Washington-Baltimore Regional Airport System Plan
Ground Access Element Update

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ABSTRACT FORM

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The metropolitan Washington Council of Governments is the regional organization of the Washington area's major local governments and their governing officials. COG works toward solutions to such regional problems as growth, transportation, inadequate housing, air pollution, water supply, water quality, economic development and noise, and serves as the regional planning organization for metropolitan Washington.

ABSTRACT:

This report summarizes highway and transit travel time to Baltimore-Washington Thurgood Marshall International Airport, Dulles International Airport and Ronald Reagan National Airport, examines planned and studies of critically important highway and transit improvements outlined in the TPB's Constrained Long Range Plan and BRTB's Transportation 2030 related to the three regional commercial airports, and examines the effect of these improvements on future airport ground access trips.

SUBJECT:

Washington-Baltimore Regional Airports Ground Access Element Update

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1. Introduction

The Washington-Baltimore metropolitan area is one of the few places in the country where air passengers have a choice of multiple airports. These are the Washington Dulles International (IAD), Ronald Reagan Washington National (DCA) and Baltimore Washington Thurgood Marshall International (BWI), airports.

A critical and often overlooked component of the region's airport system is the transportation linkage between the airports and the surrounding communities. With the tremendous growth in air travel in recent years, maintaining quick and efficient access to the region's airports for local residents, business travelers and visitors has become an increasing concern. Ground access and airport landside congestion are expected to increase in the future. This could have significant adverse economic and environment impacts on the region. The quality of ground access provided by the region's existing and planned highway network, transit systems and paratransit systems including the Washington Flyer service, taxicab operations and courtesy buses will affect travel patterns to the region's airports and the quality of life in the region. Also, to attain regional air quality standards, planners and elected officials are increasingly interested in examining the effects of strategies to reduce vehicle trips to and from airports

In October 1998, the National Capital Region Transportation Planning Board (TPB) unanimously adopted the "Vision" for the future of transportation in the region. The Vision is a policy document with eight key goals and associated objectives and strategies to guide transportation into the 21st century.

Goal 8 of the TPB's Vision reads: The Washington metropolitan region will support options for international and inter-regional travel and commerce.

Goal 8 has three objectives:

(1) The Washington region will be among the most accessible in the nation for international and inter-regional passenger and goods movements.

(2) Continued growth in passenger and goods movement between the Washington region and other nearby regions in the mid-Atlantic area.

(3) Connectivity to and between Washington Dulles International, National, and Baltimore-Washington International Airports.

The first strategy for implementing goal 8 is: Maintain convenient access to all of the region's major airports for both people and goods.

CASP (Continuous Airport System Planning) work program activities are a key component for implementing the TPB's Vision. In the interest of a fully integrated regional transportation planning process the Aviation Technical Subcommittee has recently endeavored to better synchronize the airport system planning cycle with the TPB's Long Range Plan update process.

In general, the airport system planning process consists of a continuous cycle that begins with a regional air passenger survey. This survey is followed by forecasts of future air passenger travel and the ground travel of these air passengers to and from the region's three commercial airports. These forecasts in turn lead to the development of a revised ground access plan for the region.

In February 2004, COG/TPB updated the Regional Air Passenger Origin/Destination Forecast. This project developed forecasts of local originating air passenger trips from each aviation analysis zone to each of the three major commercial airports in the Washington/Baltimore region. These data were then used to update airport ground access forecasts of travel to the three airports from the District and other jurisdictions in the region.

In September 2004, the Washington-Baltimore Regional Airport Ground Access Travel Time Study was updated. This study provides travel time trend data to the three commercial airports, as well as analysis of any new transportation improvements. Specifically, it (1) provides current data on travel times and levels of services for highway and transit access to the region's three commercial airports in support of airport access planning activities; (2) provides data for use in analyzing changes in peak-period delay and levels of service on principal airport serving roadways and transit facilities; and, (3) provides data for use in analyzing changes in highway

and transit accessibility to airports resulting from recent highway and transit improvements.

In July 2005, COG/TPB updated the ground access forecasts of regional air passenger travel to the region's three major commercial airports. These forecasts are by 160 Aviation Analysis Zones and detailed by major ground access mode to each airport for the period 2000 to 2030. These ground access forecasts serve as the basis for updating the Ground Access Element of the Regional Airport System Plan and are used in the Update of the TPB's Constrained Long Range Plan.

2. Project Purpose

The purpose of this project is to update the Ground Access Element of the Regional Airport System Plan with the results of recently completed Regional Air Passenger Surveys and updated Regional Air Passenger Origin/Destination and Ground Access Forecasts.

This update of the Ground Access Element of the Regional Airport System Plan provides an analysis of current and forecast ground access problems at Ronald Reagan Washington National, Washington Dulles International, and Baltimore-Washington Thurgood Marshall International airports; integrates airport system ground access and facility planning into the overall regional transportation planning process for the National Capital region; and includes recommendations for essential highway and transit improvements needed to maintain efficient and convenient ground access to the region's airports in the future.

