&8	Stafford & King George Counties
Fare Zone 21	VRE Rail Zone 9	City of Fredericksburg & Spotsylvania Co.

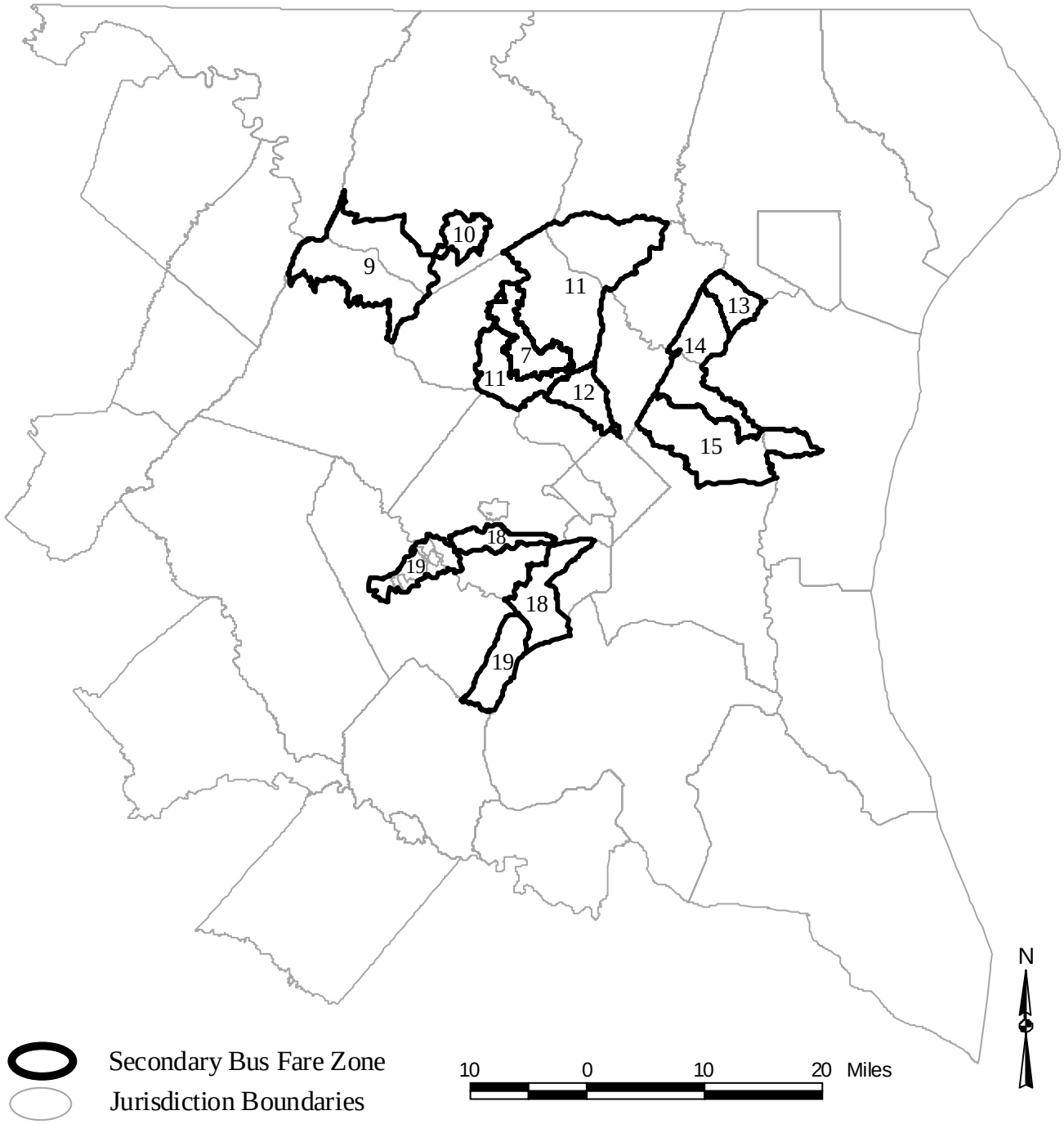
[10]This rail service includes MARC and VRE. Metrorail is not included, but is modeled in the RPFARE1 process.

Exhibit 3-28 Regional Primary Bus Fare Zone Map for Tariff #23



Ref: 2030_primary_bfzn_#23.wmf
WMATA's Tariff Number 23 (effective June 2004)

Exhibit 3-29 Regional Secondary Bus Fare Zone Map for Tariff #23



Ref: 2030_secondary_bfzn_#23.wmf
WMATA's Tariff Number 23 (effective June 2004)

Exhibit 3-30 Regional AM Peak and Off-Peak Bus Fare Matrix for 2009-2030

	WMATA Regular Service	WMATA Express Ser. & Internal Metrobus Special Fare Service	Loudoun Comm. Bus	Charles & St. Mary's Comm. Bus (MTA)	Calvert and Southern AA Comm Bus (MTA)	Howard Comm. Bus (MTA)	Corridor Cities Transitway (Mont. Co)	Frederick Internal Bus	MARC Rail Brunswick (Frederick)	MARC Rail Brunswick (Mont. R8)	MARC Rail Brunswick (Mid. Mont)	MARC Rail Brunswick (Inner)	MARC Rail Penn/ Camden (Outer)	MARC Rail Penn/ Camden (Mid)	MARC Rail Penn/ Camden (Inner)	MARC Rail Brunswick (W.VA and Clark auto Connect)	VRE Zones 1 & 2 (Inside Beltway)	VRE Zones 3 & 4 (FFX and PW)	VRE Zones 5 & 6 (PW & FAUQ Auto Connect)	VRE Zones 7 & 8 (Staff. & KG Auto Connect)	VRE Zone 9 (Spots. & Fred'brg)
Zones	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
1	135	317	500	347	328	328	414	529	427	341	284	227	341	284	227	511	281	346	411	476	524
2	317	118	817	664	645	645	731	846	744	658	601	544	658	601	544	828	495	317	100	300	349
3	500	817	75	847	828	828	914	1029	927	841	784	727	841	784	727	1011	781	846	911	976	1024
4	347	664	847	100	675	675	761	876	774	688	631	574	688	631	574	858	628	693	758	823	871
5	328	645	828	675	357	656	740	857	755	669	612	555	669	612	555	839	609	674	739	804	852
6	328	645	828	675	656	299	742	857	755	669	612	555	669	612	555	839	609	674	739	804	852
7	414	731	914	761	740	742	130	667	557	471	130	414	755	698	641	641	695	760	825	890	938
8	529	846	1029	876	857	857	667	102	102	529	639	529	870	813	756	1040	810	875	940	1005	1053
9	427	744	927	774	755	755	557	102	400	427	427	427	768	711	654	400	708	773	838	903	951
10	341	658	841	688	669	669	471	529	427	341	341	341	682	625	568	341	622	687	752	817	865
11	284	601	784	631	612	612	130	639	427	341	284	284	625	568	511	511	565	630	695	760	808
12	227	544	727	574	555	555	414	529	427	341	284	227	568	511	454	511	508	573	638	703	751
13	341	658	841	688	669	669	755	870	768	682	625	568	341	341	341	852	622	687	752	817	865
14	284	601	784	631	612	612	698	813	711	625	568	511	341	284	284	795	565	630	695	760	808
15	227	544	727	574	555	555	641	756	654	568	511	454	341	284	227	738	508	573	638	703	751
16	511	828	1011	858	839	839	641	1040	400	341	511	511	852	795	738	400	732	857	922	987	1035
17	281	495	781	628	609	609	695	810	708	622	565	508	622	565	508	732	281	330	395	459	508
18	346	317	846	693	674	674	760	875	773	687	630	573	687	630	573	857	330	158	200	265	314
19	411	100	911	758	739	739	825	940	838	752	695	638	752	695	638	922	395	200	152	200	249
20	476	300	976	823	804	804	890	1005	903	817	760	703	817	760	703	987	459	265	200	152	184
21	524	349	1024	871	852	852	938	1053	951	865	808	751	865	808	751	1035	508	314	249	184	152

Ref: TAR23BFMTX.XLS

WMATA fares are based on Tariff #23 effective 6/27/04.
Remaining transit provider fares are based on 2004 information (Expressed in 2004 cents).

3.5 Version 2.2 Model Network File Format Descriptions

This section presents file format descriptions used in the network and fare building process. Exhibit 3-31 through Exhibit 3-40 detail land-use, highway and transit network, and fare input file formats. A summary of network files that were developed as inputs to the assessment of the 2008 CLRP and FY2009-2014 TIP is shown in Exhibit 3-41. Filenames are generically named for each year. Therefore, it is the subdirectory, rather than the filename itself, that establishes the year or alternative that a given file represents. Schematic flowcharts of the steps employed to develop the network files are presented in Exhibit 3-42 through Exhibit 3-45. The user should reference Chapter 10.1 of the Version 2.2 model User's Guide for more detail on subdirectory and filename specifications required in the model application.

Exhibit 3-31 File Format Description of the Land Use File (zone.asc)

Columns	Format	Field Description
1- 4	I4	TAZ (1-2191)
8- 15	I8	Households
16- 23	I8	Household Population
24- 31	I8	Grouped Quarters Population
32- 39	I8	Total Population
40- 47	I8	Total Employment
48- 55	I8	Industrial Employment
56- 63	I8	Retail Employment
64- 71	I8	Office Employment
72- 79	I8	Other Employment
80- 81	I2	Jurisdiction Code (0-23) *0/dc, 1/mtg, 2/pg, 3/alr/, 4/alx,5, ffx, 6/ldn, 7/ pw, 8/(unused), 9/ frd, 10/how, 11/aa, 12/chs, 13/(unused), 14/car, 15/cal, 16/stm, 17/ kg, 18/fbg, 19/stf, 20/spts, 21/fau, 22/clk, 23/jef*
83- 92	F10.4	Gross Land Area (in sq. miles)
94- 95	I2	Ratio of zonal HH median income to regional median HH income in tenths (e.g., a value of *10* indicates a ratio of 1.0), based on the 1990 CTPP.
97- 98	I2	Airline distance from the TAZ centroid to the nearest external station in whole miles.

Exhibit 3-32 File Format Description of the Node Coordinate File (node.asc)

Columns	Format	Field Description
1-6	I6	Highway Node Number
7-14	I8	X-Coordinate (NAD 83) in whole feet
15-22	I8	Y-Coordinate (NAD 83) in whole feet

Exhibit 3-33 Base Highway Link File Format Description (link.asc)

Columns	*Format*	*Field Description*
1-5	I5	A node
6-10	I5	B node
13-17	F5.2	Link Distance (in whole miles with explicit decimal)
23-24	I2	Unused (place marker for Speed Class)*
26-27	I2	Unused (place marker for Capacity Class)*
30-33	I4	Daily Ground Count in thousands
35-36	I2	Daily Ground Count Quality Code
39-40	I2	Jurisdiction Code (0-23) *0/dc, 1/mtg, 2/pg, 3/alr/, 4/alx,5, ffx, 6/ldn, 7/ pw, 8/(unused), 9/ frd, 10/how, 11/aa, 12/chs, 13/(unused), 14/car, 15/cal, 16/stm, 17/ kg, 18/fbg, 19/stf, 20/spts, 21/fau, 22/clk, 23/jef*
51-52	I2	Screenline Code
54-55	I2	Link Facility Type Code (0-6) *0/centroids, 1/Freeways, 2/Major Art., 3/Minor Art, 4/ Collector, 5/ Expressway, 6/ Ramp (future use)*
61-64	I4	Toll Value in current year dollars
66-69	I4	Toll Group Code (1-9999)
81-82	I2	AM Peak No. of Lanes
84-85	I2	AM Peak Limit Code (0-9)
87-88	I2	PM Peak No. of Lanes
90-91	I2	PM Peak Limit Code (0-9)
93-94	I2	Off-Peak No. of Lanes
96-97	I2	Off-Peak Limit Code (0-9)
99-102	I4	Unused (place marker for TAZ)*
107-116	A/N	Project ID

Notes:

- *The mode choice model requires that all costs be in 1994 dollars.*
- *Limit Codes are 0, 1 = General Use, 2 = HOV2, 3+ only, 3 = HOV 3+ Only, 4 = Truck Prohibited, 5 = Non-Airport Vehicles Prohibited, 6-8 = (unused), 9 = 'Transit Only' link (links used to more accurately depict coded transit routes, but are below the grain of the zone system; these links are not included in the highway assignment process).*

  ** The speed class, capacity class, and TAZ are added to the highway network during the highway network building phase, so they are not used in the ASCII input file link.asc.*

Exhibit 3-34 Rail Station/PNR Lot File Format Description (sta.tpp.bse)

Columns	***Format***	***Field Description***
1-5	I5	Sequence Number
10	A1	Mode Code (M=Metrorail, C=Commuter rail, B=Bus, L=Light rail, N= BRT/street car)
15	A1	Parking Available? (Y/N)
18	A1	Station Active? (Y/N)
21-45	A25	Station Name/PNR lot name
46-50	I5	Network Centroid (2251-2500)
51-55	I5	TAZ location of Station/PNR lot (1-2191)
56-60	I5	Rail Station Node (7301-7399, 7600-7733)
61-65	I5	Parking lot node
66-70	I5	1st Bus Node
71-75	I5	2nd Bus Node
76-80	I5	3rd Bus Node
81-85	I5	4th Bus Node
91-100	I10	X Coordinate of Station / PNR lot (NAD83-based in ft.)
101-110	I10	Y Coordinate of Station / PNR lot (NAD83-based in ft.)
111-140		(Unused)
141-145	I5	Year of Station/PNR lot Opening (unused)

Exhibit 3-35 Rail Link File Format Description (rail_lnk.bse)

Columns	***Format***	***Field Description***
1-5	I5	A Node
6-10	I5	B Node
15-19	I5	Distance in 1/100ths of miles
21-25	F5.2	Speed (mph)
37-37	I1	Rail Mode Number (3-5)

Exhibit 3-36 GIS Based Transit Walk Area File Format Description (GISWKA??.ASC)

Columns	*Format*	*Field Description*
4-8	I5	TAZ Number
9-17	I9	Total Land Area
24-30	I7	'short' walk area to rail (Metrorail, commuter rail)
36-42	I7	'long' walk area to rail (Metrorail, commuter rail)
49-55	I7	'short' walk area to non-rail transit
61-67	I7	'long' walk area to non-rail transit
73-81	I9	Non-walking area to ANY transit
85-91	I7	Average 'Short' Walk Distance to Metrorail (in miles)
95-101	I7	Average 'Long' Walk Distance to Metrorail (in miles)
106-112	I7	Average 'Short' Walk Distance to Commuter Rail (in miles)
116-122	I7	Average 'Long' Walk Distance to Commuter Rail (in miles)
127-133	I7	Average 'Short' Walk Distance to Bus (in miles)
137-143	I7	Average 'Long' Walk Distance to Bus (in miles)
149-155	I7	Average 'Short' Walk Distance to ANY Transit (in miles)
161-167	I7	Average 'Long' Walk Distance to ANY Transit (in miles)
170-174	I5	Nearest Rail Station (Metrorail or Commuter Rail) w/in 1.0 mi
176-180	I5	Nearest Bus Stop Node w/in 1.0 mi

Note: area measurements are in square miles and do not include major bodies of water;
'short' references below are defined as within 1/3 mile;
'long' walk areas are those beyond 1/3 of a mile and within 1.0 mile

Exhibit 3-37 GIS-Walk Link File Format Description (GISWKL??.ASC)

Columns	**Format**	**Field Description**
1-5	I5	TAZ Number
6-10	I5	Transit Stop nodes within 1.0 mile
11-15	F5.2	Distance from TAZ centroid to stop node in miles

Exhibit 3-38 Station Coordinate File Format Description (MFARE1.A1)

Columns	*Format*	*Field Description*
9-13	I5	Station Number (1-150)
19-26	I8	Station X Coordinate
32-39	I8	Station Y Coordinate

Exhibit 3-39 Bus Fare Matrix File Format Description (BUSFAR??.ASC)

Columns are Space-delimited	*Field Description*
	Origin Bus Zone No. (1-21)
	Bus Fare value From Origin Zone to Destination zone 1
	Bus Fare value From Origin Zone to Destination zone 2
	Bus Fare value From Origin Zone to Destination zone 3
	…
	Bus Fare value From Origin Zone to Destination zone 21

Exhibit 3-40 TAZ / Bus Fare Zone Equivalency File Format Description (FARE_A2.ASC)

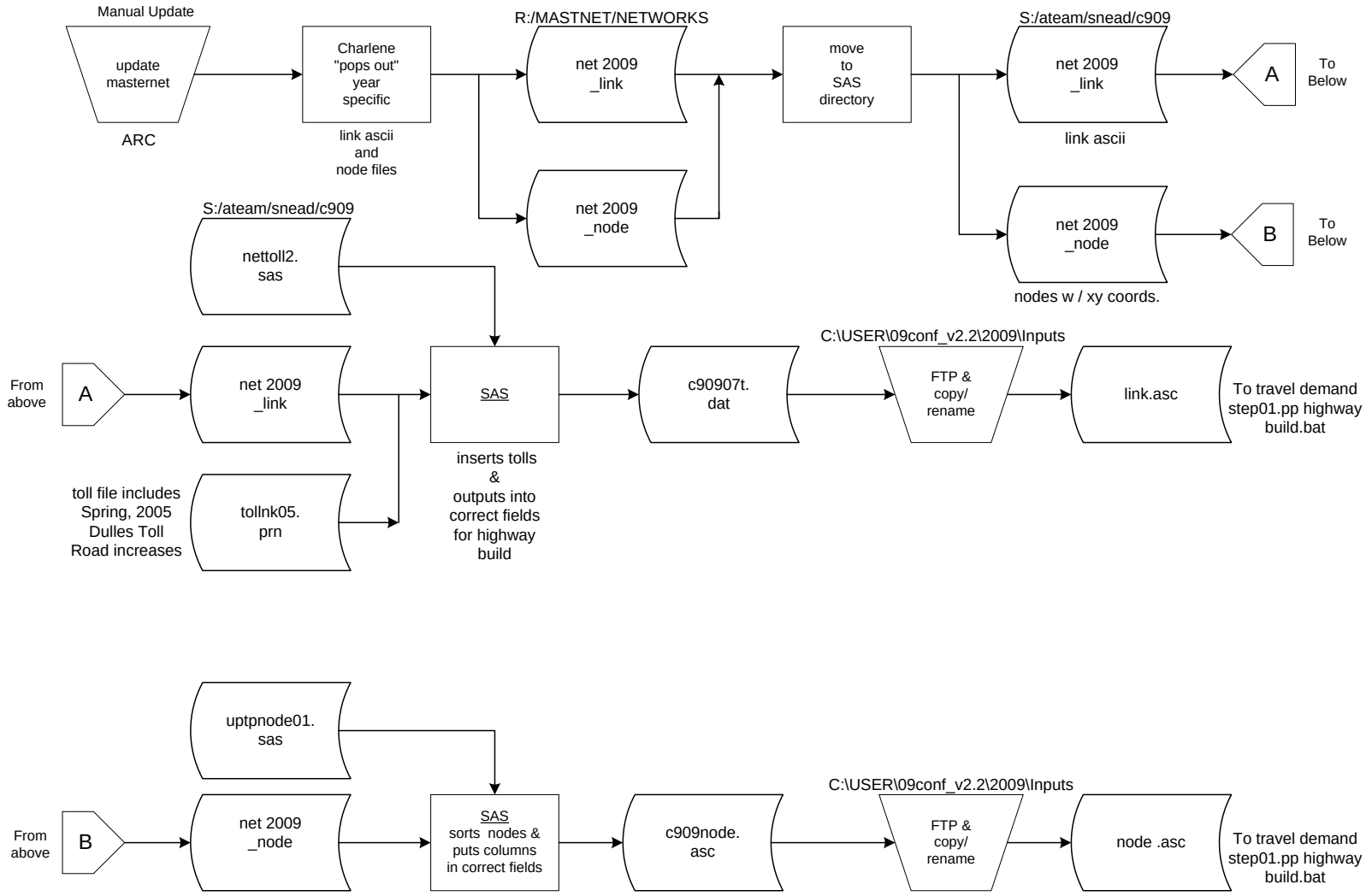
Columns are Space-delimited	*Field Description*
	TAZ (1-2191)
	Bus Fare Zone 1 associated with TAZ
	Bus Fare Zone 2 associated with TAZ
	TAZ Origin Walk Pct to Metrorail in 10ths of pcts
	TAZ Destination Walk Pct to Metrorail in 10ths of pcts
	Bus Fare Zone 1 associated with Metrorail station (TAZ 1-150)
	Bus Fare Zone 2 associated with Metrorail station (TAZ 1-150)
	Jur. Code (0/DC, 1/MD, 2/VA-Area1, 3/VA-Area2)
	Origin-end Bus fare override value (default=0)
	Destination-end Bus fare override value (default=0)

Exhibit 3-41 Summary of Version 2.2 Model/TP+ Transportation Network Filenames

Transportation Network / Inputs	
SubDirectory: CGV2.2	**Scenario Year**
Zone Net	Link.ASC
Zone Xys	Node.ASC
Transit Networks AM Peak Line Files (Mode)	
1	mode1am.tp
2	mode2am.tp
3	mode3am.tp
4	mode4am.tp
5	mode5am.tp
6	mode6am.tp
7	mode7am.tp
8	mode8am.tp
9	mode9am.tp
Off Peak Line Files (Mode)	
1	mode1op.tp
2	mode2op.tp
3	mode3op.tp
4	mode4op.tp
5	mode5op.tp
6	mode6op.tp
7	mode7op.tp
8	mode8op.tp
9	mode9op.tp
Station File	STA_TPP.BSE
Rail Link File	RAIL_LNK.BSE
FARES **Bus Fares (MFARE2S)**	
TAZ/Bus Fare Equivalency	FARE_A2.ASC.
Bus Fare Matrix - AM	BUSFARAM.ASC
Bus Fare Matrix - OP	BUSFAROP.ASC