3. Study Area

The Washington/Baltimore airport system planning region is larger than the combined areas that are normally within the Metropolitan Washington Council of Governments and Baltimore Metropolitan Council's purview. This region stretches from Harford County, Maryland, on the Susquehanna River to the north to Spotsylvania County, Virginia, in the south, and from the Chesapeake Bay in the east to the foothills of the Appalachian Mountains in the west. Figure 1 represents the jurisdictions that combine to make up this region, and identifies the location of the region's three major commercial airports (Ronald Reagan National Airport, Washington Dulles

International Airport and Baltimore-Washington Thurgood Marshal International Airport). This airport system planning region consists of 25 jurisdictions, 161 Aviation Analysis Zones and 2,604 Transportation Analysis Zones (TAZ). Despite the expanse of this area, in 2000 approximately 10% of the locally originating passengers using the region's three commercial airports came from areas beyond these boundaries.

The combined Washington-Baltimore region is the fourth largest Consolidated Metropolitan Statistical Area in the country, exceeded only by the New York, Los Angeles and Chicago, according to the U.S. Census Bureau. Not only is the Washington-Baltimore region one of the nation's large consumer markets, it is one of the wealthiest. By 2030, the region will have a little over 9 million people residing, an increase of 28 percent over 2000. The combined Washington / Baltimore regional employment is also expected to increase by 40% between 2000 and 2030.

The Washington-Baltimore region is an attractive destination for foreign as well as domestic tourists, since the region is the seat of the federal government and has numerous tourist attractions. Therefore tourism and business travel represent a significant portion of air travel and is important on air service demand. Almost 40 to 43% of locally originating airport trips left from a non-home originations (Hotel/motel or place of employment) and almost 50% of the region's air passengers' travel is for business-related reasons. Additionally, about 60 percent of the local air passenger originations are by persons residing in other parts of the U.S. or and other countries. This proportion of non-resident air travelers is similar for all types of trips, such as business, personal, vacation, school, etc, indicating that the region's three commercial airports provide an important link to governments (local and federal), firms, and individuals to other regions outside the Washington/Baltimore area.

Figure 1
Washington-Baltimore Air System Planning Region
Airport Ground Access Element Update
Study Area

4. Existing Highway Access to Regional Airports

The current state of the regional ground transportation system can have a significant impact on air travel to and from the Baltimore-Washington region. Almost 65% of the surveyed air passengers cited accessibility conditions (closest airport, better public ground transportation and better access road and parking) as the most important reason for choosing the airport they are departing from. While transit and paratransit operations play an increasingly important role in providing ground transportation to the regions three major commercial airports, the 2005 Air Passenger Survey found that about 93 percent of all originating passengers who traveled to the airport by some form of ground transportation used modes of transportation to the airports that travel by way of highways (private car, rental car, bus, taxi, and limousine).

A. **Baltimore Washington Thurgood Marshall International Airport**

Highway access to Baltimore Washington International Thurgood Marshall Airport is currently provided by I-195, which connects to I-95, to US 1 and MD-295. The airport is also served by a four lane primary highway network consisting of MD 170, known as Aviation Boulevard, MD 176 and MD 642. These roads connect to other primary highways and the two interstate beltways (I-95/I-495 Washington Beltway and I-695 Baltimore Beltway). I-270 connects to the Capital Beltway (I-495); I-70, I-795 & I-97 to the Baltimore Beltway (I-695). There is also a connection to/from I-97 from the Annapolis area.

B. **Ronald Reagan Washington National Airport**

Highway access to Ronald Reagan Washington National Airport is currently provided by two major routes: the George Washington Memorial Parkway and U.S. Route 1 (Jefferson Davis Highway) by way of the U.S. Route 233 connecting bridge.

The George Washington Memorial Parkway, operated by the National Park Service, is a controlled-access, divided highway that parallels the Potomac River from I-495 at the American Legion Bridge to Mount Vernon, south of Alexandria, passing along the western border of the airport property. Along most of its length, the Parkway is four

lanes, widening to six lanes between the 14th Street Bridge (I-395) and the airport entrance.

From the north, the Parkway provides access to the airport from the District of Columbia, most of Arlington County, the northwest suburbs, I-395 and I-66. To the south, the Parkway connects Alexandria and eastern Fairfax County with the airport.

Two exit ramps are provided from the Parkway into the airport from the southbound direction. A single northbound exit into the airport is also available. Two entrance ramps onto the Parkway from the airport are available for northbound traffic and one ramp is available for southbound traffic.

Primary circulation on airport property consists of a three lane one directional loop circulating counter clockwise past the terminal. Service roads connecting to the primary one way loop feed services such as General Aviation, Cargo, Employee Parking, Economy Parking and Administration.

C. **Washington Dulles International Airport**

Highway access to Washington Dulles International Airport is currently provided by two routes: The Dulles Airport Access Road and Virginia Route 28 (Sully Road).