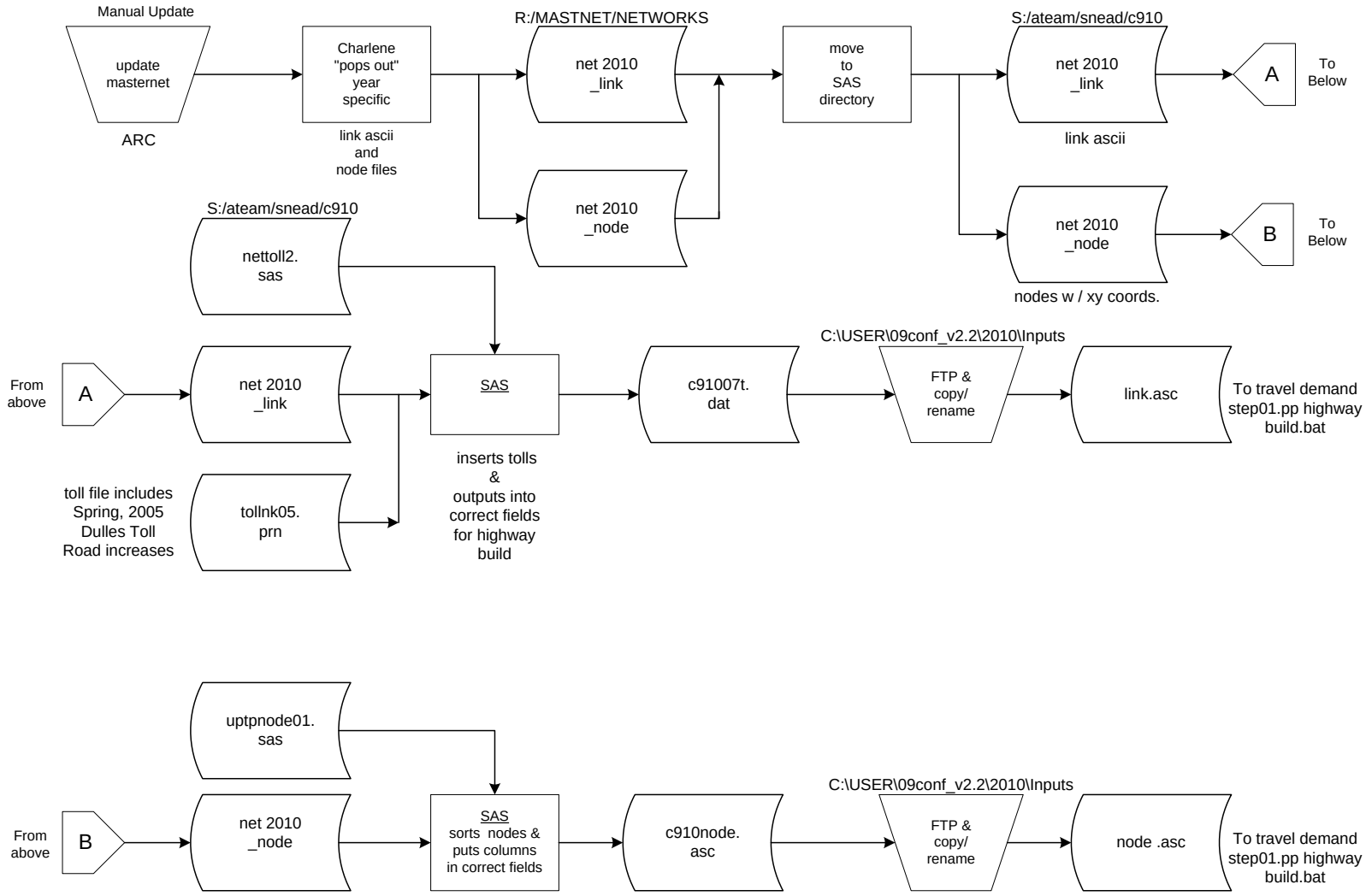
Ref: EXH3-41 V2.2.xls

Exhibit 3-42 2008 CLRP / FY2009-2014 TIP AQC Network Development for 2009



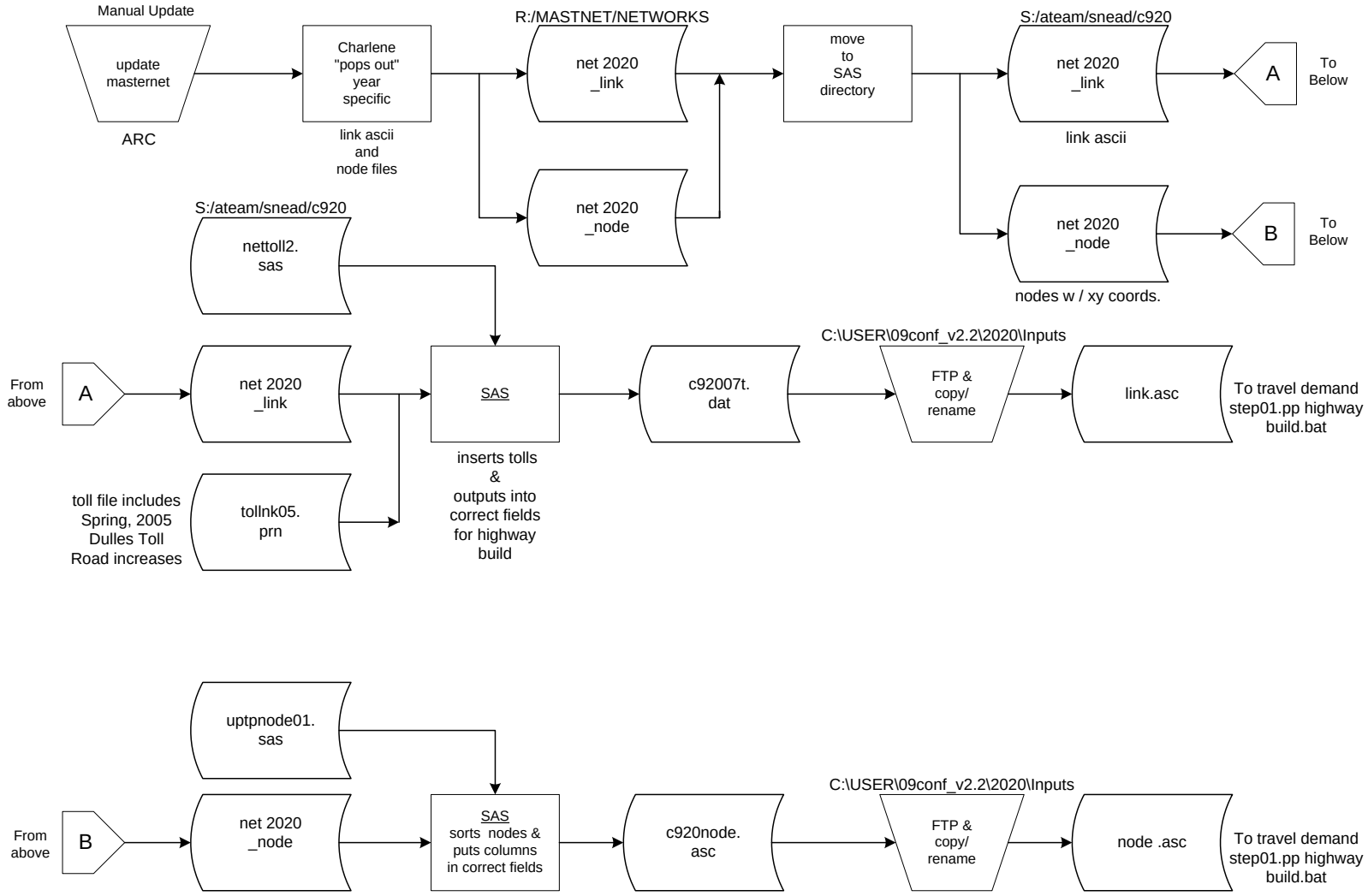
Ref: Exh_3-42_C909inputs.vsd

Exhibit 3-43 2008 CLRP / FY2009-2014 TIP AQC Network Development for 2010



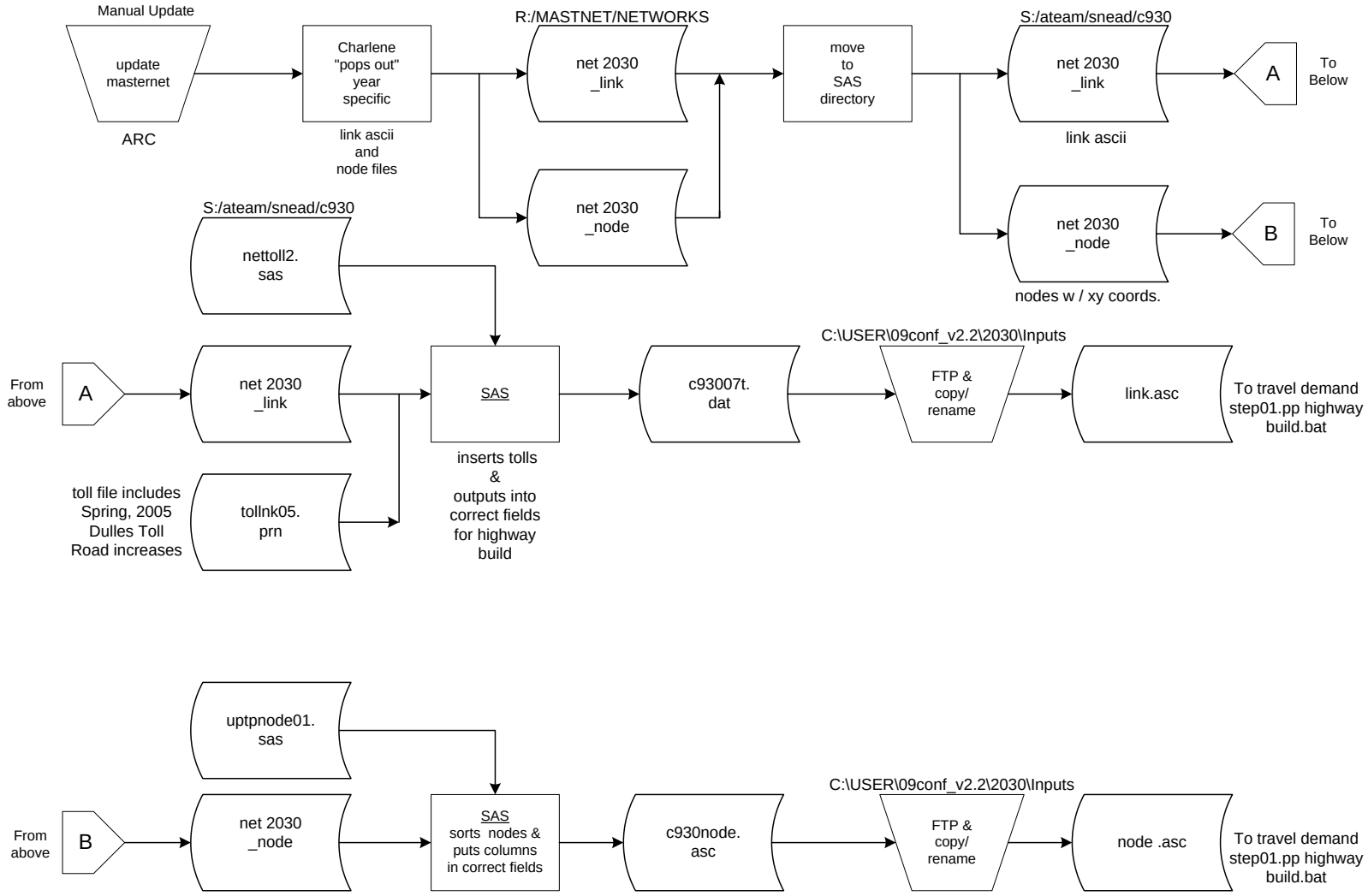
Ref: Exh_3-43_C910inputs.vsd

Exhibit 3-44 2008 CLRP / FY2009-2014 TIP AQC Network Development for 2020



Ref: Exh_3-44_C920inputs.vsd

Exhibit 3-45 2008 CLRP / FY2009-2014 TIP AQC Network Development for 2030



Ref: Exh_3-45_C930inputs.vsd

Chapter 4 Planned Improvements in Network Development

As the MPO for the Washington, D.C. metropolitan area, the Transportation Planning Board (TPB) is responsible for carrying out federally mandated long-range transportation and air quality planning activities using network-based transportation models. The models are used to evaluate a range of alternative future scenarios, some of which focus on transportation system changes: an added highway facility or a rail extension, for example. The network development process involves a team of individuals within the transportation department that handle a variety of activities. These include collecting and analyzing network updates and modifications from the local transportation agencies, implementing network edits to the transportation networks and the geographic highway database, verifying the edits, and preparing the final network inputs to the travel demand model.

The TPB has made steady progress in adapting GIS technology to manage and facilitate these tasks with respect to the highway network development. During FY-2007, several internal staff meetings were convened to deliberate on how GIS functions could be improved. It was determined by TPB that further development of the existing ArcInfo-based application should be abandoned, and a new application based on the geodatabase data model should be pursued. Daniel Consultants, Inc. (DCI) was selected during the summer of 2007[11] and began the first phase of a two-phase effort to improve the TPB's existing GIS technology and practices for improving network database development procedures. A discussion of TPB's effort to improve the use of GIS in support of network development is featured in this chapter of the report.

The TPB has also initiated a project to conflate the attribute-rich master highway network, which is the basis for many of the highway networks that are used in travel demand modeling work at COG/TPB, to the NAVTEQ street centerline database, a subscription-based data set to which COG currently subscribes, that represents road segments with their actual shape. The benefits of this project is having the more spatially accurate highway networks, such as the ability to match our networks to aerial photographs and to GIS data sets, such as the new TAZs, The conflation of TPB's highway network to the NAVTEQ Street Base is detailed in Chapter 4.2.

The existing transit and highway networks used in the regional travel model are built over a 2,191-Transportation Analysis Zone (TAZ) area system which covers 6,800 square miles in total area. The TAZ system will be revisited in the new fiscal year thus facilitating a reorganization of the transportation network's node numbering system. Both the new TAZ system and revised node numbering system are discussed in chapters 4.3 and 4.4 of this report. The extent of the modeled area is not expected to change, but the number of TAZs in the revised area system will likely more than double.

[11] RFP #18-07 was released on June 8, 2007 (entitled, "Improving GIS Based Applications and Protocols Used to Develop and Manage Transportation Networks")

4.1 Improving the Use of GIS in Support of Network Development

COG/TPB extended its contract with DCI during FY 2009 for a second phase to further develop an ArcGIS-based application to better manage TPB's master transportation network (highway and transit elements). Work tasks for this phase focused on improving and extending the application received in the initial phase. Special emphasis and considerable resources were devoted to transit-related enhancements.

Phase 2 tasks included the following tasks: 1) migration of the corrected legacy database to the new ArcGIS geodatabase model; 2 refinement of the master network development editing tools created in phase one; 3) inclusion of multi-year transit networks into the geodatabase; 4) the development of a suite of tools specific to managing transit network data; 5) support for software in a multi-user enterprise database environment; and 6) documentation and training.

As already mentioned, this second phase focused heavily on the development of transit network editing tools. The creation of these tools benefit TPB's network development team by giving them the ability to edit highway and transit networks in a comprehensive multimodal database via a single graphical user interface. It was envisioned that the schedule for Phase 2 activities would occur over six months. However, the sheer complexity of the developing, and then testing, the transit editing tools lengthened our schedule for this phase. It should be noted, however, that TPB was provided a preliminary suite of application tools that included transit network editing capabilities by the end of January, as stipulated in the project scope.

To date, TPB has received the following products: 1) corrected geodatabase reflecting all corrections made to the master transportation geodatabase; 2) COGTools ArcGIS toolbar with highway and transit network editing capabilities; 3) COGTools user's guide and geodatabase administrative reference. Several outstanding issues remain, most notably an incompatibility of the COGTools toolbar when utilized in an enterprise geodatabase (ArcSDE and Microsoft SQL Server) environment. Other issues to be resolved include minor bug fixes related to software version compatibility with the COGTools toolbar, and transit network export routine refinement. It is expected all work tasks related to Phase 2 will be completed.

4.2 Conflation of Highway Network to the NAVTEQ Street Base

In the spring of 2009, COG/TPB staff undertook a project realign the highway networks to a more accurate geographic base. The XY coordinates for the highway networks were originally taken from paper maps. Only coordinates for nodes were used. A decade ago COG/TPB staff realigned the nodes and added shape to the network links using the TIGER base. Since that time COG/TBP staff created a Master Any-Year Network application in GIS and is currently working with a consultant to improve the use of GIS in network development. The GIS/Network development project is nearing completion so this is a good time to update the network geography to current standards.

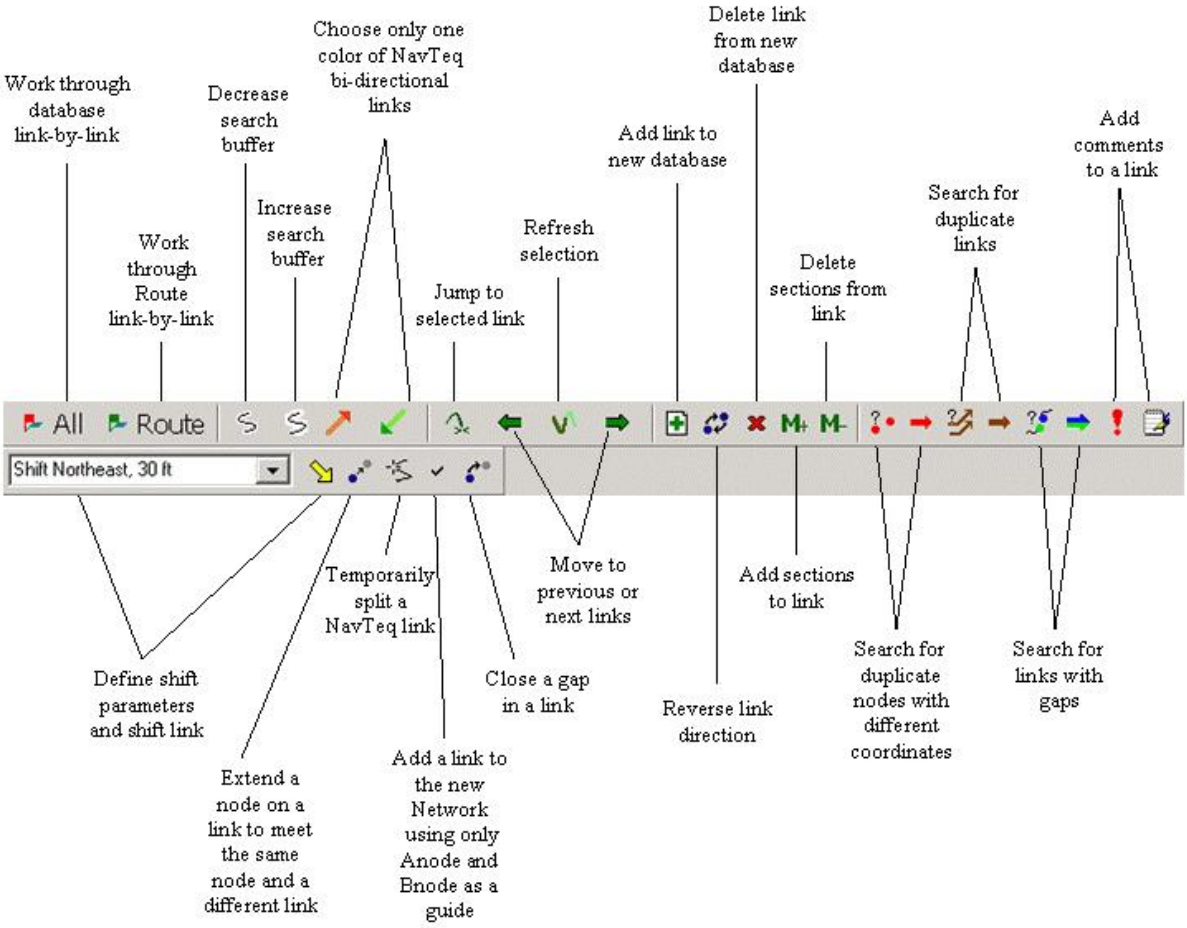
The objective of the network realignment project is to redraw the highway network following a more accurate base. To do this COG/TPB choose to conflate the Master Highway Network to the NavTeq street base creating a new geographically enhanced Master Highway Network that carries the Master Network Anode/Bnode pair, Street Name, and Route-ID from the Regional Transportation Data Clearinghouse, as well as the NavTeq feature IDs that are used to make up the link. In addition, each record contains a flag that indicates if the record needs review and a comment field. The new enhanced geography of the Master Highway Network will make it easier to view the highway networks with Google Earth or other aerial photography. Many of COG/TPB's travel surveys are now done with the aid of GPS, it will be easier to match the GPS results to the geographically enhanced Master Highway Network. COG/TPB staff has recently finished building new TAZs for the region. These TAZs were based on a more accurate base than the TIGER base that was used for used for the 2191-Zone system and will more closely match the geographically enhanced Master Highway Network. The fact that COG/TPB staff will now be able to see the highway networks with the NavTeq streets or aerial photography in the background, will make it easier to identify areas were the network needs to be changed.

Because this project took place concurrently with other network work, it was imperative that there were no changes (additions, deletions, splits) in the links or to the link-node topology in the new network. This meant that COG/TPB staff would create a new Master Highway Network with more accurate geography but that the resulting anode-bnode pairs would be the exact same anode-bnode pairs that the original Master Highway Network started with. This would allow COG/TPB staff to replace the geographic network in the new consultant-created network editing application while the attribute linkages remain unchanged. Any network changes that are determined to be needed during the conflation process will need to be addressed later using the network editing application. COG/TPB staff created a set of rules to be followed when performing the conflation. These rules include what to do when the NavTeq base showed a dual centerline and the network only showed one centerline and what to do when multiple intersections in the NavTeq base are modeled as a single intersection in the network.

COG/TPB staff designed a toolbar within ArcGIS that allows the user to perform the specific editing functions needed to align the master highway network to the NavTeq street base. The region was divided and distributed to four members of COG/TPB staff. One tool steps through the network link by link and makes suggestions of corresponding links in the NavTeq database.

The user can accept the suggestions or add or delete NavTeq street segments until the selected NavTeq links represent the selected Master Highway Network link. A separate button adds a new link to the new Master Highway Network that is created using the NavTeq geography. There are several tools that aid the user by modifying the suggested set of matched links. There is a tool that reverses the direction of the link in the new Master Highway Network as the direction needs to match the original direction in order to maintain the topological integrity of the database. The application contains a special tool that creates geography from a link within the NavTeq database and then shifts the link to represent a link that is not present in the NavTeq database. This is useful for representing HOV lanes where a separate facility does not exist. Exhibit 4-1 shows the toolbar with descriptions of each tool.

Exhibit 4-1 Network Conflation Toolbar

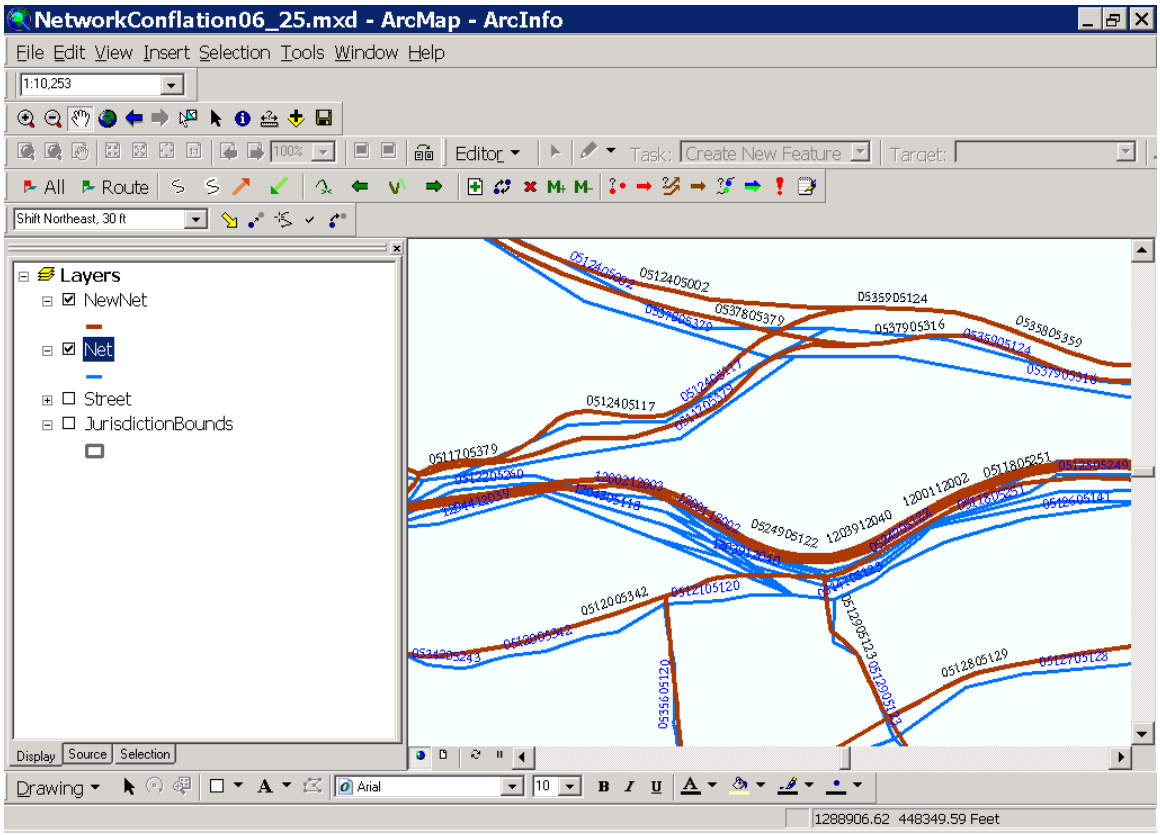


As the work was completed, certain common errors became apparent as did situations where it would not be possible to match the Master Highway Network to the NavTeq base. COG/TPB staff developed a new set of tools to identify the errors and to repair them.
These tools include temporary splitting a NavTeq link so that it conforms to a Master Highway Network intersection; automatically connecting a link where gaps occur in the NavTeq base; and

extending one node of a link to meet the same node on a separate link. Each time one of these functions is performed, the record is flagged and comments are automatically put on the record that identify it as a record that needs further review.

At this point, COG/TPB staff is finalizing the network conflation and error correction. When this is complete, the region will be reassembled and a post process will be run that will add the centroid connectors and any remaining ramps. Finally, the new geographically enhanced coordinates will replace the current geographic network in the Master Network GeoDatabase that will be used for the new network editing process. Because there will be a one-to-one relationship between the existing Master Highway Network and the new geographically enhanced Master Highway Network, all table relationships will remain intact. The network development team will review the areas that were flagged during the conflation process and make changes to the network using the new network editing application. Exhibit 4-2 is a screenshot showing the exiting Master Highway Network links in blue and the geographically enhanced Master Highway Network in brown.

Exhibit 4-2 Existing Network vs. Geographically Enhanced Network



4.3 Revised TAZ System

Currently, the TPB utilizes a Transportation Analysis Zone (TAZ) system consisting of 2191 zones (1972 zones and 219 external stations) covering the Modeled Region. This zone system was developed in 1995 with the (then) current development patterns, transportation network, and travel demand modeling software limitations all factors in zone configuration and number.

Changes in regional development patterns in population, employment and households, as well as technical advancements in travel demand software warranted a refinement of the COG/TPB TAZ system. As a result, staff recently completed an update of the Transportation Analysis Zone (TAZ) structure.

A key objective in this exercise was to balance the needs of the TPB (with regard to network development/coding and travel demand modeling) and COG's Department of Community Planning and Services (DCPS), the department responsible for providing TPB with the Cooperative Forecasting data. The new TAZ system was developed to address both the present and the future-- what has occurred in the region since the last zone expansion, with respect to the increase and shifts in development, as well as what types of development patterns are being planned for the future.

The new zone structure also pays special attention to existing and emerging activity centers, those both regional and local in scale, as well as the location of planned public transportation facilities. The new zone structure was designed to be usable and meaningful until the next TAZ update, which has historically been every 10-15 years

The new zone system, entitled TAZ3675 currently, contains 3675 zones for the TPB Modeled Region. This is an increase of approximately 1700 zones. The new TAZ system improves upon the previous version in several ways. First, TAZ3675 provides zone refinement in areas that have experienced increased development since last TAZ system creation. Additionally, many of the TPB's outer jurisdictions that had limited number of zones in the past (mainly due to the software restrictions on the number of links and nodes available in the travel demand model network) now have balance in terms of average zone size and number, reflecting the significant growth in the last decade many of these areas have experienced. The new zone boundaries also align better with street centerlines and local-level TAZ.

Exhibit 4-3 details the differences between the old and new zone system. Several activities exist in the TPB technical work program that rely on an updated TAZ structure, including the travel demand model networks and related data tables, Cooperative Forecasts, and possible future Regional Activity Center delineation.

Exhibit 4-3 Comparison between TAZ2191 and TAZ3675

JURISDICTION	JUR code	TAZ2191 number range	TAZ2191 number of zones	TAZ2191 zone average sq. mi.	TAZ3675 number range	TAZ3675 number of zones	TAZ3675 zone average sq. mi.
District of Columbia	0	1-319	319	0.192	1-393	393	0.17
Montgomery County MD	1	320-627	308	1.6	394-769	376	1.35
Prince Georges County MD	2	640-1020	381	1.28	770-1404	635	0.79
Arlington County VA	3	1230-1311	82	0.32	1405-1545	141	0.18
City of Alexandria, VA	4	1330-1389	60	0.26	1546-1610	65	0.24
Fairfax County VA	5	1400-1755	356	1.13	1611-2159	549	0.76
Loudoun County VA	6	1780-1905	126	4.12	2160-2441	282	1.85
Prince William County VA	7	1920-2061	142	2.47	2442-2819	378	0.95
Frederick County MD	9	1030-1053	24	27.6	2820-2949	130	4.77
Howard County MD	10	1080-1099	20	12.61	2950-3017	68	3.72
Anne Arundel County MD	11	1110-1142	33	12.6	3018-3116	99	4.19
Charles County MD	12	1200-1223	24	19.21	3117-3229	113	4.08
Carroll County MD	14	1060-1073	14	32.1	3230-3287	58	7.80
Calvert County MD	15	1150-1163	14	15.37	3288-3334	47	4.61
St. Mary's County MD	16	1170-1190	21	17.2	3335-3409	75	4.84
King George County VA	17	2070-2074	5	36	3410-3434	25	7.41
City of Fredericksburg, VA	18	2100-2101	2	5.26	3435-3448	14	0.75
Stafford County VA	19	2080-2093	14	19.28	3449-3541	93	2.98
Spotsylvania County VA	20	2105-2110	6	26.54	3542-3603	62	2.63
Fauquier County VA	21	2115-2125	11	59.11	3604-3653	50	13.05
Clark County VA	22	2130-2132	3	58.87	3654-3662	9	19.79
Jefferson County WV	23	2135-2141	7	29.93	3663-	13	16.28
TOTAL			**1972**	**17.4115**		**3675**	**4.69**

4.4 *Revised Network Numbering System*

This chapter details a proposed node numbering scheme for the TPB's highway and transit networks that will support the new TAZ system. The scheme has been developed based on a review of the existing highway/transit node numbering system, professional judgment based on knowledge of the Version 2.3 model currently in development, and expectations regarding future planning needs. Rethinking how nodes are allocated is very crucial, particularly as a new GIS-based application for developing highway and transit networks is well along in development. There are other technical reasons, as well, which are described below.

First, the TPB's new TAZ system will necessitate fundamental changes to node numbering. The number of internal TAZs is expected to increase from 1,972 to 3,741[12], roughly a 90% increase. Consequently, external stations (currently beginning at 2145), the current station centroid numbers (currently beginning at 2331), and the highway node numbers (currently beginning at 3000) will, at minimum, require resequencing as a result of the added internal zones.

Second, the existing allocation of highway nodes among jurisdictions has become overly complicated. The existing node numbering used for 2,191-zone networks was adapted from a legacy numbering system that was designed for the 1,478-zone system (dating back to 1978). The adoption has resulted in highway node allocations among jurisdictions that are sequentially disjointed and rather cumbersome to track. The allocation of transit nodes among submodes has also become unwieldy, although to a lesser degree than the highway node numbering.

Third, the existing node numbering was originally designed to accommodate memory limitations in DOS and MINUTP. The scheme was also constrained due to variable dimension specifications in various MS FORTRAN programs, such as MFARE1 and MFARE2. Cube/Viper offers considerably greater freedom with respect to node numbering. The maximum allowable number of links and nodes in the TRNBUILD program (the most restrictive of the Cube library programs) is currently 999,999[13]. In contrast, the highest node number used in the existing system is 23,193. It is notable that the first 2,191-zone networks were developed during a time in which the MINUTP/DOS memory constraint was a key concern. This concern prompted staff to economize on the number of centroid connections coded, and hence the number of nodes used, in the 2,191-zone highway network.

Fourth, the nested-logit mode choice model is now prompting staff to account for additional submodes, such as light rail and BRT/streetcar. Transit numbering should be developed with these additional submodes in mind.

[12] This is a draft figure and is subject to possible revision.
[13] Reference 11/18/08 email correspondence between Ken Vaughn of Citilabs, Inc. and Mark Moran

The primary objectives of the proposed numbering scheme should be:

1) to minimize the trip matrix size in order to keep model run times as short as possible;
2) to keep the maximum network node number within the existing (Cube) software constraints, but large enough to facilitate node accounting and to accommodate future network development needs; and
3) to allow for some degree of flexibility in node numbering to accommodate special model applications.

4.4.1 The Existing Highway and Transit Node Numbering System

TPB networks have historically been developed, first, by allocating nodes on a jurisdictional basis. In order to gain a sense of the number of highway nodes needed to support the new TAZ system, a file containing a list of out-year (2030) highway nodes from the Multi-Any-year Network (MAN) was obtained. The list also contained a jurisdiction code. In all, there are 10,712 nodes in the 2030 highway network. Of those, 8,740 are non-centroid nodes. A summary of the number of TAZ's and highway nodes by jurisdiction is shown in Exhibit 4-4.

Exhibit 4-4 Highway Nodes by Jurisdiction

	2,191 TAZ System		Updated TAZ System	
Jurisdiction	TAZ Count	Hwy Nodes (2030 Net)	TAZ Count	Hwy Nodes (Estimated)
District of Columbia	319	1,465	393	1,805
Montgomery Co., Md.	308	1,128	371	1,359
Prince George's Co., Md.	381	1,247	635	2,078
Arlington Co., Va.	82	474	108	624
City of Alexandria, Va.	60	302	63	317
Fairfax Co.. Va.	356	1,794	716	3,608
Loudoun Co., Va.	126	373	282	835
Prince William Co., Va.	142	450	367	1,163
Frederick Co., Md.	24	289	98	1,180
Howard Co., Md.	20	204	67	683
Anne Arundel Co., Md.	33	253	99	759
Charles Co., Md.	24	116	101	488
Carroll Co., Md.	14	99	53	375
Calvert Co., Md	14	81	47	272
St. Mary's Co., Md.	21	71	75	254
King George Co., Va.	5	21	25	105
City of Fredericksburg, Va.	2	20	14	140
Stafford Co., Va.	14	134	93	890
Spotsylvania Co., Va.	6	75	62	775
Fauquier Co., Va.	11	90	50	409
Clarke Co., Va.	3	22	9	66
Jefferson Co., WVa.	7	32	13	59
TOTAL Internal TAZs	**1,972**	**8,740**	**3,741**	**18,244**

Exhibit 4-4 also provides an estimated number of highway nodes for the updated TAZ system that is calculated by applying the percentage increase in TAZs to the existing number of highway nodes. For example, the number of TAZs in the District is shown to increase from 319 to 393, a net increase 74 TAZs (about a 23% increase).

The estimated number of highway nodes in the District is computed by multiplying 1.23 times the number of highway nodes used in the existing TAZ system (1,465), which equals 1,805. Using this method, we estimate that we will need about 18,200 highway nodes for the region.
This is arguably a 'low-ball' estimate because: 1) the existing highway node system was developed with a minimal number of centroid connectors, and 2) the number of nodes to support a more detailed zone system is most likely not a linear relationship: additional TAZs will require not only more centroid connectors, but also, additional highway links about the more detailed TAZs. A more detailed summary of highway nodes by jurisdiction and discrete node ranges are shown in Exhibit 4-8.

Transit nodes have historically been allocated by submode type. In the existing 2,191-zone transit network, every Metrorail and commuter station is assigned two nodes: a 'station' node representing the boarding platform and a centroid node used for developing highway skims from TAZs to the station. Additionally, a PNR node is assigned to those stations having a parking facility (i.e., a lot and/or a garage). The existing transit node system is summarized in Table 2, based on the TPB's existing 2030 transit network. A more detailed summary of the transit nodes by discrete node ranges is shown in Exhibit 4-7. The nodes are currently distinguished by submode: Metrorail, commuter rail, and bus/light rail. Within submode nodes are further distinguished as stations, PNR lots, and stations centroids which are, in effect, artificial centroids from which highway skim times from TAZs to PNR lots are developed.

Exhibit 4-5 Transit Node Summary by Node Type

Transit_Node_Type	Low Node	High Node	Node_Cnt
Metrorail Station Centroid:	2331	2510	117
Metrorail Station Node:	7301	7418	117
Metrorail Station PNR Node:	7451	7917	57
Commuter Rail Station Centroid:	2361	2623	86
Commuter Rail Station Node:	7601	20929	123
Commuter Rail Station PNR Node:	7527	7934	75
Bus/LightRail Station Node:	7674	21402	232
Bus/LightRail Station PNR Node:	7457	8298	178

4.4.2 Proposed Numbering Schemes

Given that Cube software allows for a substantial amount of node capacity, it is reasonable that the TPB should avail itself of a larger range of nodes to facilitate accounting, but not too large. Using the rough estimate of 18,200 highway nodes needed as a conservative starting point, it can easily be doubled to allow for a comfortable cushion. Exhibit 4-6 shows the proposed numbering scheme assuming that the highest internal TAZ number is 3,741. Since the geographic extent of the new TAZ system is identical to that of the 2,191 system, it is assumed that the existing external stations would be preserved in the new TAZ system and renumbered. As indicated in Exhibit 4-6 the 'standard' matrix dimension of the updated TAZ system would be: 3,788 TAZs.

Exhibit 4-6 Proposed Node Numbering System

Node Type	Jurisdiction	Allotted TAZ's/Nodes	Beginning Node	Ending Node
TAZs	District of Columbia	393	1	393
	Montgomery Co., Md.	371	394	764
	Prince George's Co., Md.	635	765	1399
	Arlington Co., Va.	108	1400	1507
	City of Alexandria, Va.	63	1508	1570
	Fairfax Co.. Va.	716	1571	2286
	Loudoun Co., Va.	282	2287	2568
	Prince William Co., Va.	367	2569	2935
	Frederick Co., Md.	98	2936	3033
	Howard Co., Md.	67	3034	3100
	Anne Arundel Co., Md.	99	3101	3199
	Charles Co., Md.	101	3200	3300
	Carroll Co., Md.	53	3301	3353
	Calvert Co., Md	47	3354	3400
	St. Mary's Co., Md.	75	3401	3475
	King George Co., Va.	25	3476	3500
	City of Fredericksburg, Va.	14	3501	3514
	Stafford Co., Va.	93	3515	3607
	Spotsylvania Co., Va.	62	3608	3669
	Fauquier Co., Va.	50	3670	3719
	Clarke Co., Va.	9	3720	3728
	Jefferson Co., WVa.	13	3729	3741
	External Stations:	47	3742	3788
	Unused TAZs	1,212	3789	5000
Dummy Centroids	Metrorail PNR Centroids:	1,000	5001	6000
	Commuter Rail PNR Centroids:	1,000	6001	7000
	Light Rail/BRT PNR Centroids:	1,000	7001	8000
Stations	Metrorail Station Node:	1,000	8001	9000
	Commuter Rail Station Node:	1,000	9001	10000
	Bus/LightRail Station Node:	1,000	10001	11000
	Unused Transit Nodes	9,000	11001	20000
Highway Nodes	District of Columbia	2,000	20001	22000
	Montgomery Co., Md.	4,000	22001	26000
	Prince George's Co., Md.	4,000	26001	30000
	Arlington Co., Va.	2,000	30001	32000
	City of Alexandria, Va.	2,000	32001	34000
	Fairfax Co.. Va.	4,000	34001	38000
	Loudoun Co., Va.	2,000	38001	40000
	Prince William Co., Va.	2,000	40001	42000
	Frederick Co., Md.	2,000	42001	44000
	Howard Co., Md.	1,500	44001	45500
	Anne Arundel Co., Md.	1,500	45501	47000
	Charles Co., Md.	1,000	47001	48000
	Carroll Co., Md.	1,000	48001	49000
	Calvert Co., Md	500	49001	49500
	St. Mary's Co., Md.	500	49501	50000
	King George Co., Va.	500	50001	50500
	City of Fredericksburg, Va.	500	50501	51000
	Stafford Co., Va.	1,000	51001	52000
	Spotsylvania Co., Va.	1,000	52001	53000
	Fauquier Co., Va.	1,000	53001	54000
	Clarke Co., Va.	500	54001	54500
	Jefferson Co., WVa.	500	54501	55000

The above numbering system does not allocate spare or 'unused' TAZs among individual jurisdictions as was done in the 2,191 TAZ numbering system. Pre-assigning unused TAZs among jurisdictions would be an exercise in futility as it is impossible to anticipate the sub-zoning needs of future project planning studies. A more effective alternative would be to reserve a numerous 'pool' of extra TAZs that may be flexibly allocated as one desires (1,200 extra TAZs have been allowed).

1,000 Metrorail station nodes, 1,000 commuter rail station nodes, and 1,000 potential station nodes relating to remaining/special transit modes (e.g., LRT, BRT, Street car, etc.) have been reserved. In addition 1,000 station centroids for each of the three transit submode groups are reserved. While the allocation may appear excessive, it should nonetheless allow for easier node accounting. It is important to note that it has been assumed that PNR nodes in the transit network will be identical to the station centroid number. Additionally, note that 9,000 extra transit nodes had been reserved and will be available for station micro-coding, if TPB decides to pursue this activity.

The proposed numbering system, like the TAZ system, is still subject to change. A visual comparison of the new TAZ system with the highway street system is underway.

Exhibit 4-7 2030 Transit Discrete Node Ranges by Node Groups (2,191 TAZ Network)

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Metrorail Station Centroid:	2331	2430	100
2	Metrorail Station Centroid:	2494	2496	3
3	Metrorail Station Centroid:	2498	2509	12
4	Metrorail Station Centroid:	2509	2510	2

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Metrorail Station Node:	7301	7383	83
2	Metrorail Station Node:	7385	7418	34

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Metrorail Station PNR Node:	7451	7455	5
2	Metrorail Station PNR Node:	7457	7457	1
3	Metrorail Station PNR Node:	7459	7459	1
4	Metrorail Station PNR Node:	7463	7465	3
5	Metrorail Station PNR Node:	7501	7505	5
6	Metrorail Station PNR Node:	7507	7507	1
7	Metrorail Station PNR Node:	7519	7519	1
8	Metrorail Station PNR Node:	7521	7521	1
9	Metrorail Station PNR Node:	7523	7530	8
10	Metrorail Station PNR Node:	7540	7540	1
11	Metrorail Station PNR Node:	7542	7548	7
12	Metrorail Station PNR Node:	7557	7561	5
13	Metrorail Station PNR Node:	7575	7580	6
14	Metrorail Station PNR Node:	7582	7583	2
15	Metrorail Station PNR Node:	7585	7587	3
16	Metrorail Station PNR Node:	7592	7595	4
17	Metrorail Station PNR Node:	7597	7598	2
18	Metrorail Station PNR Node:	7917	7917	1

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Comm.Rail Station Centroid:	2361	2361	1
2	Comm.Rail Station Centroid:	2431	2431	1
3	Comm.Rail Station Centroid:	2433	2439	7
4	Comm.Rail Station Centroid:	2441	2444	4
5	Comm.Rail Station Centroid:	2446	2457	12
6	Comm.Rail Station Centroid:	2459	2460	2
7	Comm.Rail Station Centroid:	2462	2464	3
8	Comm.Rail Station Centroid:	2466	2491	26
9	Comm.Rail Station Centroid:	2510	2514	5
10	Comm.Rail Station Centroid:	2514	2514	1
11	Comm.Rail Station Centroid:	2514	2514	1
12	Comm.Rail Station Centroid:	2514	2514	1
13	Comm.Rail Station Centroid:	2514	2514	1
14	Comm.Rail Station Centroid:	2514	2514	1
15	Comm.Rail Station Centroid:	2514	2531	18
16	Comm.Rail Station Centroid:	2622	2623	2

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Comm.Rail Station Node:	7601	7619	19
2	Comm.Rail Station Node:	7626	7631	6
3	Comm.Rail Station Node:	7633	7636	4
4	Comm.Rail Station Node:	7651	7673	23
5	Comm.Rail Station Node:	7685	7688	4
6	Comm.Rail Station Node:	7701	7720	20
7	Comm.Rail Station Node:	7726	7734	9
8	Comm.Rail Station Node:	20801	20803	3
9	Comm.Rail Station Node:	20805	20823	19
10	Comm.Rail Station Node:	20914	20929	16

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Comm.Rail Station PNR Node:	7527	7527	1
2	Comm.Rail Station PNR Node:	7547	7547	1
3	Comm.Rail Station PNR Node:	7549	7551	3
4	Comm.Rail Station PNR Node:	7802	7808	7
5	Comm.Rail Station PNR Node:	7808	7817	10
6	Comm.Rail Station PNR Node:	7826	7831	6
7	Comm.Rail Station PNR Node:	7834	7836	3
8	Comm.Rail Station PNR Node:	7851	7859	9
9	Comm.Rail Station PNR Node:	7861	7870	10
10	Comm.Rail Station PNR Node:	7903	7903	1
11	Comm.Rail Station PNR Node:	7905	7920	16
12	Comm.Rail Station PNR Node:	7927	7934	8

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Bus/Lt.Rail Station Node:	7674	7684	11
2	Bus/Lt.Rail Station Node:	7689	7696	8
3	Bus/Lt.Rail Station Node:	20101	20140	40
4	Bus/Lt.Rail Station Node:	20200	20212	13
5	Bus/Lt.Rail Station Node:	20301	20321	21
6	Bus/Lt.Rail Station Node:	20401	20431	31
7	Bus/Lt.Rail Station Node:	20501	20510	10
8	Bus/Lt.Rail Station Node:	20601	20611	11
9	Bus/Lt.Rail Station Node:	20701	20703	3
10	Bus/Lt.Rail Station Node:	20900	20908	9
11	Bus/Lt.Rail Station Node:	20916	20916	1
12	Bus/Lt.Rail Station Node:	20950	20959	10
13	Bus/Lt.Rail Station Node:	20970	20978	9
14	Bus/Lt.Rail Station Node:	21100	21111	12
15	Bus/Lt.Rail Station Node:	21150	21154	5
16	Bus/Lt.Rail Station Node:	21240	21245	6
17	Bus/Lt.Rail Station Node:	21260	21265	6
18	Bus/Lt.Rail Station Node:	21280	21286	7
19	Bus/Lt.Rail Station Node:	21300	21306	7
20	Bus/Lt.Rail Station Node:	21330	21336	7
21	Bus/Lt.Rail Station Node:	21380	21382	3
22	Bus/Lt.Rail Station Node:	21401	21402	2

Range	Transit_Node_Type	LoNode	HiNode	Node_Cnt
1	Bus/Lt.Rail PNR Node:	7457	7457	1
2	Bus/Lt.Rail PNR Node:	7527	7528	2
3	Bus/Lt.Rail PNR Node:	7544	7545	2
4	Bus/Lt.Rail PNR Node:	7548	7548	1
5	Bus/Lt.Rail PNR Node:	7577	7577	1
6	Bus/Lt.Rail PNR Node:	7598	7598	1
7	Bus/Lt.Rail PNR Node:	7817	7817	1
8	Bus/Lt.Rail PNR Node:	7829	7829	1
9	Bus/Lt.Rail PNR Node:	7856	7856	1
10	Bus/Lt.Rail PNR Node:	7927	7927	1
11	Bus/Lt.Rail PNR Node:	8000	8025	26
12	Bus/Lt.Rail PNR Node:	8027	8050	24
13	Bus/Lt.Rail PNR Node:	8100	8100	1
14	Bus/Lt.Rail PNR Node:	8102	8114	13
15	Bus/Lt.Rail PNR Node:	8116	8118	3
16	Bus/Lt.Rail PNR Node:	8200	8298	99

-- End Transit Node Ranges --

Exhibit 4-8 2030 Highway Discrete Node Ranges by Jurisdiction (2,191 TAZ Network)

JurIdx	Rng_No	LoNode	HiNode	Rng_Cnt
1 DC	1	1	319	319
1 DC	2	2339	2352	14
1 DC	3	2356	2357	2
1 DC	4	2376	2387	12
1 DC	5	2391	2391	1
1 DC	6	2399	2407	9
1 DC	7	2428	2428	1
1 DC	8	2469	2470	2
1 DC	9	5228	5228	1
1 DC	10	8400	8979	580
1 DC	11	8981	9139	159
1 DC	12	9141	9237	97
1 DC	13	9239	9320	82
1 DC	14	9322	9337	16
1 DC	15	9339	9396	58
1 DC	16	9398	9409	12
1 DC	17	9411	9411	1
1 DC	18	9413	9413	1
1 DC	19	9415	9418	4
1 DC	20	9422	9427	6
1 DC	21	9429	9434	6
1 DC	22	9436	9442	7
1 DC	23	9444	9444	1
1 DC	24	9446	9447	2
1 DC	25	9450	9455	6
1 DC	26	9458	9459	2
1 DC	27	9461	9463	3
1 DC	28	9465	9469	5
1 DC	29	9471	9471	1
1 DC	30	9473	9476	4
1 DC	31	9478	9487	10
1 DC	32	9489	9491	3
1 DC	33	9493	9493	1
1 DC	34	9496	9497	2
1 DC	35	9501	9502	2
1 DC	36	9504	9512	9
1 DC	37	9514	9520	7
1 DC	38	9522	9524	3
1 DC	39	9528	9530	3
1 DC	40	9532	9541	10
1 DC	41	9543	9557	15
1 DC	42	9560	9561	2
1 DC	43	9563	9569	7
1 DC	44	9571	9578	8
1 DC	45	9580	9580	1
1 DC	46	9582	9585	4
1 DC	47	9587	9587	1
1 DC	48	9589	9589	1
1 DC	49	9592	9597	6
1 DC	50	9600	9627	28
1 DC	51	9629	9629	1
1 DC	52	9631	9633	3
1 DC	53	9636	9636	1
1 DC	54	9638	9641	4
1 DC	55	9643	9643	1
1 DC	56	9645	9645	1
1 DC	57	9647	9647	1
1 DC	58	9651	9652	2
1 DC	59	9655	9655	1
1 DC	60	9657	9667	11
1 DC	61	9669	9674	6
1 DC	62	9676	9679	4
1 DC	63	9683	9685	3
1 DC	64	9687	9688	2
1 DC	65	9700	9700	1

1	DC	66	9705	9707	3
1	DC	67	9709	9717	9
1	DC	68	9722	9724	3
1	DC	69	9726	9734	9
1	DC	70	9736	9737	2
1	DC	71	9739	9739	1
1	DC	72	9741	9741	1
1	DC	73	9743	9746	4
1	DC	74	9749	9749	1
1	DC	75	9751	9761	11
1	DC	76	9763	9764	2
1	DC	77	9766	9798	33
1	DC	78	9801	9841	41
1	DC	79	9844	9858	15
1	DC	80	9862	9870	9
1	DC	81	9872	9877	6
1	DC	82	9879	9879	1
1	DC	83	9881	9882	2
1	DC	84	9884	9884	1
1	DC	85	9886	9889	4
1	DC	86	9891	9894	4
1	DC	87	9897	9899	3
1	DC	88	9901	9901	1
1	DC	89	9903	9904	2
1	DC	90	9906	9907	2
1	DC	91	9909	9909	1
1	DC	92	9911	9919	9
1	DC	93	9921	9922	2
1	DC	94	18207	18214	8
1	DC	95	18218	18228	11
1	DC	96	18230	18233	4
2	MTG	1	320	627	308
2	MTG	2	2331	2338	8
2	MTG	3	2353	2355	3
2	MTG	4	2394	2394	1
2	MTG	5	2448	2457	10
2	MTG	6	2459	2459	1
2	MTG	7	2490	2493	4
2	MTG	8	2500	2507	8
2	MTG	9	3000	3142	143
2	MTG	10	3144	3144	1
2	MTG	11	3148	3150	3
2	MTG	12	3153	3191	39
2	MTG	13	3193	3547	355
2	MTG	14	3551	3556	6
2	MTG	15	3558	3560	3
2	MTG	16	3562	3789	228
2	MTG	17	3791	3826	36
2	MTG	18	3828	3872	45
2	MTG	19	3896	3896	1
2	MTG	20	3898	3901	4
2	MTG	21	9140	9140	1
2	MTG	22	12501	12502	2
2	MTG	23	12504	12649	146
2	MTG	24	12817	12817	1
2	MTG	25	12820	12820	1
2	MTG	26	15312	15313	2
2	MTG	27	15315	15317	3
2	MTG	28	15319	15319	1
2	MTG	29	15321	15323	3
2	MTG	30	15336	15361	26
2	MTG	31	15371	15396	26
2	MTG	32	15450	15451	2
2	MTG	33	15460	15463	4
2	MTG	34	15474	15475	2
2	MTG	35	16500	16500	1
2	MTG	36	16512	16516	5
2	MTG	37	18330	18331	2
2	MTG	38	18346	18346	1
3	PG	1	640	1020	381
3	PG	2	2388	2390	3

3 PG	3	2392	2393	2
3 PG	4	2395	2398	4
3 PG	5	2408	2411	4
3 PG	6	2415	2416	2
3 PG	7	2436	2436	1
3 PG	8	2438	2438	1
3 PG	9	2460	2460	1
3 PG	10	2462	2464	3
3 PG	11	2466	2468	3
3 PG	12	2496	2499	4
3 PG	13	3143	3143	1
3 PG	14	3145	3147	3
3 PG	15	3151	3152	2
3 PG	16	3548	3550	3
3 PG	17	3557	3557	1
3 PG	18	3827	3827	1
3 PG	19	4000	4633	634
3 PG	20	4635	4903	269
3 PG	21	4905	4944	40
3 PG	22	4946	4947	2
3 PG	23	4949	4999	51
3 PG	24	9397	9397	1
3 PG	25	9675	9675	1
3 PG	26	9902	9902	1
3 PG	27	11651	11700	50
3 PG	28	11710	11755	46
3 PG	29	12821	12828	8
3 PG	30	12831	12832	2
3 PG	31	12857	12870	14
3 PG	32	12874	12877	4
3 PG	33	12893	12897	5
3 PG	34	13607	13607	1
3 PG	35	13804	13804	1
3 PG	36	13806	13806	1
3 PG	37	14273	14273	1
3 PG	38	14304	14306	3
3 PG	39	15300	15306	7
3 PG	40	15330	15335	6
3 PG	41	15362	15369	8
3 PG	42	15397	15406	10
3 PG	43	16700	16722	23
3 PG	44	16725	16728	4
3 PG	45	16731	16738	8
3 PG	46	16740	16740	1
3 PG	47	18332	18332	1
3 PG	48	18334	18335	2
3 PG	49	18342	18344	3
4 ARL	1	1230	1277	48
4 ARL	2	1279	1311	33
4 ARL	3	2362	2366	5
4 ARL	4	2370	2375	6
4 ARL	5	2471	2471	1
4 ARL	6	5000	5000	1
4 ARL	7	5003	5004	2
4 ARL	8	5006	5006	1
4 ARL	9	5008	5049	42
4 ARL	10	5051	5062	12
4 ARL	11	5064	5068	5
4 ARL	12	5070	5071	2
4 ARL	13	5073	5074	2
4 ARL	14	5076	5077	2
4 ARL	15	5080	5080	1
4 ARL	16	5083	5169	87
4 ARL	17	5171	5178	8
4 ARL	18	5180	5189	10
4 ARL	19	5191	5192	2
4 ARL	20	5194	5195	2
4 ARL	21	5197	5212	16
4 ARL	22	5214	5220	7
4 ARL	23	5222	5226	5
4 ARL	24	5229	5230	2

4 ARL	25	5232	5258	27
4 ARL	26	5260	5297	38
4 ARL	27	5300	5300	1
4 ARL	28	5304	5351	48
4 ARL	29	5353	5356	4
4 ARL	30	5358	5391	34
4 ARL	31	5657	5657	1
4 ARL	32	9238	9238	1
4 ARL	33	9321	9321	1
4 ARL	34	9338	9338	1
4 ARL	35	9920	9920	1
4 ARL	36	12000	12010	11
4 ARL	37	12031	12048	18
4 ARL	38	12330	12331	2
4 ARL	39	12334	12345	12
4 ARL	40	12401	12446	46
4 ARL	41	17300	17307	8
5 ALX	1	1278	1278	1
5 ALX	2	1330	1389	60
5 ALX	3	2359	2361	3
5 ALX	4	2412	2412	1
5 ALX	5	2414	2414	1
5 ALX	6	2472	2473	2
5 ALX	7	4904	4904	1
5 ALX	8	5190	5190	1
5 ALX	9	5193	5193	1
5 ALX	10	5196	5196	1
5 ALX	11	5500	5636	137
5 ALX	12	5639	5639	1
5 ALX	13	5642	5642	1
5 ALX	14	5644	5650	7
5 ALX	15	5653	5656	4
5 ALX	16	5658	5679	22
5 ALX	17	5681	5723	43
5 ALX	18	5726	5726	1
5 ALX	19	5728	5730	3
5 ALX	20	5733	5733	1
5 ALX	21	5735	5736	2
5 ALX	22	5738	5743	6
5 ALX	23	5745	5748	4
5 ALX	24	10581	10581	1
5 ALX	25	12301	12302	2
5 ALX	26	12305	12329	25
5 ALX	27	12332	12333	2
5 ALX	28	12829	12830	2
5 ALX	29	12833	12845	13
5 ALX	30	12847	12848	2
5 ALX	31	12883	12892	10
5 ALX	32	12898	12898	1
6 FFX	1	1400	1755	356
6 FFX	2	2358	2358	1
6 FFX	3	2367	2369	3
6 FFX	4	2413	2413	1
6 FFX	5	2417	2424	8
6 FFX	6	2429	2430	2
6 FFX	7	2474	2477	4
6 FFX	8	2481	2482	2
6 FFX	9	2494	2495	2
6 FFX	10	2508	2508	1
6 FFX	11	3192	3192	1
6 FFX	12	5001	5002	2
6 FFX	13	5005	5005	1
6 FFX	14	5007	5007	1
6 FFX	15	5050	5050	1
6 FFX	16	5063	5063	1
6 FFX	17	5069	5069	1
6 FFX	18	5072	5072	1
6 FFX	19	5075	5075	1
6 FFX	20	5078	5079	2
6 FFX	21	5081	5082	2
6 FFX	22	5179	5179	1

6	FFX	23	5213	5213	1
6	FFX	24	5259	5259	1
6	FFX	25	5637	5638	2
6	FFX	26	5640	5641	2
6	FFX	27	5643	5643	1
6	FFX	28	5651	5652	2
6	FFX	29	5680	5680	1
6	FFX	30	5724	5725	2
6	FFX	31	5727	5727	1
6	FFX	32	5731	5732	2
6	FFX	33	5734	5734	1
6	FFX	34	5737	5737	1
6	FFX	35	6000	6216	217
6	FFX	36	6218	6248	31
6	FFX	37	6250	6283	34
6	FFX	38	6285	6306	22
6	FFX	39	6308	6324	17
6	FFX	40	6326	6375	50
6	FFX	41	6377	6385	9
6	FFX	42	6412	6412	1
6	FFX	43	6495	6495	1
6	FFX	44	6500	6620	121
6	FFX	45	6622	6640	19
6	FFX	46	6642	6746	105
6	FFX	47	6748	6760	13
6	FFX	48	6763	6851	89
6	FFX	49	6853	6899	47
6	FFX	50	6905	6905	1
6	FFX	51	6913	6913	1
6	FFX	52	6945	6945	1
6	FFX	53	10001	10026	26
6	FFX	54	10029	10030	2
6	FFX	55	10032	10032	1
6	FFX	56	10251	10332	82
6	FFX	57	10334	10334	1
6	FFX	58	10336	10342	7
6	FFX	59	10345	10345	1
6	FFX	60	10501	10580	80
6	FFX	61	10582	10698	117
6	FFX	62	10700	10781	82
6	FFX	63	10783	10784	2
6	FFX	64	10786	10788	3
6	FFX	65	10790	10845	56
6	FFX	66	10847	11011	165
6	FFX	67	11013	11014	2
6	FFX	68	11836	11843	8
6	FFX	69	11884	11894	11
6	FFX	70	12011	12030	20
6	FFX	71	12061	12067	7
6	FFX	72	12201	12227	27
6	FFX	73	12303	12304	2
6	FFX	74	12350	12351	2
6	FFX	75	12701	12816	116
6	FFX	76	12818	12819	2
6	FFX	77	12846	12846	1
6	FFX	78	12849	12856	8
6	FFX	79	12872	12873	2
6	FFX	80	12878	12881	4
6	FFX	81	15800	15818	19
6	FFX	82	15820	15821	2
6	FFX	83	15830	15852	23
6	FFX	84	15854	15869	16
6	FFX	85	17400	17403	4
6	FFX	86	17408	17408	1
6	FFX	87	17411	17444	34
6	FFX	88	17446	17446	1
6	FFX	89	23000	23011	12
6	FFX	90	23013	23021	9
6	FFX	91	23193	23193	1
7	LDN	1	1780	1905	126
7	LDN	2	2425	2427	3

7	LDN	3	6376	6376	1
7	LDN	4	6621	6621	1
7	LDN	5	6641	6641	1
7	LDN	6	6761	6762	2
7	LDN	7	6900	6904	5
7	LDN	8	6906	6912	7
7	LDN	9	6914	6944	31
7	LDN	10	6946	6999	54
7	LDN	11	7052	7052	1
7	LDN	12	7101	7231	131
7	LDN	13	7233	7262	30
7	LDN	14	14879	14879	1
7	LDN	15	15601	15650	50
7	LDN	16	15652	15655	4
7	LDN	17	17800	17818	19
7	LDN	18	17820	17823	4
7	LDN	19	17827	17830	4
7	LDN	20	17835	17846	12
7	LDN	21	17850	17853	4
7	LDN	22	17858	17865	8
9	PW	1	1920	2061	142
9	PW	2	2478	2480	3
9	PW	3	2483	2485	3
9	PW	4	2489	2489	1
9	PW	5	6217	6217	1
9	PW	6	6249	6249	1
9	PW	7	6307	6307	1
9	PW	8	6325	6325	1
9	PW	9	6386	6411	26
9	PW	10	6413	6443	31
9	PW	11	6445	6446	2
9	PW	12	6448	6494	47
9	PW	13	6496	6499	4
9	PW	14	7000	7051	52
9	PW	15	7053	7059	7
9	PW	16	7062	7100	39
9	PW	17	10031	10031	1
9	PW	18	10033	10034	2
9	PW	19	10151	10200	50
9	PW	20	10333	10333	1
9	PW	21	10335	10335	1
9	PW	22	10401	10450	50
9	PW	23	10699	10699	1
9	PW	24	10782	10782	1
9	PW	25	10785	10785	1
9	PW	26	10789	10789	1
9	PW	27	11158	11165	8
9	PW	28	11551	11588	38
9	PW	29	11844	11883	40
9	PW	30	16000	16003	4
9	PW	31	16005	16026	22
9	PW	32	16030	16032	3
9	PW	33	16034	16036	3
9	PW	34	17600	17603	4
10	FRD	1	1030	1053	24
10	FRD	2	2165	2171	7
10	FRD	3	2441	2442	2
10	FRD	4	2446	2447	2
10	FRD	5	3790	3790	1
10	FRD	6	13200	13203	4
10	FRD	7	13205	13308	104
10	FRD	8	13310	13362	53
10	FRD	9	13367	13436	70
10	FRD	10	13438	13449	12
10	FRD	11	13451	13455	5
10	FRD	12	13457	13463	7
10	FRD	13	13467	13469	3
10	FRD	14	13523	13523	1
10	FRD	15	15452	15459	8
10	FRD	16	15464	15473	10
11	HOW	1	1080	1099	20

11 HOW	2	2180	2183	4
11 HOW	3	2432	2433	2
11 HOW	4	2437	2437	1
11 HOW	5	2439	2439	1
11 HOW	6	13511	13511	1
11 HOW	7	13600	13606	7
11 HOW	8	13608	13682	75
11 HOW	9	13684	13696	13
11 HOW	10	13698	13791	94
11 HOW	11	13793	13795	3
11 HOW	12	13808	13808	1
11 HOW	13	13979	13980	2
12 AA	1	1110	1142	33
12 AA	2	2184	2191	8
12 AA	3	2431	2431	1
12 AA	4	2434	2435	2
12 AA	5	13000	13043	44
12 AA	6	13045	13045	1
12 AA	7	13697	13697	1
12 AA	8	13800	13803	4
12 AA	9	13805	13805	1
12 AA	10	13807	13807	1
12 AA	11	13809	13978	170
12 AA	12	13981	13999	19
12 AA	13	14077	14077	1
14 CHS	1	1200	1223	24
14 CHS	2	4634	4634	1
14 CHS	3	14159	14160	2
14 CHS	4	14201	14212	12
14 CHS	5	14214	14247	34
14 CHS	6	14249	14272	24
14 CHS	7	14274	14303	30
14 CHS	8	14307	14316	10
14 CHS	9	14319	14321	3
15 CAR	1	1060	1073	14
15 CAR	2	2172	2179	8
15 CAR	3	13204	13204	1
15 CAR	4	13309	13309	1
15 CAR	5	13363	13366	4
15 CAR	6	13437	13437	1
15 CAR	7	13450	13450	1
15 CAR	8	13500	13510	11
15 CAR	9	13512	13522	11
15 CAR	10	13524	13546	23
15 CAR	11	13549	13550	2
15 CAR	12	13552	13553	2
15 CAR	13	13557	13558	2
15 CAR	14	13562	13577	16
15 CAR	15	13579	13581	3
15 CAR	16	13583	13585	3
15 CAR	17	13587	13589	3
15 CAR	18	13591	13591	1
15 CAR	19	13593	13595	3
15 CAR	20	13597	13597	1
15 CAR	21	13683	13683	1
15 CAR	22	13792	13792	1
16 CAL	1	1150	1163	14
16 CAL	2	14000	14034	35
16 CAL	3	14036	14039	4
16 CAL	4	14041	14045	5
16 CAL	5	14047	14065	19
16 CAL	6	14067	14076	10
16 CAL	7	14078	14082	5
16 CAL	8	14085	14086	2
16 CAL	9	14248	14248	1
17 STM	1	1170	1190	21
17 STM	2	14035	14035	1
17 STM	3	14101	14158	58
17 STM	4	14161	14168	8
17 STM	5	14170	14172	3
17 STM	6	14213	14213	1

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18 KGE           1      2070      2074         5
18 KGE           2      2145      2146         2
18 KGE           3     14200     14200         1
18 KGE           4     14400     14417        18
19 FBG           1      2100      2101         2
19 FBG           2      2488      2488         1
19 FBG           3     14539     14539         1
19 FBG           4     14544     14544         1
19 FBG           5     14562     14563         2
19 FBG           6     14590     14590         1
19 FBG           7     14593     14594         2
19 FBG           8     14608     14608         1
19 FBG           9     14706     14707         2
19 FBG          10     14726     14726         1
19 FBG          11     14729     14729         1
19 FBG          12     14732     14736         5
19 FBG          13     14756     14756         1
19 FBG          14     14762     14762         1
20 STF           1      2080      2093        14
20 STF           2      2486      2487         2
20 STF           3     10201     10226        26
20 STF           4     14500     14538        39
20 STF           5     14540     14543         4
20 STF           6     14545     14561        17
20 STF           7     14564     14589        26
20 STF           8     14591     14592         2
20 STF           9     14595     14606        12
20 STF          10     14610     14615         6
21 SPT           1      2105      2110         6
21 SPT           2      2147      2153         7
21 SPT           3     14607     14607         1
21 SPT           4     14700     14705         6
21 SPT           5     14708     14725        18
21 SPT           6     14727     14728         2
21 SPT           7     14730     14731         2
21 SPT           8     14737     14755        19
21 SPT           9     14757     14761         5
21 SPT          10     14763     14771         9
21 SPT          11     14774     14774         1
21 SPT          12     14793     14793         1
21 SPT          13     14796     14799         4
22 FAU           1      2115      2125        11
22 FAU           2      2154      2157         4
22 FAU           3      6444      6444         1
22 FAU           4      6447      6447         1
22 FAU           5      7060      7061         2
22 FAU           6     14800     14878        79
22 FAU           7     14880     14882         3
23 CLK           1      2130      2132         3
23 CLK           2      2158      2160         3
23 CLK           3     14900     14918        19
24 JEF           1      2135      2141         7
24 JEF           2      2161      2164         4
24 JEF           3      2443      2444         2
24 JEF           4      7232      7232         1
24 JEF           5     14950     14974        25
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-- End Highway Node Ranges --

Appendix A: Highway / HOV Inputs for the 2008 CLRP and FY 2009-2014 TIP Air Quality Conformity Networks

Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
District of Columbia													
DDOT			Pending	New York Avenue	Bladensburg Road							beyond 2010	Yes
DDOT			Pending	New York Avenue	Florida Avenue							beyond 2010	Yes
DDOT		Study	Pending	South Capitol Street	MLK	Suitland Parkway						not coded	Yes
DDOT			Pending	Southeast/Southwest Frwy Reversible Lanes	14th Street Bridges	Pennsylvania Ave. SE							Yes
DDOT	nrs	Study	Pending	Southern Avenue	Naylor Road	Erie Street						not coded	Yes
DDOT		Construct	Pending	Foxhall Road, N.W.	W Place	Calvert Street						2003	Yes
DDOT		Construct	Pending	Klingle Road Reconstruction	Porter Street	Woodley Road						2007	Yes
DDOT		Construct	Pending	Minnesota Ave. NE ext.	Sheriff Rd	Meade St. N.E.						2011	Yes
DDOT		Study	Pending	Whitehurst Fwy/Roosevelt Bridge	Porter Street	Woodley Road						not coded	Yes
DDOT	DP9A	Widen / Realign	Pending	South Capitol St. Corridor: Frederick Douglass Bridge	S. Capitol St. (east)	Potomac Ave. (west)	2	2	5	6		2015	
DDOT	DP9B	Widen	Pending	South Capitol St. Corridor: S. Capitol St.	O St.	Potomac Ave.	2	2	5	6		2015	
DDOT	DP9C	Construct	Pending	South Capitol St. Corridor: S. Capitol St. intersection	at Potomac Ave.							2015	
DDOT	DP9D	Construct	Pending	South Capitol St. Corridor: Suitland Parkway Intch.	at MLK Jr. Blvd to complete movements							2015	
DDOT	DI7A	Reconstruct/ Widen	Pending	11th St. Bridges (2 spans)	I-295	Southeast Freeway			8	8 freeway 4 local		2013	
DDOT	DI7A	Construct	Pending	11th St. Bridges (2 spans)	ramp movements to/from the northbound Anacostia Freeway for each span							2013	
DDOT		Study	Pending	I-295 Interchange	at Malcolm X Blvd							not coded	

Note: Shaded areas represent changes from the 2007 CLRP and the FY2008-2013 TIP

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2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
Maryland													
MDOT Freeway													
MDSHA	MI2q	Construct	Approved	I-270	Interchange at Watkins Mill Road Extended		1	1	8	8+2	No	2020	Yes
MDSHA	MI2SHOV MI2S	Construct	Pending	I-270/US 15 Corridor	Shady Grove Metro	I-70	1	1	varies		No	2020	Yes
MDSHA		Reconstruct	Pending	I-270	Interchange at MD 121		1	1	1	2	No	2010	Yes
MDSHA	MI4	Widen	Approved	I-70	Mount Phillip Road	MD 144FA	1	1	4	6	No	2020	Yes
MDSHA	MI1f	Construct	Pending	I-95	Contee Road Relocated w/ CD Roads		1	1	8	8+4	No	2020	Yes
MDSHA	MI1k	Construct	Approved	I-95/I-495 (Capital Beltway)	Branch Avenue Metro Access (Phases I & II)		1	1	8	8	Yes	2009	Yes
MDSHA	MI1p	Construct	Approved	I-95/I-495 (Capital Beltway)	Interchange at Greenbelt Metro		1	1	8	8+2	No	2010	Yes
MDSHA	VA	Widen	Approved	I-95/I-495 Woodrow Wilson Bridge (see Virginia listing)	MD 210 Interchange	Virginia Line	1	1	6	12	Yes	2008	Yes
MDSHA	MI1m	Construct	Approved	I-95/I-495/Arena Drive Interchange	MD 214	MD 202	1	1	8	8+2	Yes	2009	Yes
MDSHA	MI1a	Study	Pending	I-95/I-495 (Capital Beltway)	American Legion Bridge	Woodrow Wilson Bridge	1	1	6	6+4	No	not coded	Yes
MDSHA	MP12	Construct	Approved	Intercounty Connector	I-270	I-95 / US 1	0	1	0	6	Yes	2012	Yes
MDOT Primary													
MDSHA	MP10a	Reconstruct	Approved	US 1 (Baltimore Avenue)	College Avenue	Cherry Hill Road	2	2	4	4	No	2020	Yes
MDSHA	MP10b	Widen	Approved	US 1, Baltimore Avenue	Cherry Hill Road	I-95/I-495	2	2	4	6	No	2010	Yes
MDSHA	MP9b	Construct	Pending	MD 2/4 at Lusby Southern Conn. Rd.	MD 765	MD 2/4 at Lusby	0	2	0	3	No	2010	No
MDSHA	MP9c	Construct	Approved	MD 2/4	MD 231 Intersection Improvs.		2	2	4	6+2	No	2010	No
MDSHA	MP2c	Construct	Pending	MD 3 (Robert Crain Highway)	US 50	Anne Arundel County Line	2	2	4	6	No	2020	Yes

Note: Shaded areas represent changes from the 2007 CLRP and the FY2008-2013 TIP

Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
MDSHA		Construct	Approved	MD 4 (Pennsylvania Avenue)	Interchange at Westphalia Rd		2	5	4	6	No	2010	Yes
MDSA		Construct	Approved	MD 4 (Pennsylvania Avenue)	Interchange at Suitland Pkwy		2	5	4	6	No	2011	Yes
MDSHA	MP3a	Upgrade/ Widen	Approved	MD 4	MD 223	I-95/I-495	2	1	4	6	No	2020	No
MDSHA		Construct	Approved	MD 5 (Branch Avenue)	Interchange at Earnshaw/Burch Hill Roads		2	5	4	6	No	2010	No
MDSHA	MP4f	Upgrade/ Widen	Approved	MD 5 (Branch Avenue)	US 301 at T.B.	North of the Capital Beltway	2	5	4	6	No	2030	Yes
MDSHA		Construct	Approved	MD 5 (Branch Avenue)	Interchange at MD 373/Brandywine Road Rel.		2	5	4	6	No	2010	No
MDSHA		Construct	Approved	MD 5 (Branch Avenue)	Interchange at Surratts Road		2	5	4	6	No	2010	No
MDSHA	MP4k	Construct	Approved	MD 5 Relocated at Hughesville	End of divided highway south of Hughesville	End of divided highway north of Hughesville	2	2	3	3	Yes	2007	No
MDSHA		Construct	Approved	US 15 Catoctin Mountain Highway	MD 26 Liberty Road		2	2	4	4	Complete?	2006	Yes
MDSHA	MP15	Study	Pending	US 15 Catoctin Mountain Highway	@ Monocacy Blvd		1	1	4	4	No	2010	Yes
MDSHA		Upgrade	Approved	US 29 (Columbia Pike)	Musgrove/Fairland Road		2	5	6	6	No	2010	Yes
MDSHA		Upgrade	Approved	US 29 (Columbia Pike)	Briggs Chaney Road		2	5	6	6	Complete	2006	Yes
MDSHA		Upgrade	Approved	US 29 (Columbia Pike)	Stewart Lane, Tech Rd., Greencastle Road, and Blackburn Road		2	5	6	6	No	2020	Yes
MDSHA	MP5a	Upgrade	Approved	US 29 (Columbia Pike)	Sligo Creek Parkway	south of MD 193	2	5	6	6	No	2020	No
MDSHA	MP5c	Upgrade	Approved	US 29 (Columbia Pike)	north of MD 193	south of MD 650	2	5	6	6	No	2020	No
MDSHA	MP5e	Upgrade	Approved	US 29, Columbia Pike	north of MD 650	Howard County Line	2	5	6	6	No	2020	No
MDSHA		Construct	N/A	MD 75 Relocated	MD 80		0	4	0	4	No	2020	Yes
MDSHA	FP1B	Construct	N/A	MD 80/MD 355 Relocated	South of Urbana	North of Urbana	0	2	0	4	Yes	2005	No

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2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
MDSHA	FP2	Widen	Approved	MD 85 (Buckeystown Pike)	English Muffin Way	north of Grove Road	2	2	2/4	4/6	No	2020	Yes
MDSHA	MP12c	Construct	Approved	MD 97 (Brookeville Bypass)	South of Brookeville	North of Brookeville	0	2	0	2	No	2020	Yes
MDSHA		Upgrade	Approved	MD 97 (Georgia Avenue)	interchange @ MD 28 (Norbeck Road)		2	2	6	6	No	2020	Yes
MDSHA		Upgrade	Approved	MD 97 (Georgia Avenue)	interchange @ Randolph Road		2	2	6	6	No	2015	Yes
MDSHA		Study		MD 97 (Georgia Avenue)	16th St.	Capital Beltway					not coded		
MDSHA	MP14	Reconstruct	Approved	MD 202 (Largo Town Ctr. Metro Access Improvs.)	at Brightseat Rd		2	2	6	6	No	2020	Yes
MDSHA		Upgrade	Approved	MD 210 interchange improvs.	@ Livingston Rd. / Kerby Hill Rd.		2	5	6	6		2020	Yes
MDSHA	MP6d	Upgrade	Approved	MD 210 (Indian Head Highway) with interchange improvements at: Wilson Bridge Dr., Livingston Rd./Palmer Rd., Old Fort Rd. North, Ft. Washington Rd., and Livingston Rd/Swan Creek Rd. Intersections	MD 228	Capital Beltway	2	5	6	6	No	2030	Yes
MDSHA	MP8e	Widen	Pending	US 301	North of Mount Oak Road	US 50	2	5	4/6	6+2	No	2020	Yes
MDSHA	MP8a	Study	Pending	US 301 South Corridor Transportation Study	South of La Plata	Mount Oak Road	2	5	4	4/6	No	not coded	Yes
MDSHA		Study	Pending	US 301 Waldorf Bypass	Turkey Hill Rd. in Charles Co.	N. of US 301/MD 5 at TB	2	5	4	4/6	No	not coded	Yes
MDSHA	MP16	Construct	Pending	US 340 Interchange	@US 340 at Jefferson Tech Park		1	1	4	4	No	2010	No
MDSHA	BRAC	Reconstruct		BRAC Intersection Improvements near the National Naval Medical Center, Bethesda								2011	

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2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
MDSHA		Construct	Approved	MD 355	Montrose/Randolph Rds.	CSX RR	2	2	6	6	No	2010	Yes
MDSHA		Reconstruct		MD 450	CSX grade separation at Peace Cross		2	2	4	4	Yes	2008	Yes
MDTA		Study	Pending	US 301 Governor Harry Nice Bridge							No	not coded	No
MDOT Secondary													
MDSHA	MS33	Widen	N/A	MD 27	MD 355	A 305	2	2	4	6	Yes	2006	No
MDSHA	MS3e	Construct	Pending	MD 28/ West Montgomery Ave.	MD 586/MD 911		2	2	2	4	No	2020	Yes
MDSHA	MS2f	Construct	Pending	MD 28 (Norbeck Road) / MD 198 (Spencerville Road)	MD 97	I-95	2	2	2/4	4/6	No	2020	Yes
MDSHA	MS32	Widen	Approved	MD 117	I-270	Great Seneca Park	2	2	2	4	No	2020	Yes
MDSHA	MS34	Widen	N/A	MD 121	I-270	W. Old Baltimore Rd.	3	3	4	6	No	2010	No
MDSHA	MS6b	Widen	Approved	MD 124 (Woodfield Road)	Midcounty Highway	S. of Airpark Dr.	2	2	2	6	No	2015	Yes
MDSHA	MS6c	Widen	Approved	MD 124 (Woodfield Road)	S. of Airpark Dr.	N. of Fieldcrest Rd.	2	2	2	6	No	2010	Yes
MDSHA	MS6d	Widen	Approved	MD 124 (Woodfield Road)	N. of Fieldcrest Rd.	Warfield Road	2	2	2	6	No	2015	Yes
MDSHA	MS10a	Study	Pending	MD 201 Extended / US 1	I-95/I-495	MD 198	0	2	0	4-6	No	not coded	Yes
MDSHA	MS10b	Widen	N/A	MD 201 (Kenilworth Ave.)	Rittenhouse Road	Pontiac St.	2	2	4	6	No	2020	No
MDSHA	PGS6	Construct	Approved	MD 212 Relocated (Ammendale/Virginia Manor	US 1	I-95	3	2	2	4	Yes	2007	Yes
MDSHA	MS30	Widen/ Construct	Approved	MD 414 Extended	MD 210	I-295	0	3	0	4	Yes	2008	Yes
MDSHA	MS18d	Widen	Approved	MD 450 (Annapolis Road)	Stonybrook Drive	West of MD 3	2	2	2	4	No	2020	No
MDSHA	MS20c	Construct	Approved	MD 475 (East Street Extended)	South Street	proposed Monocacy Boulevard	0	3	0	4	Yes	2010	Yes
MDSHA		Study	Pending	UM Connector	I-95/I-495 Interchange	University of Maryland campus	0	0	0	0	No	not coded	Yes

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
Montgomery County													
Mont.Co.	MC11b	Construct	N/A	A-305 - MidCounty Highway Extended	Stringtown Road	MD 27 (Ridge Road)	0	3	0	4	No	2010	No
Mont.Co.	MC11c	Construct	N/A	A-305 - MidCounty Highway Extended	MD 355	Stringtown Road	0	3	0	2	No	2010	No
Mont.Co.	nrs	Construct		Burtonsville Access Rd.	MD 198	School Success Rd.	0	4	0	2		2011	Yes
Mont.Co.	nrs			Century Blvd./Crystal Rock Loop	existing Century Blvd.	Crystal Rock Drive		3		4	No	2010	No
Mont.Co.	nrs	Construct		Chapman Avenue	Randolph Road	Old Georgetown Road	0	3	0	2	No	2011	No
Mont.Co.	MC38a	Construct		Citadel Avenue Extended	dead end of existing road south of Marinelli Road	Nicholson Lane	0	4	0	2	No	2008	Yes
Mont.Co.	MC44	Widen		Fairland Rd.	US 29	Briggs Chaney Rd.	3	3	2	3	No	2008	Yes
Mont.Co.	MC5d	Construct		Father Hurley Blvd.	Wisteria	MD 118 Relocated	0	2	0	4	No	2011	Yes
Mont.Co.	MC5c	Widen		Father Hurley/ Ridge Rd.	I-270	existing MD 27	2	2	4	6	No	2010	No
Mont.Co.	MC7a	Widen		Goshen Rd. South	Odenhal Avenue.	Warfield Road	3	3	2	4	No	2015	No
Mont.Co.	MC43	Construct		I-4 Bridge over I-270	Century Boulevard	Milestone Center Drive	0	3	0	4	No	2015	No
Mont.Co.	MC41	Widen		Longdraft Road	MD 124	MD 117	3	3	2	4	No	2015	No
Mont.Co.		Study		M-83 (with MD 118 Ext. and Middlebrook Rd. Ext. widening projects below)	MD 27 (Ridge Road)	Montgomery Village Avenue	0	2	0	4-6	No	2006 for study	No
Mont.Co.	MC11a	Construct		M-83 - Midcounty Highway Extended	MD 27 (Ridge Road)	Middlebrook Road	0	2	0	4-6	No	2020	No
Mont.Co.	MC11d	Construct		M-83 - Midcounty Highway Extended	Middlebrook Road	Montgomery Village Avenue	0	2	0	4-6	No	2020	No
Mont.Co.	MC12f	Widen		MD 118 Ext (Grmntwn. Rd.)	MD 355	M-83/Watkins Mill Rd.	2	2	3	6	No	2020	No
Mont.Co.	MC14g	Widen		Middlebrook Road Ext. Widening	MD 355	M-83	2	2	3	6	No	2015	No

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
Mont.Co.	MC15b	Construct		Montrose Parkway East	Parklawn Drive	MD 586 - Veirs Mill Road	0	2	0	4	No	2014	No
Mont.Co.	MC15	Construct	N/A	Montrose Parkway West	Montrose Road (Tower Oaks Blvd.)	old' Old Georgetown Road	0	2	0	4	No	2009	No
Mont.Co.	MC30	Construct		Nebel St Extended	Randolph Rd	Target Store Site	0	3	0	4		2011	Yes
Mont.Co.	MC18a	Widen	N/A	Norbeck Rd. Ext.	MD 28	MD 198	3	3	2	4	No	2020	No
Mont.Co.	nrs	Construct		Observation Drive Extended	existing terminus	MD 355 Bypass	0	3	0	2	No	2020	No
Mont.Co.	MC42	Construct		Randolph Road	Parklawn Drive	Rock Creek Park	2	2	4	5	No	2010	No
Mont.Co.	MC34	Widen		Snouffer School Rd. Fac. Planning	Goshen Rd.	MD 124	3	3	2	4	No	2015	No
Mont.Co.	MC28a	Widen	N/A	Stringtown Rd. Ext.	MD 355	Piedmont Road	3	3	2	4	No	2015	No
Mont.Co.	MC28	Construct	N/A	Stringtown Rd. Ext.	I270/ MD 121 int.	existing Stringtown Rd. @ MD 355	0	3	0	4	No	2007	Yes
Mont.Co.	MC23a	Construct		Watkins Mill Rd. ext.	Md 117	MD 355	0	3	0	4	No	2015	No
Mont.Co.	MC13	Construct		Woodfield Rd.(MD 124 Ext.)	1200' North of MD 108	MD 27	0	2	0	2		2011	Yes
Prince Georges County													
PG Co.	PGS3a	Widen	N/A	Addison Road	MD 214	Walker Mill Road	3	3	2	4	Yes	2014	No
PG Co.		Reconstruct	N/A	Addison Road	Sheriff Road	MD 704	4	4	2	2	Yes	2014	
PG Co.	PGS5	Construct	N/A	Allentown Road Relocated	Indian Head Highway (MD 210)	Brinkley Road	0	3	0	4	No	2025	No
PG Co.	PGS6	Widen	N/A	Ammendale/Virginia Manor Road	I-95	west of US 1	3	3	2	6	Yes	2008	Yes
PG Co.	PGS73	Widen	N/A	Ardwick-Ardmore Road	MD 704	91st Ave.	4	4	2	4	Yes	2015	No
PG Co.	PGP4a	Construct	N/A	Baltimore Washington Pkwy/Greenbelt Rd (MD 193)	ramp to southbound Baltimore Washington Pkwy		0	5	0	4	No	2025	No
PG Co.	PGS74b	Construct	N/A	Bell Station Road	Annapolis Road (MD 450)	Church Road	0	4	0	4	Yes	2006	No

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
PG Co.	PGS75	Widen	N/A	Berry Road	Livingston Road	Accokeek Road (MD 373)	4	4	2	4	No	2010	No
PG Co.	PGS9b	Widen	N/A	Bowie Race Track Road	Laurel-Bowie Road (MD 197)	Old Chapel Road	4	4	2	4	No	2015	No
PG Co.	PGS9a	Widen	N/A	Bowie Race Track Road	Annapolis Road (MD 450)	Old Chapel Road	4	4	2	4	No	2015	No
PG Co.	PGS10	Widen	N/A	Brandywine Road	north of Piscataway Road (MD 223)	Thrift Road	4	4	2	4	No	2020	No
PG Co.	PGS76	Widen	N/A	Briggs Chaney Road	Montgomery County line	Old Gunpowder Road	4	4	2	4	Yes	2010	No
PG Co.	PGS11	Widen	N/A	Brightseat Road	Sheriff road	MD 214	4	4	2	4	Yes	2004	Yes
PG Co.	PGS12	Widen	N/A	Brinkley Road	St. Barnabas Road (MD 414)	Allentown Road (MD 337)	3	3	4	6	No	2015	No
PG Co.	PGS13	Construct	N/A	Brooks Drive Extended	Marlboro Pike	Rollins Avenue	0	3	0	4	No	2020	No
PG Co.	PGS14	Widen	N/A	Cabin Branch Drive	Columbia Park Road	north of Sheriff Road	4	4	2	4	No	2015	No
PG Co.	PGS16a	Construct	N/A	Campus Way North	Lake Arbor Way	south of Lottsford Road	0	4	0	4	No	2004	No
PG Co.	PGS16b	Construct	N/A	Campus Way North Extended	south of Lottsford Road	Evarts Drive	0	4	0	4	No	2010	No
PG Co.	PGS17	Widen	N/A	Cherry Hill Road	Montgomery County line	Baltimore Avenue (US 1)	3	3	2	4	No	2012	Yes
PG Co.	PGS18	Widen	N/A	Church Road	Oak Grove Road	Annapolis Road (MD 450)	4	4	2	4	No	2005	No
PG Co.	PGS20a	Widen	N/A	Columbia Park Road	Cabin Branch Road	Columbia Terrace	4	4	2	4	No	2015	No
PG Co.	PGS20b	Widen	N/A	Columbia Park Road	US 50	Cabin Branch Road	4	4	2	4	No	2015	No
PG Co.	PGS21a	Widen/ Construct	N/A	Contee Road	US 1	Old Gunpowder Road	4	4	2	4	Yes	2014	Yes
PG Co.	PGS21b	Widen	N/A	Contee Road	Briarwood Drive	US 1	4	4	2	4	No	2000	Yes
PG Co.	PGS22	Widen	N/A	Dangerfield Road	Cheltenham Avenue	Woodyard Road (MD 223)	4	4	2	4	No	2015	No
PG Co.	PGS24a	Widen	N/A	Dower House Road	Woodyard Road (MD 223)	Foxley Road	4	4	2	4	No	2025	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
PG Co.	PGS24b	Widen	N/A	Dower House Road	Foxley Road	Pennsylvania Avenue (MD 4)	4	4	2	6	No	2015	No
PG Co.	PGS25	Widen	N/A	Fisher road	Brinkley Road	Holton Lane	4	4	2	4	No	2012	No
PG Co.	PGS26	Construct	N/A	Forbes Boulevard Extended	south of Amtrak	Greenbelt Road (MD 193)	0	4	0	4	No	2015	No
PG Co.	PGS27	Widen	N/A	Forestville Road	Allentown Road (MD 337)	Pennsylvania Avenue (MD 4)	4	4	2	4	No	2012	Yes
PG Co.	PGS29	Widen	N/A	Fort Washington Road	Riverview road	Indian Head Highway (MD 210)	4	4	2	4	No	2015	No
PG Co.	PGS30a	Widen	N/A	Good Luck Road	east of Kenliworth Avenue (MD 201)	Cipriano Road	4	4	2	4	No	2020	No
PG Co.	PGS30b	Widen	N/A	Good Luck Road	Cipriano Road	Greenbelt Road (MD 193)	4	4	2	4	No	2015	No
PG Co.	PGS87	Widen	N/A	Governor Bridge Road	US301	Anne arundel County	4	4	2	4	No	2012	No
PG Co.	PGS34a	Widen	N/A	Hill Road	Central Avenue (MD 214)	ML King Jr Highway (MD 704)	4	4	2	4	No	2013	Yes
PG Co.	PGS34b	Construct	N/A	Hill Road	ML King Jr Highway (MD 704)	Sheriff Road	0	4	0	2	No	2015	No
PG Co.	PGS88	Construct	N/A	Iverson St. Extended	Wheeler Road	19th Avenue	0	4	0	4	No	2010	No
PG Co.	PGS35	Widen	N/A	Karen Boulevard	Walker Mill Road	Central Avenue (MD 214)	4	4	2	4	No	2020	No
PG Co.	PGS38a	Widen	N/A	Livingston Road	Indian Head Highway (MD 210) at Eastover	Kerby Hill Rd.	4	3/4	2	4	No	2015	No
PG Co.	PGS38b	Widen	N/A	Livingston Road	Piscataway Creek	Farmington Road	4	4	2	4	No	2020	No
PG Co.	PGS40a	Widen	N/A	Lottsford Road	Archer Lane	Enterprise Road (MD 193)	3	3	2	4	No	2011	Yes
PG Co.	PGS39b	Widen	N/A	Lottsford Vista Road	ML King Jr Highway (MD 704)	Ardwick-Ardmore Road/Relocated	4	4	2	4	No	2020	No
PG Co.	PGS44b	Widen	N/A	Metzerott Road	Adelphi Road	University Boulevard (MD 193)	4	4	2	4	No	2020	No
PG Co.	PGS44a	Widen	N/A	Metzerott Road	New Hampshire Avenue (MD 650)	Adelphi Road	4	4	2	4	No	2020	No
PG Co.	PGS45	Widen	N/A	Mitchellville Road	Mount Oak Road	Collington Road (MD 197)	4	4	2	6	Yes	2000	No

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Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
PG Co.	PGS89	Widen	N/A	Mt. Oak	Church Road	Mitchellville Road	3	3	2	4	No	2009	No
PG Co.	PGS46	Widen	N/A	Murkirk Road	west of Baltimore Avenue (US 1)	Odell Road	4	4	2	4	No	2020	No
PG Co.	nrs	Construct	N/A	National Harbor Main Circulation Roads	I-95/I-295 Interchange	Waterfront Parcel, National Harbor	0	4	0	4/6		2008	Yes
PG Co.	PGS47	Widen	N/A	Oak Grove and Leeland Roads	Watkins Park Road (MD 193)	Robert Crain Highway (US 301)	4	4	2	4	No	2005	No
PG Co.	PGS48	Widen	N/A	Old Alexandria Ferry Road	Woodyard Road (MD 223)	Branch Avenue (MD 5)	4	4	2	4	No	2015	No
PG Co.	PGS80	Construct	N/A	Old Baltimore Pike Extended	Muirkirk Road	Contee Road	0	4	0	2	Yes	2020	No
PG Co.	PGS50	Widen	N/A	Old Branch Avenue	north of Piscataway Road (MD 223)	Allentown Road (MD 337)	4	4	2	4	Yes	2015	No
PG Co.	PGS90	Construct	N/A	Old Fort Rd. Extended	Piscataway Road (MD 223)	Old Fort Rd	0	4	0	4	No	2010	No
PG Co.	PGS51a	Widen	N/A	Old Gunpowder Road	Powder Mill Road	Greencastle Road	3	3	2	4	No	2015	No
PG Co.	PGS52	Widen	N/A	Oxon Hill Road	Fort Foote Rd - North	MD 210	4	4	2	4	No	2010	Yes
PG Co.		Widen	N/A	Oxon Hill Road	National Harbor Entrance	Fort Foote Rd - North	4	4	2	4	Yes	2011	Yes
PG Co.	PGS81	Construct	N/A	Presidential Parkway	Suitland Parkway	Melwood Road	0	3	0	6	No	2025	No
PG Co.		Construct		Regency Parkway/ Regency Lane	Regency Lane	Hil-Mar Drive	0	4	0	4		2007	Yes
PG Co.	PGS54	Widen	N/A	Rhode Island Avenue	University Boulevard (MD 193)	Baltimore Avenue (US 1)	4	4	2	4	No	2015	No
PG Co.	PGS55a	Widen	N/A	Ritchie Marlboro Road	Ritchie Rd	White House Road	3	3	2	4	No	2003	Yes
PG Co.	PGS55b	Widen	N/A	Ritchie Marlboro Road	White House Road	Old Marlboro Rd.	3	3	2	4		2020	
PG Co.	PGS56a	Widen	Approved	Ritchie Road/Forestville Road	Alberta Drive	MD 4 Pennsylvania Avenue	4	4	2	4	Yes	2009	Yes
PG Co.	PGS56e	Widen	N/A	Ritchie Road/Forestville Road	Alberta Drive	Edgeworth Drive	4	4	2	4	No	2004	Yes
PG Co.	PGS57	Widen	N/A	Rollins Avenue	Central Avenue (MD 214)	Walker Mill Road	4	4	2	4	No	2020	No

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							from	to	from	to			
PG Co.	PGS58	Widen	N/A	Rosaryville Road	Robert Crain Highway (US 301)	Woodyard Road (MD 223)	4	4	2	4	No	2020	No
PG Co.	PGS60b	Construct	N/A	Spine Road	Branch Avenue (MD 5)/US 301	Brandywine Road (MD 381)	3	3	0	4	No	2016	No
PG Co.	PGS61	Widen	N/A	Springfield Road	Lanham-Severn Road (MD 546)	Good Luck Road	4	4	2	4	No	2015	No
PG Co.	PGS82	Construct	N/A	St. Joseph's Drive	MD 202	Ardwick-Ardmore Road	0	4	0	4	No	2015	No
PG Co.	PGP2	Construct	N/A	Suitland Parkway	interchange at Rena/Forestville Roads		5	5	0	0	No	2025	No
PG Co.	PGS62a	Widen	N/A	Suitland Road	Allentown Road (MD 337)	Suitland Parkway	3	3	2	4	No	2009	Yes
PG Co.	PGS62b	Widen	N/A	Suitland Road	Suitland Parkway	Silver Hill Road (MD 458)	3	3	2	4	No	2015	No
PG Co.	PGS63	Widen	N/A	Sunnyside Avenue	Baltimore Avenue (US 1)	Kenliworth Avenue (MD 201)	4	4	2	4	No	2015	No
PG Co.	PGS64	Widen	N/A	Surratts Road	Beverly Avenue	Brandywine Road	4	4	2	4	No	2005	Yes
PG Co.	PGS65	Widen	N/A	Temple Hill Road	Piscataway Road (MD 223)	St. Barnabas Road (MD 414)	4	4	2	4	No	2015	No
PG Co.	PGP5a	Construct	N/A	US 50/Columbia Park Road Ramp	westbound ramp to Columbia Park Road		5	5	1	1	No	2025	No
PG Co.	PGP5b	Construct	N/A	US 50/Columbia Park Road Ramp	eastbound ramp Cheverly vicinity		5	5	1	1	Yes	2003	No
PG Co.	PGS67a	Widen	N/A	Van Dusen Road	Contee Road	Sandy Springs Road (MD 198)	3	3	2	4	No	2020	No
PG Co.	PGS67b	Construct	N/A	Van Dusen Road Interchange	@Contee Road		0	0	0	0	No	2025	No
PG Co.	PGS68	Widen	N/A	Virginia Manor Road	Muirkirk Road	Contee Road	4	4	2	4	No	2015	No
PG Co.	PGS69a	Widen	N/A	Walker Mill Road	Silver Hill Road	I-95	3	3	2	4	No	2015	No
PG Co.	PGS91	Widen		Westphalia Rd.	MD 4	Ritchie-Marlboro Rd.	4	3	2	4		2020	
PG Co.	PGS70	Widen	N/A	Wheeler Road	St. Barnabas Road (MD 414)	District of Columbia limits	4	4	2	4	No	2020	No
PG Co.	PGS71	Widen	N/A	White House Road	Ritchie-Marlboro Road	Largo-Landover Road (MD 202)	3	3	2	6	Yes	2015	No

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Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
PG Co.	PGS72	Widen	N/A	Whitfield Chapel Road	Annapolis Road (MD 450)	Ardwick-Ardmore Road	4	4	2	4	No	2020	No
PG Co.	PGS40b	Construct	N/A	Woodmore Road	Enterprise Road (MD 193)	Church Road		3		4	No	2015	No
PG Co.	PGS42	Widen	N/A	Woodyard Road (MD 223)	Rosaryville Road	Dower House Road	2	2	2	4	No	2007	No
PG Co.	PGS42b	Construct	N/A	Woodyard Road Relocated (MD 223)	Piscataway Creek	Livingston Road	0	3	0	2	No	2010	No
PG Co.	PGS42c	Widen	N/A	Woodyard Road Relocated (MD 223)	Piscataway Creek	Livingston Road	3	3	2	4	No	2020	No
Frederick County													
Fred.Co.	FS2	Construct	N/A	Monocacy Blvd	Hughes Ford Rd.	Gas House Pike	0	3	0	4	Yes	2009	No
Charles County													
Chas.Co.	CHS1	Widen/ Realign	N/A	Cross County Connector (Billingsly Rd.)	Middletown Rd.	MD 210	3	3	2	4		2009	No
Anne Arundel County													
BMC	AA1d	Widen	N/A	I-97	US 50/301	MD 32/3	1	1	4	6		2010	
BMC	AA15a	Widen	N/A	I-295	I-695	MD 100	1	1	4	6		2010	
BMC	AA3e	Widen	N/A	MD 2	US 50	MD 100		2	4/5	6		2020	
BMC	AA3g	Widen	N/A	MD 2	MD 450	South River Bridge	2	2	4	6		2030	
BMC	AA4e	Widen	N/A	MD 3	MD 32	Prince George Co. Line	2	2	4	6		2030	
BMC	AA5c	Widen	N/A	MD 32	BW Parkway	Howard County Line		1	4	8		2020	
BMC	AA14C	Widen	N/A	US50 / MD 301	AA / PG line	Bay Bridge	1	1	6	8		2020	
BMC	AA6e	Widen	N/A	MD 100	Howard Co. Line	MD 2		5/1	4/6	6/8		2020	
BMC	AA7	Widen	N/A	MD 170	MD 175	MD 100		2	2	4		2015	

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							from	to	from	to			
BMC	AA8a	Widen	N/A	MD 175	MD 170	BW Parkway		2	2	4		2010	
BMC	AA29	Widen	N/A	MD 177	MD 100	South Carolina Avenue	2	2	3/2	5		2020	
BMC	AA30	Widen	N/A	MD 198	MD 32	BW Parkway	2	2	2	4		2025	
BMC	AA30a	Widen	N/A	MD 198	PG line	BW Parkway	2	2	4	6		2025	
BMC		Widen	N/A	MD 607	Woods Rd.	MD 173			2	4		2025	
Carroll County													
BMC	CA3A	Construct	N/A	Hampstead Bypass (MD 30)	Wolf Hill Dr	Brodbeck Rd		2	0	2		2008	
BMC	CA1B	Widen	N/A	MD 140	MD 31	Market St.		1	4/6	8		2020	
BMC	nrs	Construct	N/A	MD 140 (3 new interchange)	@ MD 97S, Center St. & Englar Rd			1	-	-		2020	
BMC	CA2a	Widen	N/A	MD 26	MD 32	Liberty Reservoir		2	4	6		2015	
BMC	in base	Widen	N/A	MD 32	MD 26	Howard County Line		2	2	4		2020	
BMC	CA5	Widen	N/A	MD 97	MD 140	Pleasant Valley Rd		2	2	4		2020	
Howard County													
BMC	HW1b	Widen	N/A	I-70	US 29	US 40	1	1	4	6		2030	
BMC	HW1a	Reconstruct	N/A	I-70 (partial to full interchange)	@ Marriotsville Road		1	1				2020	
BMC	HW19	Widen	N/A	I-95	Howard / PG line	Balt. / Howard line	1	1	8	10		2020	
BMC	nrs	Reconstruct		US 1 (interchange)	@ MD 175							2015	
BMC	HW10d	Widen	N/A	US 29	I-70	MD 100		5	4/6	8		2030	
BMC	HW10b	Widen	N/A	US 29 NB	S. of MD 175	Middle Patuxent River		5	4	6		2010	

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							from	to	from	to			
BMC	HW3c	Widen	N/A	MD 32	Cedar Lane	Anne Arundel County Line		1	4/6	8		2015	
BMC	HW3b	Widen	N/A	MD 32	MD 108	I-70		1	2	4		2015	
BMC	HW3d	Widen	N/A	MD 32	I-70	Carroll County Line		2	2	4		2030	
BMC		Construct	N/A	MD 32 (interchange)	@ Burntwoods Rd.							2009	
BMC	HW3e	Construct	N/A	MD 32 (interchange)	@ Linden Church Rd.							2012	
BMC	HW6c	Widen	N/A	MD 108	Trotter Road	MD 32		2	2	4		2025	
BMC	HW6d	Widen	N/A	MD 108	Woodland Rd.	1200' w. of Centennial Ln.	2	2	2	4		2011	
BMC	HW8b	Widen	N/A	MD 216	West of US 29	Sanner Road		3	2	4		2020	
BMC	nrs	Construct	N/A	Dorsey Run Rd., North	MD 103	MD 175			0	4		2011	
BMC		Construct	N/A	Dorsey Run Rd., South	MD 175	Gulford Rd.			0	4		2010	
BMC	HW16C	Widen	N/A	Gorman Road	Stephens Road	US 1		3	2	3		2025	
BMC	HW18a	Widen	N/A	Marriottsville Road	MD 99	MD 144		3	2	4		2015	
BMC	nrs	Widen	N/A	Patuxent Range Road	US 1	Dorsey Run Road			2	4		2015	
BMC	HW11b	Widen	N/A	Rodgers Avenue	US 40	Courthouse Drive		3	2	4		2010	
BMC	HW13a	Construct	N/A	Sanner Road South	Johns Hopkins Road	MD 216		3	0	4		2015	
BMC	HW13b	Widen	N/A	Sanner Road North	Johns Hopkins Road	Pindell School Road		3	2	4		2015	
BMC	HW14c	Widen	N/A	Snowden River Parkway	MD 100	Broken Land Parkway		3	4	6		2020	
Federal Lands													
Fed. Lands	FED2	Widen		Mulligan Rd. (previously Old Mill Rd.)	US 1	Telegraph Rd.	4	4	2	4		2011	

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Fed. Lands		Study to Close		US 29 and VA 234 within Manassas National Battlefield			2	0	2	0		not coded	
Fed. Lands		Study		Manassas National Battlefield Bypass (segment 1)	US 29 (near VA 621)	VA 234 (north of Manassas National Battlefield Park)	0	3	0	4		not coded	
Fed. Lands		Study		VA 234 - Manassas National Battlefield Bypass (segment 2)	north of Manassas National Battlefield Park	east of VA 705	4	3	2	4		not coded	
Virginia													
VDOT Freeway													
VDOT	VI1w	Widen	CE-1	I-66 HOV during peak	US 15 (includes intch. reconst.)	US 29 (Gainesville)	1	1	4	6	No	2015	No
VDOT	VI1z	Reconstruct	EA/FONSI	I-66 Interchange	@ US 29 (Gainesville)		1	1	-	-	No	2014	Yes
VDOT	VI1ca	Widen	CE-4	I-66 HOV during peak	US 29 (Gainesville)	VA 234 (Prince William Parkway)	1	1	4	8	Yes	2010	Yes
VDOT	VI1ab	Reconstruct		I-66 Interchange	@ I-495 (Capital Beltway)		1	1	-	-	No	2013	Yes
VDOT		Study	Pending	I-66 Preliminary Engineering EIS	US 15 (@ Haymarket)	I-495 (Capital Beltway)	1	1	4/6	6/8	No	not coded	Yes
VDOT	VI1aj	Construct		I-66 Vienna Metro Station HOV Ramp	Transit Ramps - from EB to WB	at Vaden Drive	1	1	0	1	No	2014	Yes
VDOT		Widen	Approved	I-66 EB Auxiliary Lanes	South of Gallows Road	Off Ramp I-495 SB	1	1	3+1	3+1 +2	No	2030	Yes
VDOT		Widen	Approved	I-66 WB Auxiliary Lanes	On Ramp from SB I-495	South of Gallows Road	1	1	3+1	3+1 +2	No	2030	Yes
VDOT	VI1ah	Widen	Approved	I-66 EB Auxiliary Lanes	Cedar Lane	South of Gallows Road	1	1	3+1	3+1 +1	No	2030	Yes
VDOT	VI1ai	Widen	Approved	I-66 WB Auxiliary Lanes	South of Gallows Road	Cedar Lane	1	1	3+1	3+1 +1	No	2030	Yes
VDOT	VI1l	Study	PCE-1	I-66 ramp	EB on-ramp from US 29 (Arlington)		1	1	-	-	No	not coded	No

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VDOT	VI1ae	Reconstruct	Pending	I-66 WB Operational/ Spot Improvements- extend acceleration/ deceleration lanes	Fairfax Dr.	Sycamore St.	1	1	2	3	No	2013	Yes
VDOT	VI1af	Reconstruct	Pending	I-66 WB Operational/ Spot Improvements- extend acceleration/ deceleration lanes	Washington Blvd.	Dulles Airport Access Rd. connector	1	1	3	4	No	2013	Yes
VDOT	VI1ag	Reconstruct	Pending	I-66 WB Operational/ Spot Improvements- extend acceleration/ deceleration lanes	Lee Hwy. / Spout Run	Glebe Rd.	1	1	2	3	No	2013	Yes
VDOT	VI2ka	Widen	SEIS-2	I-95 (Wilson Bridge and approaches)	VA 241 (Telegraph Rd.)	US 1	1	1	6	12	Yes	2011	Yes
VDOT	VI2k	Widen	SEIS-2	I-95 (Wilson Bridge and approaches)	US 1	MD 210	1	1	6	12	Yes	2009	Yes
VDOT	VI2ac	Reconstruct	Pending	I-95 Interchange	@ VA 613 (Van Dorn Street)		1	1	-	-	No	2015	No
VDOT	VI2p	Widen	CE-1	I-95 (provide 4th lane)	Newington	VA 123	1	1	6	8	No	2011	Yes
VDOT	VI2ab	Reconstruct	Pending	I-95 Interchange	@ VA 642 (Lorton Road)		1	1	-	-	No	2010	No
VDOT	VI2d	Construct	CE-4	I-95 Interchange	@ VA 7900 (Franconia-Springfield Parkway)	LOV Access to & from West/from & to North	-	1	-	-	No	2015	Yes
VDOT	VI2r	Widen / Construct	Pending	I-395/I-95 HOV/ BUS/ HOT Lanes	Eads St.	VA 234 (Dumfries Rd.)	1	1	2	3	No	2010	Yes
VDOT	VI2r	Construct	Pending	I-395/I-95 HOV/ BUS/ HOT Lanes Transition	VA 234	VA 610 (Garrisonville Rd.) in Stafford Co.	1	1		2/1	No	2010	Yes
VDOT	VI2r	Widen	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT lanes	Eads Street	1	1	1	2	No	2010	Yes
VDOT	VI2r	Widen	Pending	I 95: HOV / Bus / HOT Ramp:	Eads Street	SB HOV/Bus/HOT Lanes	1	1	1	2	No	2010	Yes
VDOT	VI2r	Remove	Pending	I 95: HOV / Bus / HOT Ramp:	SB Express to SB Gen. use lanes	Between S Hayes St. & Washington Blvd.	1	-	1	0	No	2010	Yes

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Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT Lanes	Shirlington Circle	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	Shirlington Circle	SB HOV/Bus/HOT Lanes	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95 : HOV / Bus / HOT Bus Only Ramp:	NB HOV/Bus/HOT Lanes	Seminary Road (bus only)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	Seminary Road (bus only)	SB HOV/Bus/HOT Lanes	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT to Gen. use lanes	Between VA 236 (Duke St.) and VA 648 (Edsall Rd.)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	VA 7100 (Fairfax Co. Pkwy.)	SB HOV/Bus/HOT Lanes	-	1	0	1	No	2010	Yes
FFx Co.	BRAC / VI2ra	Construct	EIS	I-95 Reversible Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	NB HOV/BUS/HOT Lanes - Located N of Rte. 7100/I 95 I/C	EPG Southern Loop Road. - AM Only	1	1	0	1	No	2013	No
FFx Co.	BRAC / VI2rb	Construct	EIS	I-95 Reversible Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	EPG Southern Loop Road. - PM Only	SB HOV/BUS/HOT Lanes - Located N of Rte. 7100/I 95 I/C	1	1	0	1	No	2011	No
FFx Co.	BRAC / VI2rc	Construct	EIS	I-95 Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	EPG Southern Loop Road. - PM Only	NB I 95 GP Lanes	1	1	0	1	No	2011	No
FFx Co.	BRAC / VI2rd	Widen	EIS	I-95 Ramp	SB General Purpose Lanes	NB Fairfax Co. Parkway / EPG Southern Loop Road	1	1	1	2	No	2011	No
VDOT	VI2r	Delete	Pending	I 95: HOV / Bus / HOT Ramp:	SB HOV/Bus/HOT to Gen. use lanes	Between VA 7100 (Fairfax Co. Pkwy.) and VA 638 (Pohick Rd.)	1	-	1	0	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOT lanes to new bus station, back to NB HOT lanes (bus only)	Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	SB HOT lanes to new bus station, back to SB HOT lanes (bus only)	Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)	-	1	0	1	No	2010	Yes

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT to Gen. use lanes	Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	SB HOV/Bus/HOT to Gen. use lanes	Between VA 123 (Gordon Rd.) & VA 3000 (Prince William Pkwy.)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT to Gen. use lanes	Between VA 123 (Gordon Rd.) & VA 3000 (Prince William Pkwy.)	-	1	0	1	No	2010	Yes
VDOT	VI2r	Construct	Pending	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT to Gen. use lanes	Between VA 610 (Cardinal Rd.) & VA 234 (Dumfries Rd.)	-	1	0	1	No	2010	Yes
VDOT	VI2c	Reconstruct	Approved	I-95/395/495 Interchange			1	1	-	-	Complete	2008	Yes
VDOT	VI2ca	Construct	Approved	I-495 access ramps (Phase VIII of I-95/394/495 Interchange)	Backlick Rd. to 1. mi. E. of I95/I395/I495	All Movements (I-95/395 NB & SB main & HOT to/from I-495/I-95 EB & WB main & HOV lanes)	1	1	-	-	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	North of Hemming Ave. Underpass	Off Ramp to Braddock Rd	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Braddock Rd	North of Hemming Ave. Underpass	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Braddock Rd	Off Ramp to Rte 236	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Rte 236	Off Ramp to Braddock Rd	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Rte 236	Off Ramp to Gallows Road	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Gallows Road	Off Ramp to Rte 236	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Gallows Road	Off Ramp to Route 50	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Route 50	Off Ramp to Gallows Road	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Route 50	Off Ramp to I-66	1	1	4+2	5+2	No	2013	Yes

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2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Route 50	Off Ramp to I-66	1	1	5+2	6+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from I-66	Off Ramp to Route 50	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB	On ramp from EB I 66	Off Ramp to Rte 7	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On ramp from Rte 7	Off Ramp to WB I 66	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On ramp from Rte 7	Off Ramp to Rte 123	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Rte 123	Off Ramp to Route 7	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 NB Auxiliary Lane	On Ramp from Rte 123	Off Ramp to Rte 267	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Route 267	Off Ramp to Route 123	1	1	4+2	5+2	No	2013	Yes
VDOT	VI4laux	Widen	Approved	I-495 SB Auxiliary Lane	On Ramp from Route 193	Off Ramp to Route 267	1	1	4+2	5+2	No	2030	Yes
VDOT	VI4k	Construct	EA-2	I-495 HOT	American Legion Bridge	S. of VA 193 (Georgetown Pike)	1	1	8	8+2	No	2030	No
VDOT	VI4ia	Construct	Pending	I-495 HOT	S. of VA 193 (Georgetown Pike)	S. of Old Dominion Dr.	1	1	8	8+4	No	2030	No
VDOT	VI4IHOT	Construct	Pending	I-495 HOT	S. of Old Dominion Dr.	Hemming Ave. Underpass	1	1	8	8+4	No	2013	Yes
VDOT	VI4Ib	Construct	Pending	I-495 HOT	Hemming Ave. Underpass	1 mi. east of I-95/I-395/I-495	1	1	8	8+2	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	Provides SB to WB, EB to SB, & NB to WB HOV to HOT or HOT to HOV movements	@ VA 267 (Dulles Toll Road)	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOTa	Construct	Pending	I-495 HOT Lanes Interchange	Provides SB HOT to EB HOV movement	@ VA 267 (Dulles Toll Road)	1	1	-	-	No	2030	No
VDOT	part of VI4IHOTa	Relocate / Reconstruct	Pending	I-495 HOT Lanes Interchange	Move ramps from left side to right side: NB GP lanes to WB DTR; SB GP lanes to EB DTR	@ VA 267 (Dulles Toll Road)	1	1	-	-	No	2030	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	NB to WB, SB to WB, EB to NB, and EB to SB	@ Jones Branch Connector	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	NB to WB, SB to WB, EB to NB, and EB to SB	@ West Park Connector	1	1	-	-	No	2013	Yes
~~VDOT~~	part of VI4IHOT	~~Construct~~	~~Pending~~	~~I-495 HOT Lanes Interchange~~	~~All movements~~	~~@ VA 123 (Chain Bridge Road)~~	~~1~~	~~1~~	~~-~~	~~-~~	~~No~~	~~2013~~	~~Yes~~
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	NB to EB, NB to WB, EB to SB, and WB to SB	@ VA 7	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	Provides SB to WB, WB to SB, EB to SB, NB to WB, & EB to NB movements	@ I-66	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	NB to EB	@ I-66	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOT	Relocate	Pending	I-495 HOT Lanes Interchange	@ I-66	Left side off ramp from NB I 495 to WB I 66 relocated to combine with right side off ramp from NB I 495 to WB I 66	1	1	1	2	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	SB to EB, SB to WB, EB to SB, and WB to SB	@ US 29	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	EB to NB, WB to NB, SB to EB, and SB to WB	@ VA 650 (Gallows Road)							
VDOT	part of VI4IHOT	Construct	Pending	I-495 HOT Lanes Interchange	EB to NB, WB to NB, SB to EB, and SB to WB	@ VA 620 (Braddock Road)	1	1	-	-	No	2013	Yes
VDOT	part of VI4IHOTa	Construct	Pending	I-495 HOT Lanes Interchange	NB to EB, NB to WB, EB to SB, and WB to SB	@ VA 620 (Braddock Road)	1	1	-	-	No	2030	Yes
VDOT	nrs	Reconstruct	N/A	VA 267 (Dulles Toll Road) Interchange	@ VA 674 (Hunter Mill Road)		-	-	-	-	No	2012	No
VDOT	MW1	Widen	Pending	Dulles Airport Access Road	Dulles Airport	VA 123	1	1	4	6	No	2010	No
VDOT	VP21d	Widen	N/A	Dulles Greenway	Goose Creek Bridge	VA 901 (Claiborne Parkway)	1	1	4	6	No	2005	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VP21e	Widen	N/A	Dulles Greenway	VA7/15 Bypass	Goose Creek Bridge	1	1	4	6	No	2007	No
VDOT	VP21b	Construct	N/A	Dulles Greenway Interchanges	@ VA 653 & @ Battlefield Parkway		1	1	-	-	No	2007	No
VDOT Primary													
VDOT	VP26	Study	N/A	Techway	Dulles Toll Road	MD State Line	-	-	-	-	No	not coded	Yes
VDOT	VP1ac	Widen	Pending	US 1	Stafford County Line	Joplin Rd.	2	2	4	6	No	2016	No
VDOT	VP1ab	Widen	Pending	US 1	Joplin Rd.	Neabsco Mills Rd.	2	2	4	6	No	2011	Yes
VDOT		PE	Pending	US 1	Neabsco Mills Rd.	Featherstone Rd.	2	2	4	6	No	2013	Yes
VDOT	VP1a	Widen	Pending	US 1	Featherstone Rd.	VA 235 South	2	2	4	6	No	2015	No
VDOT	VP1u	Widen	Pending	US 1	VA 235 South	VA 235 North	2	2	4	6	No	2015	No
VDOT	VP1t	Widen	Pending	US 1 (bus/right-turn lanes)	VA 235 North	SCL Alexandria (I-95 Capital Beltway)	2	2	6	8	No	2025	No
VDOT	VP1o	Widen	Approved	US 1 (Neabsco Creek Bridge)	S. Cardinal Dr.	North Blackburn Rd.	2	2	4	6	No	2009	Yes
VDOT	VP1p	Widen	Pending	US 1 (part of 1/123 interchange)	Occoquan Rd.	Annapolis Way	2	2	4	6	No	2017	No
VDOT	nrs	Reconstruct	Pending	US 1 Interchange	@ Russell Road		1	1	-	-	No	2010	No
VDOT	VP2s	Widen / Upgrade	Pending	VA 7	Route 9	Market Street (Leesburg)	2	1	4	6	No	2015	Yes
VDOT	VP2j	Widen	Pending	VA 7 Bypass	VA 7 West	VA 7/US 15 East	5	1	4	6	No	2015	No
VDOT	VP2g	Upgrade	Pending	VA 7 (new interchanges)	VA 7/15 (Leesburg Bypass)	VA 28	2	1	6	6	No	2015	No
VDOT	VP2m	Widen	Pending	VA 7	Rolling Holly Drive	Dulles Toll Rd.	2	2	4	6	No	2020	Yes
VDOT	VP2L	Widen	Pending	VA 7	Dulles Toll Rd.	I-495	2	2	6	8	No	2013	No
VDOT	VP2b	Widen	Pending	VA 7	Seven Corners	Bailey's Crossroads	2	2	4	6	No	2020	No

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2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	nrs	Reconstruct	Pending	VA 7	@ VA 606 (Baron Cameron Ave.)		-	-	-	-	No	2005	Yes
VDOT	VP2t	Construct	Pending	VA 7 interchange	@ Claiborne Pkwy./West Spine Rd.		-	-	-	-	No	2006	No
VDOT		Construct	Pending	VA 7 interchange	@ Ashburn Villiage Blvd.		-	-	-	-	No	2009	Yes
VDOT		Construct	Pending	VA 7 interchange	@ Loudoun County Parkway		-	-	-	-	No	2010	No
VDOT		Construct	Pending	VA 7 interchange	@ River Creek Parkway / Crosstrail Blvd.		-	-	-	-	Yes	2008	No
VDOT		Construct	Pending	VA 7 interchange	@ VA 659 (Belmont Ridge Rd.)		-	-	-	-	No	2020	No
VDOT	nrs	Reconstruct	Pending	VA 7	@ VA 711 (Williams Gap Road)		2	2	4	4	No	2006	Yes
VDOT	VP3b	Study	Pending	VA 9	West Virginia State Line	VA 7	2	2	2	4	No	not coded	No
VDOT	nrs	Reconstruct	Pending	VA 9	@ VA 662 (Clarks Gap Road)		3	3	-	-	No	2006	Yes
VDOT	VP4e	Widen	Pending	US 15 (James Madison Highway)	US 29	I-66	2	2	2	4	No	2020	No
VDOT	VP4fa	Widen	N/A	US 15 (James Madison Highway)	I-66	VA 234	2	2	2	4	No	2009	Yes
VDOT	VP4fb	Widen	N/A	US 15 (James Madison Highway)	VA 234	Loudoun County Line	2	2	2	4	No	2020	No
VDOT	nrs	Reconstruct	N/A	US 15 (James Monroe Highway)	Whites Ferry Rd.	Maryland State Line	3	3	2	2	No	2008	Yes
VDOT	nrs	Reconstruct	Pending	VA 27 Interchange	@ VA 244 (Columbia Pike)		-	-	-	-	No	2011	No
VDOT	VP6h	Widen	Pending	VA 28	Fauquier County Line	VA 652 (Fitzwater Dr.)	3	3	2	4	No	2020	No
~~VDOT~~	~~VP6ka~~	~~Widen~~	~~Pending~~	~~VA 28~~	~~VA 652 (Fitzwater Dr.)~~	~~VA 215 (Vint Hill Road)~~	~~3~~	~~3~~	~~2~~	~~4~~	~~No~~	~~2013~~	~~Yes~~
VDOT	VP6k	Upgrade/ Widen	EA complete	VA 28	VA 215 (Vint Hill Road)	VA 234 Bypass	3	2	4	6	No	2012	Yes
VDOT	nrs	Recons/ Widen	Pending	VA 28	Bridge over Broad Run	Replace / Widen to ultimate width	3	3	2	6	Yes	2007	Yes
VDOT	VP6b	Widen	Pending	VA 28 (Centreville Road)	N. City Limits of Manassas Park	Old Centreville Rd.	2	2	4	6	No	2025	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VP6e	Widen/ Upgrade	N/A	VA 28 PPTA (Phase II)	I-66	VA 7	2	1	6	8	No	2010	No
VDOT	VP6ea	Widen/ Upgrade	N/A	VA 28	Dulles Toll Rd.	VA 606 (Old Ox Rd.)	2	1	6	6	No	2008	No
VDOT	VP6eb	Construct		VA 28 Interchange	@ VA 209 (Innovation Ave.)		-	-	-	-	No	2009	No
VDOT		Reconst.		VA 28 Interchange	@ New Braddock Rd.		-	-	-	-	No	2008	Yes
VDOT	VP6v	Construct/ Upgrade	N/A	VA 28 PPTA (Phase I) Interchange	@ VA 668 (McLearen Road)	SASM Interchange to VA 668 upgrade	2	1	6	6	No	2006	Yes
VDOT	VP6w	Construct/ Upgrade	N/A	VA 28 PPTA (Phase I) Interchange	@ Sterling Park	VA 606 to VA 625 upgrade	2	1	6	6	Yes	2007	Yes
VDOT	VP6x	Construct	N/A	VA 28 PPTA (Phase I) Interchange	@ VA 625 (Church & Waxpool Rds.)		2	2	6	6	Yes	2006	Yes
VDOT	VP6y	Construct	N/A	VA 28 PPTA Interchange	@Nokes Boulevard		-	-	-	-	No	2009	No
VDOT		Reconstruct		VA 28 Intersection	@ Braddock Rd./ Walney Rd.	eliminate left turns from EB Braddock to NB VA 28, eliminate left turns from VA 28 SB to Walney, and from WB Walney to SB VA 28, eliminate through movement from Braddock to/from Walney					No	2008	No
VDOT	VI1bb	Remove		VA 28 SB ramp	at I-66	eliminate left turn movement-EB I-66 off-ramp to SB VA 28					No	2008	
VDOT	VI1cc	Remove		VA 28 NB ramp	at I-66	eliminate turn movement-NB VA 28 to WB I-66					No	2008	
VDOT	VP7ae	Construct	Pending	US 29 Interchange	@ VA 55/VA 619		-	-	-	-	No	2014	Yes
VDOT	VP7r	Widen	Pending	US 29	Virginia Oaks Drive	I-66	2	5	4	6	No	2014	Yes
VDOT	VP7s	Widen	Pending	US 29 (add NB lane)	I-66	Entrance to Conway Robinson MSF	3	2	4	5	No	2016	Yes
VDOT	VP7ad	Widen	Pending	US 29	US 50	I-66	2	2	4	6	No	2010	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
VDOT	VP7aa	Widen	Pending	US 29	ECL City of Fairfax (vic. Nutley St.)	Espana Court	2	2	4	6	No	2020	No
VDOT	VP7ab	Widen	Pending	US 29	Espana Court	I-495	2	2	4	6	No	2015	No
VDOT	VP7n	Study	Pending	US 29	Pleasant Valley Drive	VA 28	2	2	4	6	No	not coded	No
VDOT	VP7g	Study	Pending	US 29	Fauquier County Line	I-66 (Gainesville)	2	2	4	6	No	not coded	No
VDOT	VSP57a	Construct	Pending	Route 29 (Parallel)	US 29 (Lee Highway) (near US 15)	Sommerset Crossing Drive	0	4	0	4	No	2025	No
VDOT	nrs	Construct	Pending	US 50 Traffic Circle	@ US 15 (Gilbert's Corner)		-	-	-	-	No	2010	Yes
VDOT	VP8q	Widen	Pending	US 50	VA 659 Relocated	VA 742 (Poland Rd.)	2	2	4/5	6	No	2010	No
VDOT	VP8c	Widen	Pending	US 50	VA 742 (Poland Rd.)	VA 609 (Pleasant Valley)	2	2	4/5	6	No	2012	Yes
VDOT	VP8r	Widen	Pending	US 50	VA 609 (Pleasant Valley)	VA 661 (Lee Rd.)	2	2	4/5	6	Yes	2012	Yes
VDOT	VP8n	Widen	Pending	US 50 (WBL)	I-66	Waples Mill Road	2	2	2	3	No	2020	No
VDOT	VP8g	Widen	Pending	US 50	I-66	WCL Fairfax City	2	2	6	8	No	2020	No
VDOT	VP8h	Widen	Pending	US 50	ECL City of Fairfax	Arlington County Line	2	2	4	6	No	2020	No
VDOT	AR2e	Reconstruct	Pending	US 50 (Arlington Blvd.)	ARC/FFX Line	Washington Blvd.	2	2	6	6	No	2015	No
VDOT	AR2f	Reconstruct	Pending	US 50 (Arlington Blvd.)	Pershing Dr.	Ft. Myer Dr.	2	2	6	6	No	2015	No
VDOT	nrs	Reconstruct	Pending	US 50 Interchange	@Jaguar Trail		2	2	-	-	No	2007	Yes
VDOT	nrs	Reconstruct	Pending	US 50 Interchange	@ VA 120 (Glebe Road)		-	-	-	-	No	2010	No
VDOT	nrs	Reconstruct	CE-1	US 50 Interchange	@ VA 27 (Washington Blvd.)		-	-	-	-	No	2015	No
VDOT	VP8o	Reconstruct	Pending	US 50 Interchange	@ Courthouse Road / 10th Street		-	-	-	-	No	2010	Yes
VDOT	nrs	Reconstruct	Pending	US 50 Interchange	@ VA 110 (N. Scott St.)		1	1	-	-	No	2020	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VP23a	Widen	Pending	VA 55 (John Marshall Highway)	Gainesville UM Church	US 29 @ VA 619	3	3	2	4	No	2014	Yes
VDOT	nrs	Reconstruct	Approved	VA 120 (Glebe Road)	@ VA 244 (Columbia Pike)		-	-	-	-	No	2004	Yes
VDOT	nrs	Reconstruct	Approved	VA 120 (Glebe Road)	@ Arlington Ridge Rd.	left turn lanes	-	-	-	-	No	2005	Yes
VDOT	nrs	Reconstruct	Pending	VA 120 (Glebe Road)	Military Rd.	DC line	2	2	2	2	No	2020	No
VDOT	nrs	Reconstruct	N/A	VA 120 (Glebe Road)	Quebec St.	2nd St.	2	2	-	-	No	2006	Yes
VDOT	nrs	Reconstruct	Pending	VA 120 (Glebe Road)	W. Glebe Rd.	24th Rd.	2	2	4	4	No	2010	No
VDOT	nrs	Construct	Approved	VA 123 Interchange	@ US 1		-	-	-	-	No	2017	Yes
VDOT	VP10g	Widen	Pending	VA 123	Route 1	Horner Road	2	2	4	6	No	2008	No
VDOT	VP10s	Widen	Approved	VA 123	Horner Road	Devil's Reach Road	2	2	4	6	No	2015	No
VDOT	VP10ea	Widen	Pending	VA 123 (Ox Road)	VA 722 North	Hooes Rd.	2	2	2	6	Yes	2006	Yes
VDOT	VP10h	Widen	Approved	VA 123 (Ox Road)	Hooes Rd.	Fairfax Co. Parkway	2	2	4	6	No	2015	No
VDOT	VP10f	Widen	Pending	VA 123 (Ox Road)	Fairfax Co. Parkway	Burke Center Parkway	2	2	4	6	No	2015	No
VDOT	VP10r	Widen	Pending	VA 123	Burke Center Parkway	Braddock Road	2	2	4	6	No	2020	No
VDOT	VP10l	Widen	Pending	VA 123 (Occoquan River Bridge)	South Approach	VA 722 North	2	2	2	6	Yes	2007	Yes
VDOT	nrs	Reconstruct	Pending	VA 193	@ Riverbend Road &	@ Nethercliff Hall Road	3	3	2	2	Complete	2007	Yes
VDOT	VP24a	Relocate/ Widen	Approved	VA 215	0.5 mi. west of VA 28 intersection	VA 28	4	3	2	4	No	2011	No
VDOT	nrs	Construct	Pending	VA 234 Interchange	@ US 1		-	1	-	-	No	2016	Yes
VDOT	VP12d	Widen/ Upgrade	Pending	VA 234 (Dumfries Road)	I-95	US 1	2	5	2	6	No	2016	No
~~VDOT~~	~~VP12l~~	~~Widen~~	~~Approved~~	~~VA 234 (Dumfries Road)~~	~~VA 234 Bypass (at Limstrong, VA 649)~~	~~SCL of Manassas~~		~~2~~	~~2~~	~~4~~	~~No~~	~~2010~~	~~No~~

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Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VP12k	Widen/ Upgrade	Approved	VA 234 (Manassas Bypass)	VA 234 S. of Manassas	I-66	5	1	4	6	No	2020	No
VDOT	VP12o	Construct	Pending	Tri-County Parkway (CTB alignment C & D)	I-66	Loudoun County Line	0	2	0	4	No	2017	No
VDOT	VP13a	Widen	Pending	VA 236	Pickett Road	I-395	2	2	4	6	No	2020	No
VDOT	nrs	Reconstruct	Pending	VA 236 (intersection/spot improvements)	Pickett Road	Lake Drive	2	2	4	4	No	2008	Yes
VDOT	nrs	Reconstruct	Pending	VA 236 EB	@ VA 620 (Braddock Road)		-	-	-	-	No	2009	Yes
VDOT	nrs	Reconstruct	Pending	VA 236 WB	@ VA 620 (Braddock Road)		-	-	-	-	No	2009	Yes
VDOT	VP26a	Construct	Pending	VA 28 Bypass	VA 234 (Sudley Road) @ Godwin Drive	I-66	0	5	0	6	No	2020	No
VDOT	VP26b	Construct	Pending	VA 28 Bypass	I-66	VA 620 (Braddock Road) @ VA 613	0	2	0	4	No	2020	No
VDOT Urban													
VDOT	VU28b	Construct	Developer	Battlefield Parkway	US 15 south of Leesburg	Dulles Greenway	0	2	0	4	No	2005	No
VDOT	VU28c	Construct	Developer	Battlefield Parkway	Dulles Greenway	Sycolin Road	0	2	0	4	Yes	2007	No
VDOT	VU28d	Widen/ Upgrade	Pending	Battlefield Parkway / Lawson Rd.	Sycolin Road	Kincaid Boulevard	4	2	2	4	Yes	2007	No
VDOT	VU28da	Construct	Approved	Battlefield Parkway	Kincaid Boulevard	Route 7	0	2	0	4	Yes	2008	Yes
VDOT	VU28e	Construct	Developer	Battlefield Parkway	Route 7	Fort Evans Road	0	2	0	4	No	2005	No
VDOT	VU28f	Construct	Pending	Battlefield Parkway	Fort Evans Road	Edwards Ferry Road	0	2	0	4	Yes	2010	No
VDOT	VU28a	Study	Pending	Battlefield Parkway	US 15 south of Leesburg	US 15 Bypass North	0	2	0	4/6	not coded	2010	No
VDOT	VU2b	Construct	Approved	Clermont Ave.	Eisenhower Ave.	Duke St.	-	3	-	4	No	2015	Yes
VDOT	nrs	Reconstruct		Duke St.	Fairfax County Line	Washington St.	2	2	4/6	4/6		2005	No
VDOT	VU30f	Widen	Pending	East Elden Street	Herndon Parkway East	Fairfax County Parkway	3	3	4	6	No	2012	No

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VDOT	VU52	Widen	Pending	Eisenhower Ave.	Stovall St.	Holland Lane	3	3	4	6	No	2011	No
VDOT	nrs	Construct	Pending	George Mason Blvd.	Univer. Dr @ Armstrong St.	Univ. Dr. @ Parking Entr.	0	4	0	2	No	2009	Yes
VDOT	VU35b	Construct	N/A	Mill Road Extension	Telegraph Rd.	DMV complex	-	3	-	2	No	2010	Yes
VDOT	VU51a	Construct	Pending	Potomac Yard Spine Road	US Route 1	Chrystal Dr.	0	4	0	4	No	2009	No
VDOT	VU30a	Widen	Approved	South Elden Street/Centreville Road	Worldgate Drive	Herndon Parkway	2	2	4	6	Complete	2006	Yes
VDOT	VU10b	Widen	Pending	Spring Street	Herndon Parkway East	Fairfax County Parkway	3	3	4	6	No	2011	No
VDOT	VU33	Widen	Pending	Sycolin Road	VA 7/US 15 Bypass	SCL of Leesburg	3	3	2	4	No	2007	No
VDOT	VU32	Widen	Pending	US 15 (South King Street)	Evergreen Mill Road	SCL of Leesburg	3	2	2	4	No	2015	Yes
VDOT		Construct		US 15 Bypass Interchange	Edwards Ferry Rd.		2	2	-	-	No	2020	No
VDOT	nrs	Construct	Approved	VA 28 Overpass & Interchg.	Overpass Norfolk-Southern RR B line	Interchange w/Wellington Rd.	2	2	4	4	No	2009	Yes
VDOT	VU40	Widen	Pending	US 29 (Lee Highway)	US 50	Chain Bridge Road	2	2	4	6	No	2011	Yes
VDOT	VU6b	Widen	Approved	US 29 (Lee Highway)	Chain Bridge Road	Eaton Place	2	2	4	6	No	2010	Yes
VDOT	VU29	Construct	Approved	VA 123 (Chain Bridge Road)	US 50	I-66	2	2	5	6	No	2010	Yes
VDOT		Reconstruct	nrs	Chain Bridge Road/Eaton Place Intersection Improvements	New "Right in/Right out" intersection at NB Chain Bridge Rd. & Willow Crescent Dr.		2	2			No	2010	No
VDOT	VU45	Widen	Approved	VA 234 (Dumfries Road)	South Corporate Limits	Hastings Drive	3	3	2	4	No	2011	No
VDOT	nrs	Widen	N/A	VA 234 (Sudley Road) 3rd NB lane	Dorsey Circle	Godwin Dr.	2	2	4	5	No	2010	No
VDOT	VU48b	Widen	Approved	Wellington Road	Godwin Drive	VA 28 (Nokesville Road)	3	3	2	4	No	2010	Yes
Arlington Secondary													

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~~VDOT~~	~~AR26~~	~~Widen~~	~~Pending~~	~~N. Pershing Dr.~~	~~George Mason Dr.~~	~~VA 120~~	~~3~~	~~3~~	~~2~~	~~4~~	~~No~~	~~2012~~	~~No~~
VDOT	AR28b	Widen	N/A	N. Quincy St.	Wilson Blvd.	VA 237	3	3	2	3	No	2007	No
~~VDOT~~	~~AR5a~~	~~Widen~~	~~Pending~~	~~VA 244 (Columbia Pike)~~	~~Oakland St.~~	~~Washington Blvd.~~	~~2~~	~~2~~	~~4~~	~~5~~	~~No~~	~~2010~~	~~No~~
VDOT	AR17a	Widen	Pending	Washington Blvd.	Wilson	Kirkwood	3	3	3	4	No	2015	No
VDOT	AR19c	Reconstruct	Pending	Wilson Blvd.	N. Quincy	Washington Blvd.	2	2	4	4	No	2010	No
Fairfax Secondary													
VDOT	FFX2a	Construct	Pending	VA 602 (Reston Pkwy.)	VA 5320 (Sunrise Valley Dr.)	VA 606 (Baron Cameron Avenue)	3	3	4	6	No	2015	No
VDOT	FFX3c	Study	Pending	Frying Pan Rd.	VA 28	VA 657 (Centreville Rd.)	3	3	2/4	6	No	not coded	Yes
VDOT	VSF2a	Widen	Pending	VA 608 (West Ox Road)	VA 6558 (Penderbrook Drive)	VA 6985 (Ox Trail)	3	3	2	4	Yes	2008	Yes
VDOT	FFX4	Study	Pending	VA 609 (Pleasant Valley Road)	US 29	US 50	3	3	2/4	4	No	not coded	No
VDOT	VSF4f	Widen	Pending	VA 611 (Furnace Road)	VA 123 (Ox Road)	VA 642 (Lorton Road)	3	3	2	4	No	2013	No
VDOT	VSF4c	Widen	Pending	VA 611 (Telegraph Road)	VA 613 (Beulah St.)	Old Telegraph Rd.	3	3	2	4	No	2011	Yes
VDOT	VSF4ca	Widen	Pending	VA 611 (Telegraph Road)	Old Telegraph Rd.	VA 635 (Hayfield Road)	3	3	2	4	No	2020	Yes
VDOT	VSF4i	Widen	Pending	VA 611 (Telegraph Road)	VA 635 (Hayfield Road)	VA 633 (S. Kings Hwy.)	3	3	2	4	No	2014	Yes
VDOT	VSF4h	Widen	Pending	VA 611 (Telegraph Road)	VA 633 (S. Kings Hwy.)	VA 644 (Franconia Road)	3	3	2	4	No	2015	No
VDOT	FFX5c	Study	Approved	VA 613 (S. Van Dorn St.)	VA 644	Kingstowne Village Pkwy.	3	3	4	6	No	not coded	No
VDOT	VSF15b	Construct	Pending	VA 613 (Van Dorn Street)	@ VA 644 (Franconia Road)	interchange	0	0	0	0	No	2013	Yes
VDOT	VSF7	Widen	Pending	VA 618 (Woodlawn Road)	US 1 (Richmond Highway)	VA 613 (Beulah Road)	3	3	2	4	No	2015	No
VDOT	VSF8g	Widen	Pending	VA 620 (Braddock Rd)	VA 7100 (Fairfax Co. Pkwy.)	VA 123 (Ox Road)	3	3	4	6	No	2015	No

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Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VSF8l	Study	Pending	VA 620 (Braddock Road)	VA 609 (Pleasant Valley Road)	Flat Lick Branch	4	3	2	2	No	not coded	No
VDOT	VSF8d	Study	Pending	VA 620 (Braddock Road)	VA 645 (Burke Lake Road)	VA 651 (Guinea Road)	3	3	4	6	No	not coded	No
VDOT	VSF8c	Study	Pending	VA 620 (Braddock Road) (HOV)	I-495	VA 645 (Burke Lake Road)	0	0	0	2	No	not coded	No
VDOT	VSF8j	Construct/ Widen	Pending	VA 620 (New Braddock Rd.)	VA 28	US 29 @ VA 662 (Stone Rd.)	0/4	3	0/2	4	No	2015	No
VDOT	VSF10c	Widen	Pending	VA 638 (Pohick Road)	US 1	I-95	3	3	2	4	No	2015	No
VDOT	VSF10e	Widen	Pending	VA 638 (Rolling Road)	VA 5297 (Delong Dr.)	VA 6922 (Odell Street) / Fairfax County Parkway	3	3	2	4	No	2010	No
VDOT	VSF10a	Widen	Approved	VA 638 (Rolling Road)	VA 7100 (Fairfax County Parkway)	VA 644 (Old Keene Mill Road)	3	3	2	4	No	2012	Yes
VDOT	FFX8	Study	Pending	VA 640 (Sydenstricker Rd.)	VA 644 (Old Keene Mill Rd)	VA 7100 (Fairfax County Parkway)	3	3	2	4	No	not coded	No
VDOT	VSF13d	Widen	Pending	VA 642 (Lorton Road)	VA 123 (Ox Road)	VA 600 (Silverbrook Road)	3	3	2	4	No	2013	No
VDOT	FFX9a	Study	Pending	VA 643 (Lee Chapel Rd.)	VA 123 (Ox Road)	VA 7100 (Fairfax County Parkway)	3	3	2	4	No	not coded	No
VDOT	VSF15	Widen	Pending	VA 644 (Franconia Road)	VA 3290 (Craft Road)	VA 611 (Telegraph Road)	3	3	2	4	No	2015	No
VDOT	FFX10	Study	Pending	VA 644 (Old Keene Mill)	VA 643	VA 7100 (Fairfax County Parkway)	3	3	2	4	No	not coded	No
VDOT	FFX11a	Widen	Pending	VA 645 (Stringfellow Rd.)	US 50	VA 7100 (Fairfax County Parkway)	3	3	2	4	No	2010	Yes
VDOT	VSF16g	Widen	Pending	VA 645 (Stringfellow Road)	VA 7735 (Fair Lakes Blvd.)	US 50	3	3	2	4	No	2013	Yes
VDOT	VSF37	Widen	Approved	VA 650 (Gallows Road)	Gatehouse Road	Providence Forest Dr.	3	3	4	6	No	2013	No
VDOT	VSF33d	Widen	Pending	VA 651 (Guinea Road)	VA 620 (Braddock Road)	VA 2430 (Braeburn Road)	3	3	2	4	No	2015	No
VDOT	VSF33a	Widen	Pending	VA 651 (Guinea Road)	VA 6197 (Roberts Parkway)	VA 4807 (Pommeroy Drive)	3	3	2	4	No	2015	No
VDOT	FFX12a	Construct	Pending	VA 651 (New Guinea Rd.)	VA 123 (Ox Road)	Roberts Rd.	0	3	0	4	No	2015	No
VDOT	VSF17b	Construct	Pending	VA 655 (Shirley Gate Road)	VA 7100 (Fairfax County Parkway)	VA 620 (Braddock Road)	0	3	0	4	No	2015	No

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VDOT	VSF18c	Widen	N/A	VA 657 (Centreville Road)	VA 8390 (Metrotech Dr.)	VA 668 (McLearen Road)	3	3	4	6	No	2020	No
VDOT	VSF18b	Widen	N/A	VA 657 (Centreville Road)	VA 8390 (Metrotech Dr.)	VA 668 (McLearen Road)	3	3	2	4	No	2015	No
VDOT	VSF18e	Study	Pending	VA 657 (Centreville Road)	VA 668 (McLearen Rd)	VA 608 (Frying Pan Rd)	3	3	4	6	No	not coded	No
VDOT	VSF18h	Widen	Pending	VA 657 (Centreville Road)	VA 608 (West Ox Rd)	VA 608 (Frying Pan Rd)	3	3	2	4	No	2012	Yes
VDOT	FFX14	Study	Pending	VA 657 (Walney Rd.)	VA 662 (Poplar Tree)	Westfields. Blvd.	3	3	2	4	No	not coded	No
VDOT	FFX15a	Study	Pending	VA 662 (Poplar Tree Rd.)	VA 645 (Stringfellow Rd.)	Westfields. Blvd.	3	3	2	4	No	not coded	No
VDOT	VSF35b	Study	Pending	VA 662 (Stone Rd/Poplar Tree Rd)	VA 620 (Braddock Road)	VA 8460 (Stonecroft Blvd.)	3	3		4	No	not coded	No
VDOT	FFX16a	Study	Pending	VA 665 (Fox Mill Rd.)	VA 602 (Reston Pkwy)	VA 7100 (Fairfax County Parkway)	3	3	2	4	No	not coded	No
VDOT	FFX17a	Study	Pending	VA 666 (Monroe St.)	VA 608 (W. Ox Rd.)	VA 665 (Fox Mill)	3	3	2	4	No	not coded	No
VDOT	FFX17b	Widen	Pending	VA 666 (Monroe St.)	VA 665 (Fox Mill)	Herndon	3	3	2	6	No	2010	No
VDOT	FFX18	Widen	Pending	VA 668 (McLearen Rd.)	VA 28	VA 657 (Centreville Rd.)	3	3	2/4	6	Yes	2020	No
VDOT	VSf21c	Construct	Approved	VA 673 (McLearen Rd)	VA 608	VA 602/Interchange at Fairfax Co. Parkway	0	3	0	4	No	2015	No
VDOT	VSF21b	Widen	Approved	VA 673 (McLearen Rd)	VA 657 (Centreville Road)	VA 608	3	3	2	4	No	2015	No
~~VDOT~~	~~FFX20b~~	~~Widen~~	~~Pending~~	~~VA 674 (Hunter Mill Rd.)~~	~~VA 673 (Valc Rd.)~~	~~VA 123 (Chain Bridge Road)~~	~~3~~	~~3~~	~~2~~	~~4~~	~~No~~	~~2012~~	~~No~~
~~VDOT~~	~~VSF22e~~	~~Widen~~	~~N/A~~	~~VA 674 (Hunter Mill Road)~~	~~VA 267 (Dulles Toll Road)~~	~~Crowell Road~~	~~3~~	~~3~~	~~2~~	~~4~~	~~No~~	~~2015~~	~~No~~
VDOT	VSF36	Relocate	N/A	VA 675 (Sunset Hills Rd.)	West of Edlin School	VA 675 (Crowell Road)	3	3	4	4	No	2012	No
VDOT	FFX21b	Study	Pending	VA 675 (Sunset Hills Rd.)	VA 828 (Wiehle Ave.)	VA 7100 (Fairfax County Parkway)	3	3	4	6	No	not coded	No
VDOT	VSF24	Widen	N/A	VA 684 (Spring Hill Road)	VA 7 (Leesburg Pike)	VA 6034 (International Drive)	3	3	2	4	No	2008	Yes
VDOT	FFX22c	Study	Pending	VA 828 (Wiehle Ave.)	VA 228 (Dranesville Road)	Loudoun Co. Line	0	3	0	4	No	not coded	No

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VDOT	VSF25aa	Convert	Pending	VA 7100 (Fairfax Co Pkwy HOV)	VA 267 (Dulles Toll Road)	Sunrise Valley Dr.	5	5	6	4+2	No	2015	Yes
VDOT	VSF25ea	Widen	Pending	VA 7100 (Fairfax Co Pkwy HOV)	Sunrise Valley	Rugby Rd.	5	5	4	4+2	No	2015	Yes
VDOT	VSF25e	Widen	Pending	VA 7100 (Fairfax Co Pkwy HOV)	Rugby Rd.	US 50	5	5	4	4+2	No	2015	Yes
VDOT	VSF25y	Upgrade/ Widen	Pending	VA 7100 (Fairfax Co Pkwy HOV)	US 50	VA 7735 (Fair Lakes Pkwy)	2	5	4	4+2	No	2010	No
VDOT	VSF25z	Upgrade /Widen	Pending	VA 7100 (Fairfax Co Pkwy HOV)	VA 7735 (Fair Lakes Pkwy)	I-66	2	5	6	6+2	No	2010	No
VDOT	VSF25g	Widen	Approved	VA 7100 (Fairfax Co Pkwy)	I-66	VA 123 (Ox Road)	5	5	4	6	No	2015	No
VDOT	VSF25j	Widen	Approved	VA 7100 (Fairfax County Parkway)	VA 636 (Hooes Road)	VA 640 (Sydenstricker Road)	2	2	4	6	No	2015	No
VDOT	VSF25l	Construct	Pending	VA 7100 (Fairfax Co Pkwy HOV)	VA 640 (Sydenstricker Road)	VA 7900 (Franconia-Springfield Parkway)	0	2	0	2	No	2015	No
VDOT	VSF25n	Construct	Approved	VA 7100 (Fairfax County Parkway)	VA 4600 (Fullerton Road)	Donegal La. / Hooes Rd.	0	1	0	4/6	No	2010	Yes
VDOT	VSF25na	Construct	Approved	VA 7100 (Fairfax County Parkway)	Donegal La. / Hooes Rd.	VA 7900 (Franconia-Springfield Parkway)	0	1	0	6	No	2020	Yes
VDOT	BRAC	Construct	Approved	VA 7100 (Fairfax County Parkway) Interchange	@ Franconia Springfield Parkway	Various movements; includes relocated Rolling Rd.	-	-	-	-	No	2020	No
VDOT	BRAC / VSF25nc	Construct	Approved	VA 7100 (Fairfax County Parkway) Interchange	@ Rolling Rd. / EPG Access Road	Ramp movements: EB F.C.Pkwy to NB & SB Rolling Rd. via one ramp; NB Rolling Rd. to EB F.C.Pkwy; NB Rolling Rd. to WB F.C.Pkwy; WB F.C.Pkwy to NB & SB Rolling Rd. via one ramp;	-	-	-	-	No	2010	No
VDOT	BRAC / VSF25nd	Construct	EIS	VA 7100 (Fairfax County Parkway) Interchange	@ Rolling Rd. / EPG Southern Loop Road (SLR)	Ramp movements: EPG (SLR) to NB F.C.Pkwy.; EPG (SLR) to SB F.C.Pkwy.	1	1	0	1/2	No	2010	No

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VDOT	BRAC / VSF25nb	Construct	Approved	VA 7100 (Fairfax County Parkway) Interchange	@ Boudinat Drive (BD)	Ramp movements: EB F.C.Pkwy. To SB BD; NB BD to EB F.C.Pkwy.; WB F.C.Pkwy to SB BD; NB BD to WB F.C.Pkwy.	-	-	-	-	No	2020	No
VDOT		Construct	Pending	VA 7100 Interchange	@ VA 7735 (Fair Lakes Pkwy) & Monument Dr.		2	5	-	-	No	2011	Yes
VDOT	VSF39	Widen	Pending	VA 7735 (Fair Lakes Pkwy) (3rd EB Lane)	VA 7100	Fair Lakes Circle	4	4	4	5	No	2010	No
VDOT	VSF26	Construct	Pending	VA 7900 HOV (Franconia-Springfield Parkway)	VA 7100 (Fairfax County Parkway)	VA 2677 (Frontier Drive)	5	5	-	2	No	2010	No
VDOT	VSF26a	Construct	Pending	VA 7900 HOV (Franconia-Springfield Parkway)	Interchange @ Neuman St.		1	1	-	-	No	2020	No
VDOT	VSF26b	Upgrade	Pending	VA 7900 HOV (Franconia-Springfield Parkway)	VA 638 (Rolling Rd.)	VA 617 (Backlick Rd.)	5	1	6+2	6+2	No	2020	No
VDOT	FFX24c	Widen	Pending	VA 8460 (Stonecroft Blvd.)	VA 661 (Old Lee Rd.)	Willard Rd.	3	3	4	6	No	2010	No
FHWA/VDOT	FED2	Widen	Pending	Old Mill Rd.	US 1	Pole Rd	4	4	2	4	No	2009	No
FHWA/VDOT	FED3	Construct	Pending	Old Mill Rd. extended	Pole Rd.	Telegraph	0	3	0	4	No	2009	No
VDOT		Study		Springfield Connectivity Study Improvements							not coded	2014	No
Loudoun Secondary													
VDOT	VSL51	Construct	Pending	Atlantic Boulevard	VA 625 (Church Road)	VA 7	-	3	-	4	No	2010	No
VDOT	VSL39	Construct	N/A	Broadlands Boulevard (Ryan Bypass)	VA 659	VA 625	0	3	0	4	No	2005	No
VDOT	VSL1b	Widen/ Upgrade	Pending	VA 606 (Ldn Co. Pkwy) (nee Old Ox Rd.)	VA 634	VA 621	4	3	2	4	No	2015	No
VDOT		Widen	N/A	VA 606 (Dulles Greenway Interchange)	within Greenway R/W		1	1	2	6	No	2004	No
VDOT	VSL10c	Construct	Pending	VA 607 (Loudoun County Pkwy)	VA 606 / VA 842	VA 772 / VA 607	-	3	-	4	Yes	2010	No
VDOT	VSL10d	Widen/ Construct	N/A	VA 607 (Loudoun County Pkwy) (nee VA 28 Bypass)	VA 620 @ VA 613	Edgewater St.		3		4	Yes	2005	No

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
VDOT	VSL10ba	Widen	Pending	VA 607 (Loudoun County Pkwy)	VA 625 (Waxpool Road)	W&OD Trail	3	3	4	6	No	2015	No
VDOT	VSL10bb	Widen/ Upgrade	Pending	VA 607 (Loudoun County Pkwy)	W&OD Trail	Redskin Park Drive	4	3	2	6	No	2015	No
VDOT	VSL10bf	Widen/ Upgrade	Pending	VA 607 (Loudoun County Pkwy) (dirt road)	Redskin Park Drive	Gloucester Parkway	4	3	2	4	No	2005	No
VDOT	VSL10bc	Widen	Pending	VA 607 (Loudoun County Pkwy)	Redskin Park Drive	Gloucester Parkway	3	3	4	6	No	2015	No
VDOT	VSL10bd	Widen/ Upgrade	Pending	VA 607 (Loudoun County Pkwy)	Gloucester Parkway	VA 7	4	3	2	4	No	2005	No
VDOT	VSL12	Widen	Pending	VA 625 (Church Rd.)	VA 28	VA 637	3	3	2	4	Yes	2006	Yes
VDOT	VSL12b	Widen	Pending	VA 625 (Waxpool Rd.)	Loudoun County Parkway	Broad Run	3	3	4	6	Yes	2005	Yes
VDOT	VSL12c	Widen	Pending	VA 625 (Waxpool Rd.)	Broad Run	VA 28	3	3	4	6	Yes	2005	No
VDOT	VSL45	Widen/ Upgrade	Pending	VA 643 (Sycolin Road) Phase II	Leesburg Town Limits	VA 659 (Belmont Ridge Road)	4	3	2	4	No	2009	No
VDOT	VSL4a	Widen/ Upgrade	Pending	VA 659 (Belmont Ridge Rd.)	National Rec. & Park Ent.	Dulles Greenway	4	3	2	4	No	2020	Yes
VDOT	VSL4ab	Widen/ Upgrade	Pending	VA 659 (Belmont Ridge Road)/VA 659 Relocated	Dulles Greenway	VA 7	4	3	2	4	No	2015	Yes
VDOT	VSL4d	Widen/ Upgrade	Pending	VA 659 (Belmont RidgeRoad)	VA 659 Relocated	National Rec. & Park Ent.	4	3	2	4	No	2010	No
VDOT	VSL4e	Widen/ Upgrade	N/A	VA 659 (Gum Spring Rd.)	VA 620 (Braddock Road)	US 50	4	3	2	4	No	2009	No
VDOT	VSL4f	Widen/ Upgrade	Pending	VA 659 (Gum Spring Rd.)	Prince William County Line	VA 620 (Braddock Road)	4	3	2	4	No	2010	No
VDOT	VSL4c	Construct	Pending	VA 659 Relocated	PWCL / VA 234 Bypass	US 50	0	3	0	4	No	2015	No
VDOT	VSL4b	Construct	Pending	VA 659 Relocated	US 50	VA 659 (Belmont Ridge Rd.)	0	3	0	4	No	2012	No
VDOT	VSL44	Widen/ Upgrade	N/A	VA 772 (Ryan Road)	VA 659 (Belmont Ridge Rd.)	Dulles Greenway @ exit #6	4	3	2	6	Yes	2004	No
VDOT	VSL50	Widen/ Upgrade	Pending	VA 773 (Fort Evans Road)	Leesburg Town Limits	River Creek Parkway	4	3	2	4	No	2009	No
VDOT	nrs	Construct	Pending	VA 868 (Davis Dr.)	VA 606 (Old Ox Road)	VA 625 (Church Road)	-	4	-	4	No	2007	Yes

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VSL40a	Widen	N/A	VA 901 (Claiborne Parkway)	VA 640 (Ashburn Farm Pkwy)	W&OD Trail	4	3	2	4	Yes	2007	No
VDOT	VSL40b	Construct	N/A	VA 901 (Claiborne Parkway)	W&OD Trail	VA 7	0	3	0	4	Yes	2006	No
VDOT	VSL46	Construct	Pending	VA 1036 (Pacific Boulevard)	Sterling Blvd.	Gloucester Parkway	-	3	-	4	No	2010	Yes
VDOT	VSL47	Widen/ Upgrade	N/A	River Creek Parkway	Riverside Parkway	VA 773 (Edwards Ferry Road)	4	3	2	4	No	2007	No
VDOT	VSL49	Construct	Pending	Russell Branch Parkway	VA 659 (Belmont Ridge Road)	Loudoun County Parkway	-	3	-	4	No	2015	No
VDOT	nrs	Construct		Southern Collector Rd. (Purcellville)	VA 690	VA 7	0	4	0	2	No	2015	No
Prince William Secondary													
VDOT	BRAC	Construct	Pending	Bypass Rd.	Russell Rd.	MDIA site entrance	0	3	0	2	No	2011	No
VDOT	VSP49b	Construct	Pending	Heathcote Boulevard	VA 625 (Old Carolina Rd.)	US 15 (James Madison Highway)	0	3	0	4	No	2010	No
VDOT	VSP49	Construct	Pending	Heathcote Boulevard	US 29	VA 676 (Catharpin Road)	0	3	0	4	Yes	2007	No
VDOT	VSP60	Construct		Neabsco Mills Rd.	Dale Blvd.	Opitz Blvd.	0	3	0	4	Yes	2007	No
VDOT	nrs	Construct	N/A	North/South Road at Innovation	VA 840 (University Blvd.)	VA 674 (Wellington Road)/VA 660 (Bethlehem	0	3	0	4	No	2010	Yes
VDOT	VSP59	Construct	N/A	Peaks Mill (Purcell Road east)	Route 643 (Purcell Road)	Route 3000 (Prince William Parkway)	0	4	0	2	No	2025	No
VDOT	VSP39	Widen	Pending	Russell Road	I-95	Ponderosa Y-Gate	3	3	2	4	No	2011	No
VDOT	VSP46	Construct	Pending	VA 1566 (Sudley Manor Drive Extension)	VA 234 Bypass	Chatsworth Drive	0	3	0	4	Yes	2007	Yes
VDOT	nrs	Construct	Pending	VA 1596 (Williamson Blvd)	Sudley Manor Dr.	Portsmouth Rd.	0	4	0	4	No	2020	No
VDOT	VSP21c	Widen	N/A	VA 1600 (Ashton Ave.)	Coverstone Dr.	VA 621 (Balls Ford Rd.)	3	3	2	4	No	2010	No
VDOT	VSP25b	Widen	Pending	VA 1781 (NewTelegraph Rd/Summit School Road)	VA 849 (Caton Hill Road)	VA 640 (Minnieville Rd.)	4	4	2	4	No	2015	No
VDOT	VSP25c	Widen	Pending	VA 1781 (Telegraph Rd.)	VA 3000 (Prince William Parkway)	VA 849 (Caton Hill Rd.)	4	4	2	4	No	2015	No

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
VDOT	VSP23d	Widen	Pending	VA 3000 (Prince William Pkwy.)	VA 776 (Liberia Ave.)	Hoadly Rd.	2	2	4	6	No	2013	No
VDOT	VSP23d	PE	Pending	VA 3000 (Prince William Pkwy.)	Hoadly Rd.	Old Bridge Rd.	2	2	4	6	No	2013	No
VDOT	VSP23d	PE	Pending	VA 3000 (Prince William Pkwy.)	Old Bridge Rd.	Minnieville Rd.	2	2	4	6	No	2013	No
VDOT	VSP2a	Widen/ Upgrade	Approved	VA 619 (Linton Hall Road)	US 29 (Lee Highway)	VA 675 (Glenkirk Road)	4	3	2	6	Complete	2007	Yes
VDOT	VSP2b	Widen/Upgrade	Approved	VA 619 (Linton Hall Road)	VA 675 (Glenkirk Road)	VA 621 (Devlin Road)	4	3	2	4	Complete	2007	Yes
VDOT	VSP2e	Widen/ Upgrade	Approved	VA 619 (Linton Hall Road)	VA 621 (Devlin Road)	VA 1566 (Sudley Manor Dr.)	4	3	2	4	Complete	2007	Yes
VDOT	VSP2ea	Widen/ Upgrade	Approved	VA 619 (Linton Hall Road)	VA 1566 (Sudley Manor Dr.)	VA 28 (Nokesville Road)	4	3	2	4	No	2009	Yes
VDOT	VSP3a	Widen/ Upgrade		VA 621 (Balls Ford Road)	VA 234 (Sudley Road)	Bethlehem Road	4	3	2	4	No	2015	No
VDOT	VSP3b	Widen/ Upgrade	N/A	VA 621 (Balls Ford Road)	Bethlehem Road	VA 234 Bypass	4	3	2	4	No	2015	No
VDOT	VSP3d	Widen	Pending	VA 621 (Devlin Road)	Route 674 (Wellington Road)	Route 619 (Linton Hall Road)	3	3	2	4	No	2025	No
VDOT	VSP3e	Widen	Pending	VA 621 (Devlin Road)	Route 674 (Wellington Road)	VA 234	3	3	2	4	No	2015	
VDOT	nrs	Widen	Pending	VA 625 (Old Carolina Rd.)	I-66 Underpass	Piedmont Vista Dr.			2	4	No	2010	Yes
VDOT	VSP40a	Construct	Pending	VA 635 (Cherry Hill VRE Access Road)	US 1	Future VRE Station site	0	4	0	2	No	2010	Yes
VDOT	VSP5d	Widen	Pending	VA 640 (Minnieville Road)	VA 610 (Cardinal Drive)	VA 643 (Spriggs Road)	3	3	2	4	Yes	2009	Yes
VDOT	VSP5e	Widen	Pending	VA 640 (Minnieville Road)	VA 643 (Spriggs Road)	VA 234	3	3	2	4	No	2013	Yes
VDOT	VSP15c	Widen	Pending	VA 640 (Minnieville Road)	VA 849 (Caton Hill Road)	VA 641 (Old Bridge Road)	3	3	2	4	Yes	2008	Yes
VDOT	VSP8a	Widen	Pending	VA 643 (Purcell Rd.)	VA 234 (Dumfries Rd.)	VA 642 (Hoadly Rd.)	3	3	2	4	No	2020	No
VDOT	VSP12a	Widen	Pending	VA 643 (Spriggs Rd.)	VA 234 (Dumfries Rd))	VA 642 (Hoadly Road)	3	3	2	4	Complete	2007	Yes
VDOT	VSP17b	Widen	Approved	VA 674 (Wellington Rd.)	VA 621 (Devlin Road)	VA 668 (Rixlew Lane)	3	3	2	4	No	2012	No

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
VDOT	VSP17c	Widen	Pending	VA 674 (Wellington Rd.)	Limestone Dr.	Vicinity Cellar Door Dr.	3	3	2	4	Complete	2006	Yes
VDOT	VSP18	Widen	Pending	VA 676 (Catharpin Rd.)	VA 55 (John Marshall Highway)	Heathcote Blvd.	3	3	2	4	No	2020	No
VDOT	VSP20b	Widen	Pending	VA 784 (Dale Blvd.)	I-95	VA 640 (Minnieville Rd.)		3	4	6	No	2020	No
VDOT	VSP20	Widen/ Upgrade	Pending	VA 1392 (Rippon Boulevard Extension)	US 1 (Jefferson Davis Highway)	West of Wigeon Way	4	3	2	4	Complete	2007	No
VDOT	VSP20c	Widen/ Upgrade	Pending	VA 1392 (Rippon Boulevard Extension)	West of Wigeon Way	Rippon VRE Station	4	3	2	4	No	2020	No
~~VDOT~~	~~VSP47d~~	~~Construct~~	~~Pending~~	~~VA 840 (University Blvd.) (nee East-West Connector)~~	~~Route 660 (Hornbaker Road)~~	~~Sudley Manor Dr.~~	~~0~~	~~3~~	~~0~~	~~4~~	~~No~~	~~2012~~	~~Yes~~
VDOT	VSP45	Construct	N/A	VA 861 (Clover Hill Road Extended/ Airport Access Rd.)	VA 234 Bypass	Manassas Airport	0	4	0	2	Complete	2006	Yes
VDOT	VSP62	Construct	Pending	Rollins Ford Rd.	Songsparrow Dr.	VA 215 (Vint Hill Rd.)	0		0	4	No	2012	Yes
FAMPO													
FAMPO	FAI1A	Construct	EA Complete	I-95 diamond interchange	at VA 627		1	1	0	0	Complete	2006	
FAMPO		Reconst/ Construct	EA Complete	I-95 interchange	at VA 627						No	2030	
	FAI1E	Construct		I-95 CD lanes	VA 630	VA 627	1	1	6	6+4	No	2025	
FAMPO		Reconstruct	EA Complete	I-95 interchange	at VA 630		1	1	0	0	No	2020	
FAMPO	FAI1D	Construct		I-95 interchange	at Spotsylvania Parkway/ US 17 Bypass		1	1	0	0	No	2025	
FAMPO	FAP5I	Widen		US 1	US 17 Business	Princess Anne Street	2	2	4	6	No	2030	
FAMPO	FAP5B	Widen		US 1	Princess Anne St.	VA 3 (Plank Rd.)	2	2	4	6	No	2015	
FAMPO	FAP5	Widen		US 1	VA 3 interchange	SCL	3	3	4	6	No	2030	

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(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
FAMPO	FAP5E	Widen		US 1	SCL Frederickburg	VA 208 (Courthouse Rd.)	2	2	4	6	No	2030	
FAMPO	FAP5D	Widen		US 1	VA 208 (Courthouse Rd.)	US 17 Bypass (Mills Dr.)	2	2	4	6	No	2010	
FAMPO	FAP5F	Widen		US 1	Widewater Parkway	Rt 610	2	2	4	6	No	2025	
FAMPO	FAP5G	Widen		US 1	Rt 610	Rt 630	2	2	4	6	No	2025	
FAMPO		Reconstruct		US 1 interchange	at US 17						No	2025	
FAMPO	FAP6A	Widen		US 17 Bypass (Mills Dr.)	VA 1	VA 2	2	2	2	4	No	2025	
FAMPO	FAP6C	Widen		US 17 (Warrenton Rd.)	I-95	Village Parkway	2	2	4	6	No	2010	
FAMPO	FAP7	Widen		VA 212 (Butler Rd)	US 1	VA 212 / VA 218 Connection	4	4	2	4	No	2025	
FAMPO	FAS23A	Construct	Pending	VA 208 Bypass (Spotsylvania)*	West of Ta River	East of Po River	0	3	0	2	ROW	2009	
FAMPO	FAS23B	Construct	Pending	VA 208 Bypass (Spotsylvania)*	East of Po River	West of Ni River	0	3	0	4	ROW	2008	
STAFFORD COUNTY SECONDARY													
FAMPO	FAS7a	Widen	Complete	VA 607 (Deacon Rd.)	VA 626	VA 218	4	4	2	4	Complete	2008	
FAMPO	FAS7c	Widen		VA 607 (Cool Spring Rd.)	VA 218	VA 3			0	4		2010	
FAMPO	FAS3c	Widen		VA 610 (Garrisonville Rd.)	VA 610 (existing 4 lane section)	VA 643	4	4	2	4	Yes	2020	
FAMPO	FAS3db	Widen		VA 610 (Garrisonville Rd.)	VA 684 (Mine Rd.)	I-95 SB ramp	4	3	6	6	No	2020	
FAMPO	FAS3da	Widen		VA 610 (Garrisonville Rd.)	I-95 SB ramp	US 1	4	3	6	8	No	2020	
FAMPO	FAS3d	Widen		VA 610 (Garrisonville Rd.)	VA 684 (Mine Rd.)	VA 641	4	3	4	6	No	2030	
FAMPO	FAS3e	Widen		VA 610 (Garrisonville Rd.)	VA 641	VA 648	4	3	4	6	No	2025	

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Appendix-A
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
FAMPO	FAS8	Reconstruct		VA 624	US 1	VA 626	4	4	2	4	No	2010	
FAMPO	FAS29	Widen		VA 626 (Leeland Rd.)	new conn. With VA 624	VA 607	4	4	2	4	No	2015	
FAMPO	FAS5b	Widen		VA 630 (Courthouse Rd)	I-95	VA 648	4	4	2	4	No	2010	
FAMPO	nrs	Widen/ Construct		VA 630 (Courthouse Rd)	Brooke Point H.S.	VA 629	4	4	0	2	No	2010	
FAMPO	nrs	Widen		VA 641 (Onville Rd.)	VA 610	Quantico MCB			2	4		2025	
FAMPO	FAS13	Reconstruct		VA 648 (Shelton Shop Rd.)	VA 610	VA 627	4	4	2	4	No	2015	
FAMPO	FAS11a	Construct		VA 684 Extension (Mine Rd.)	Existing Mine Rd.	VA 628	0	4	0	4	No	2020	
FAMPO	FAS11b	Construct		VA 684 Extension (Mine Rd.)	VA 628	VA 652	0	4	0	4	No	2030	
FAMPO	nrs	Construct		Celebrate Virginia Pkwy.	US 17	Dead End			0	4	Complete	2007	
FAMPO	nrs	Construct		Widewater Parkway	US 1	VA 658			0	4		2025	
CITY OF FREDERICKSBURG													
FAMPO	nrs	Widen		US 1 Bus. (Lafayette Blvd.)	South City Limits	Blue-Gray Pkwy.			2	4		2025	
FAMPO	FAS16	Widen		VA 3 (William St.) (fredericksb	Mahone Dr.	US 1	3	3	4	6	No	2020	
FAMPO	nrs	Construct		Cowan Blvd.	Jeff Davis Hwy.	Carl D. Silver Blvd			0	4		2025	
FAMPO	nrs	widen		Fall Hill Ave.	West City Limits	Mary Wash. Blvd. Ext.			2	4		2025	
FAMPO	nrs	Construct		Gateway Blvd.	Existing Gateway Blvd.	Jeff Davis Hwy.			0	4		2025	
FAMPO	nrs	Construct		Mahone Dr.	Plank Rd.	Fall Hill Ave.			0	4		2025	
FAMPO	FAS25	Widen		Princess Anne St.	US 1	Herndon St.	3	3	2	4	No	2010	
SPOTSYLVANIA COUNTY SECONDARY													

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Appendix-A

10/07/08

2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Facility		Lanes		Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
							from	to	from	to			
FAMPO	FAS22	Widen		VA 3 (Spotsylvania)	Rutherford Dr.	VA 627 (Gordon Rd.)	2	2	3	6	No	2020	
FAMPO	FAS26a	Widen		VA 606 (Mudd Tavern Rd.)	US 1	I-95	3	3	2	4	No	2030	
FAMPO	FAS26b	Widen		VA 606 (Morris Rd)	US 1	VA 208	3	3	2	4	No	2030	
FAMPO	nrs	Construct		VA 607 (Guinea Station Rd.)	VA 608	US 1			0	2		2025	
FAMPO	FAS27	Widen		VA 608 (Massaponax Church	VA 628	US 1	3	3	2	4	No	2030	
FAMPO	nrs	Construct		VA 608 (Massaponax Church	VA 648	VA 208			0	2		2025	
FAMPO	FAS31	Widen		VA 610 (Old Plank Rd.)	VA 627	VA 612	4	4	2	4	No	2030	
FAMPO	FAS17	Widen		VA 612 (Catharpin Rd.)	Ni River Reservoir	VA 610	4	4	2	4	No	2030	
FAMPO	FAS18a	Widen		VA 620 (Harrison Rd)	VA 639	US 1 Bypass	4	4	2	4	No	2020	
FAMPO	FAS9b	Widen		VA 627 (Gordon Rd.)	VA 628	VA 620	4	4	2	4	No	2030	
FAMPO	FAS28	Widen		VA 628 (Smith Station Rd)	VA 608	VA 627	4	4	2	4	No	2030	
FAMPO	FAS19	Widen		VA 636 (Hood Dr.)	US 1	VA 208	4	4	2	4	No	2020	
FAMPO	FAS19b	Widen		VA 636 (Mine Rd.)	US 1	VA 638	4	4	2	4	No	2030	
FAMPO	FAS20a	Widen	Pending	VA 639 (Leavells Rd.)	VA 620	VA 208	4	4	2	4	Yes	2005	
FAMPO	FAS20b	Widen		VA 639 (Leavells Rd.)	VA 208	VA 628	4	4	2	4	Yes	2030	
FAMPO	FAS20c	Widen		VA 639 (Bragg Rd.)	VA 618	VA 3	4	4	2	4	No	2010	
FAMPO	nrs	Construct		Market St. Ext.	VA 636	US 1			0	4		2025	
FAMPO	nrs	Construct		Wakeman Dr. Ext.	US 1	VA 208			0	4		2025	
FAMPO	FAS21	Construct		Parallel Facility to I-95 (Spotsylvania)	US 1	VA 620	0	4	0	4	No	2020	

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Appendix B: Transit Inputs for the 2008 CLRP and FY 2009-2014 TIP Air Quality Conformity Networks

Appendix-B
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Transit)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
Washington Metropolitan Area Transit Authority									
WMATA		Modify		Revised Metrorail Operating Plan				2010	
WMATA		Modify		Revised Metrorail Operating Plan				2011	
WMATA		Modify		Revised Metrorail Operating Plan				2015	
District of Columbia									
DDOT		Construct	Pending	Anacostia Streetcar project Phase I (replaces CSX Shepherd Branch project)	Firth Sterling and S. Capitol St.	Howard Rd. and MLK Jr. Ave.		2010	Yes
DDOT		Study	Pending	Anacostia Streetcar project Phase II (replaces CSX Shepherd Branch project)	Howard Rd. and MLK Jr. Ave.	Good Hope Rd. and Minnesota Ave.		not coded	Yes
DDOT		Study	Pending	Anacostia Streetcar project Phase III (replaces CSX Shepherd Branch project)	MLK Jr. Ave.	over 11th St. Bridge on M. St. to S. Capitol St.		not coded	Yes
DDOT		Study	Pending	Anacostia Streetcar project Phase IV (replaces CSX Shepherd Branch project)	11th St. Br.	8th and H St.		not coded	Yes
DDOT		Study		Downtown Circulator Bus System	Implementation Study			not coded	Yes
DDOT		Construct		Banneker Circle Parking	1200 spaces				
DDOT		Reconstruct		Georgia Ave. Rapid Bus (Operation Enhancements)	Eastern Ave. / Silver Spring Metro Station	Archives Navy Memorial Metro Station		2007	Yes
DDOT		Reconstruct		Pennsylvania Rapid Bus (Operation Enhancements)	Archives Navy Memorial Metro Station	Naylor Road Metrorail Station		2007	Yes
DDOT		Study		Rapid Bus Corridors	Rhode Island Ave., Military Rd.,			not coded	

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Appendix-B
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Transit)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
		Study		16th St. Rapid Bus (Operation Enhancement)	Silver Spring Metro Station	Archives Navy Memorial Metro Station		not coded	Yes
		Study		Neighborhood Circulation Study	District-Wide			not coded	No
DDOT		Reconstruct		K St. Busway	Mt. Vernon Sq./7th St. NW	Wash.Circle / 23rd St. NW		2010	
Maryland									
MTA		Construct		Purple Line Transitway	Bethesda	Silver Spring	No	2015	Yes
MTA		Study		Purple Line Transitway	Silver Spring	New Carrollton	No	not coded	Yes
MTA		Construct		Silver Spring Transit Center	Phase II		Yes	2011	Yes
MTA		Construct		Corridor Cities Transitway	Shady Grove	COMSAT		2016	Yes
MTA		Construct		Southern MD Commuter Bus Initiative	Park-and-Ride lots and increase bus service	La Plata	Completed	2008	No
MTA		Construct		Southern MD Commuter Bus Initiative	Park-and-Ride lots and increase bus service	Waldorf		2010	No
MTA		Implement		ICC Corridor Bus Service Improvements			No	2010	Yes
MTA		Implement		Extend evening/wk end service on Penn Line; mid-day on Camden	First phase of new MARC plan		No	2010	No
MTA		Construct		Takoma/ Langley Park Transit Center	Intersection New Hampshire Ave and University Blvd.	Takoma / Langley Park	No	2011	Yes
Montgomery County									
Mont.Co.				Clarksburg Transit Center	Clarksburg			2015	No
Mont.Co.	MCT4	Construct	N/A	Four Corners Transit Center	US 29/MD 193		No	2015	No
Mont.Co.				Metropolitan Grove Transit Center	Vicinity of Watkins Mill Road and MD 117			2015	No

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Appendix-B
2008 CLRP AND FY2009-2014 TIP AIR QUALITY CONFORMITY INPUTS
(Transit)

Agency	Project ID	Improv.	Environ. Review	Facility	From	To	Under Const. or ROW acquired?	Complt. Date or Status	In TIP?
Mont.Co.	MCT16			NIH Naval Medical Transportation Management	Bethesda				No
Mont.Co.				Norbeck Road Bus Enhancement				2020	No
Mont.Co.				Norbeck Road Park and Ride	Norbeck Road at Georgia Avenue			2015	Yes
Mont.Co.	MCT7	Construct	N/A	Olney Transit Center	adjacent to or north of MD 108		No	2015	No
Mont.Co.				Randolph Road Bus Enhancement				2010	No
Mont.Co.		Construct		University Blvd Bus Enhancement	Kensington	Silver Spring	No	2020	No
Mont.Co.	MCT22	Construct		Veirs Mill Road Bus Enhancement	Rockville	Wheaton	No	2020	No
Virginia									
VDOT		Widen	Pending	US 1 (bus/right-turn lanes)	VA 235 North	SCL Alexandria (I-95 Capital Beltway)	No	2025	No
VDOT		Study	Pending	Circumferential Metro Rail	Dunn Loring	American Legion Bridge	No	not coded	No
Arlington Co.		Construct	Approved	Crystal City / Potomac Yard Busway (2-lane)	Vicinity of Glebe Rd. Ext.-City/County line	Crystal City Metro Station	ROW acquired	2010	Yes
~~Arlington Co.~~		~~Upgrade~~	~~Pending~~	~~Crystal City / Potomac Yard Busway to BRT~~	~~Vicinity of Glebe Rd. Ext.~~	~~Crystal City Metro Station~~	~~No~~	~~2012~~	~~Yes~~
VDOT		Study		Alexandria Bus Lanes Citywide- 3 corridors			No	not coded	No
VDOT		Construct	Pending	Potomac Yard Transit Bus lanes (2 lanes)	Four Mile Run	Braddock Rd.	No	2013	Yes
VDOT		Study	Pending	US 1 Priority Bus	SCL Alexandria (I-95 Capital Beltway)	King Street Metro Station	No	not coded	No
VDOT		Study	Pending	US 1 Priority Bus	Stafford County	SCL Alexandria (I-95 Capital Beltway)	No	not coded	No
VDOT		Study		US 1 Transit Service Improvements	Stafford County Line	Pentagon		not coded	No

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VDOT		Study	Pending	I-495 Transit Improvements	Woodrow Wilson Bridge	American Legion Bridge	No	not coded	No
VDOT		Study	PCE-1	I-66 & I-95 corridors	Location /FeasIbility Studies for Addl. PnR Lots		Yes	not coded	No
VDOT		Study	Pending	I-66 Transit Service Improvements	Metro Stations inside I-495	Underserved locations inside I-495	No	not coded	No
VDOT		Study	Pending	I-66 Transit Service Improvements	Fauquier County Line	Vienna	No	not coded	No
VDOT		Study	Pending	I-95 Corridor Metro Rail Extension	Lorton/Fort Belvoir	Potomac Mills Mall	No	not coded	No
VDOT		Study	Pending	I-95 Corridor Metro Rail Extension	Franconia-Springfield	Lorton/Fort Belvoir	No	not coded	No
VDOT		Study	Pending	Light Rail	Manassas	Dulles Airport	No	not coded	No
VDOT		Construct	Pending	Metro Station (Proposed)	@ Potomac Yards		No	2030	No
VDOT		Study	Pending	Proposed EPG People Mover	Fort Belvoir	Franconia/Springfield	No	not coded	No
VDOT		Study	Pending	US 50 Transit Service Improvements	Eastern Loudoun County	Arlington County	No	not coded	No
VDOT		Study	Pending	VA 236 Priority Bus	City of Fairfax	City of Alexandria	No	not coded	No
VDOT		Implement	Pending	VA 244 (Columbia Pike) Streetcar	Skyline Center	Pentagon City	No	2016	Yes
VDOT		Study	Pending	VA 7 Transit Service Improvements	Tysons Corner	Baileys Crossroads	No	not coded	No
VDOT		Study	Pending	VA 7100 Priority Bus	US 1	VA 7	No	not coded	No
VDOT		Construct	Pending	Transit Center (Reston)	Reston Town Center	@Explorer Dr. & Bluemont Way	Complete	2006	Yes
VDOT		Construct	Pending	Transit Center (Bradlee Shopping Center)	King St. and Braddock Rd.		No	2011	Yes
VDOT		Construct	Pending	Transit Center (Seven Corners)	Seven Corners Shopping Center		No	2008	Yes

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VDOT		Construct	Pending	Park-and-Ride Lot	Reston East Parking Structure	@ Reston East Park-and-Ride Lot	No	2011	Yes
VDOT		Construct	Pending	Park-and-Ride Lot	VA 7900 (F-S Pkwy.) PnR	@ Gambrill Road Location	Complete	2006	Yes
VDOT		Construct	N/A	Park-and-Ride Lot	Dulles Corridor Park-and-Ride Lots	Reston East at Wiehle Ave & Herndon-Monroe P & R Lots	Complete	2006	Yes
VDOT		Construct	Pending	Park-and-Ride Lot	VA 7900 (F-S Pkwy.) PnR	@ Backlick Road North	yes	2007	Yes
VDOT		Reconstruct	N/A	Park-and-Ride Lot Enhancements	@ Reston, Centreville, West Springfield		Complete	2006	Yes
VDOT		Construct	Pending	Park-and-Ride Lot	Springfield CBD	vic. I-95 & Old Keene Mill Road	No	2014	Yes
VDOT		Relocate/ Construct	Pending	Park-and-Ride Lot (Leesburg)	Relocate to vic. of Leesburg Bypass	VA 7, and / or the Dulles Greenway	Yes	2007	Yes
VDOT		Construct	Pending	Park-and-Ride Lot	Purcellville	100-space park-and-ride lot.	Complete	2006	Yes
VDOT		Construct		Town of Leesburg -Harrison St & Catoctin Circle	Loudoun County Commuter Bus Service.	400 Space Park & Ride Lot		2007	No
VDOT		Construct		VA 772 (Ryan) Station	Loudoun County Commuter Bus Service.	300 Space Park & Ride Lot		2010	No
VDOT		Construct		Park-and-Ride Lot	Dulles Town Center	100 spaces	Proffered	2006	
VDOT		Construct		Park-and-Ride Lot	VA 643 east of Leesburg	700 spaces	No	2009	
VDOT		Construct		Park-and-Ride Lot	US 50 at Stone Ridge	250 spaces	Proffered	2006	
VDOT		Construct		Park-and-Ride Lot	US 50 Dulles			2010	
VDOT		Construct	pending	Park-and-Ride Lot	VA 234 (vicinity of I-66)		No	2010	Yes
VDOT		Construct	pending	Park-and-Ride Lot	Sterling / Ashburn		No	2012	No
VDOT		Construct	pending	Park-and-Ride Lot	at EPG			2013	

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VDRPT		Construct	Complete	Dulles Corridor Metrorail	East Falls Church Metrorail Station	Wiehle Ave.	No	2011	Yes
VDRPT		Construct	Complete	Dulles Corridor Metrorail	Wiehle Ave. Station	Route 772	No	2015	Yes
VRE		Construct	Pending	VRE - Cherry Hill Commuter Rail Station	Cherry Hill	Prince William County	No	2010	Yes
VRE		Implement	Pending	Service Improvements (Reduce Headways)	Fredericksburg and Manassas lines		No	2010	No
VRE		Study		VRE Extension	Manassas	Gainesville (spurline)	No	not coded	No
		Implement		Beltway HOT lanes transit service			No	2013	
		Implement		Beltway HOT lanes transit service			No	2020	
		Implement		Beltway HOT lanes transit service			No	2030	
VDOT		Implement		I-95/I-395 HOV /BUS / HOT lanes: TAC transit service	Buses and additional VRE railcars		No	2010	
VDOT		Implement		I-95/I-395 HOV /BUS / HOT lanes: TAC transit service	Buses and additional VRE railcars		No	2020	
VDOT		Implement		I-95/I-395 HOV /BUS / HOT lanes: TAC transit service	Buses and additional VRE railcars		No	2030	
VDOT		Implement		Transit Development Plan (Fairfax Connector Service Enhancements)			No	2011	No

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