The Dulles Airport Access Road is the primary access to the airport. This facility is a limited-access four lane divided highway that provides high quality express service for vehicles traveling to and from the airport. The Dulles Airport Access Road is approximately 16 miles in length, extending from its intersection with I-66 near the West Falls Church Metrorail Station to its terminus on the airport grounds. From I-495 (the Capital Beltway) to the airport, use is restricted to airport traffic and commuter buses. The Airport Access Highway provides regional access to the airport, connecting eastern Fairfax County and the other close-in Northern Virginia jurisdictions to the airport, as well as the Maryland suburbs and the District of Columbia by way of the other major highways in the region.

Also within the Dulles Airport Access Corridor is the Dulles Toll Road (VA Route 267). This road is an eight-lane facility that brackets and parallels the Airport Access Highway. It was built primarily to accommodate local traffic, but also functions as a feeder to the Access Highway, through a system of slip ramps located immediately west of the Beltway, between Route 7 and Hunter Mill Road, between Reston Avenue and Centerville Road, and east of Route 28. It runs from Route 28 to its merge with the Access Highway at the eastern end of the corridor, and then into I-66.

Virginia Route 28 (Sully Road) connects 66 (near Centreville) and Virginia Route 7 (Leesburg Pike), passing along the eastern border of the airport. At present, Route 28 is a six-lane divided highway with grade separated intersections at Route 50, the Dulles Toll Road and Route 7. All other intersections are presently being upgraded to grade separated from at-grade intersection as apart of the Route 28 upgrade. Route 28 provides access to the airport from the western section of Fairfax County plus Prince William County from the south and Loudoun County from the north.

Internal circulation at the airport is provided by a terminal loop serving the main terminal parking lot, enplaning passengers on the upper level and deplaning passengers on the lower level. Prior to the loop, separate access is provided to the satellite parking lot, general aviation terminal and air cargo area by way of service roads.

5. Existing Transit and Para-transit Operations to Regional Airports

Although the automobile continues to be the predominant mode of travel for passengers to and from the airports in the metropolitan Washington-Baltimore region, transit and paratransit operations play an increasingly important role in providing ground transportation to the three major commercial airports in the region. In 2005, 37 percent of the originating passengers at the region's airports arrived by transit or paratransit (Metrorail, Light Rail, Amtrak/MARC, taxi, airport bus or limousine, hotel/motel courtesy bus). The Baltimore Washington International Thurgood Marshall International Airport is served by a light rail

line connecting it to downtown Baltimore and by Amtrak/MARC traveling between Baltimore and Washington. This rail service was the means of ground access used by about 2 percent of the originating passengers traveling to that airport in 2005. Ronald Reagan Washington National Airport is served by the Washington region's Metrorail system. Metrorail usage by air passengers traveling to Ronald Reagan National Airport was 12% in 2000, and 13 % in 2005. This level of ground access by rail continued to be among the highest proportions of any airport in the nation. The nature and composition of transit and paratransit operations at the three major commercial airports in the region are varied, as will be seen in the following discussions.

A. **Baltimore Washington Thurgood Marshall International Airport**

Non-automobile ground access to BWI Thurgood Marshall International Airport is provided by train and shuttle bus services from downtown Baltimore and Washington, Greenbelt Columbia, Tri-County, Arundel Mills Mall and Annapolis. From Baltimore Penn Station rail service is offered to BWI Rail Station on both MARC and Amtrak trains. Rail Service is also provided by Amtrak and MARC trains from Washington's Union Station to BWI.

I. **Public Transit Service**

Six types of transit service to Baltimore Washington Thurgood Marshall International Airport are provided. These are: 1) Light Rail service is available by the Maryland Transit Administration (MTA) to/from BWI to/from Hunt Valley and Downtown Baltimore. 2)The MTA also operates No. 17 bus line from Downtown Baltimore, 3) The MTA (Baltimore/Washington) also offers MARC Commuter Rail Service from Baltimore's Penn Station and Washington's Union Station, 4) The Washington Metropolitan Area Transit Authority (WMATA) offers express Metro bus service (B-30 bus line) between BWI and the Greenbelt Metro Station, 5) The MTA also offers express service (C-60 bus line) to/from Annapolis and Arundel Mills Mall in Anne Arundel County, and 6 Howard Transit provides fixed route bus service (Red bus line) to/from BWI to/from Columbia, Ellicott City and

Clarksville. Amtrak service is also available via a free shuttle between the terminal and the BWI Rail Station.

All transit service operate 7 days a week on one-hour frequencies, except for the Light Rail which operates at 15-minute frequencies from 4:00 am to 11:00 pm, and the MARC train service which operates at half hour intervals in the morning and evening peaks and one hour off-peak (Monday through Friday only).

II. Paratransit Operations

Paratransit to Baltimore Washington Thurgood Marshall International Airport is provided by shuttle bus, taxi, limousine, taxis and hotel/motel courtesy buses.

a) **Shuttle Service**

i. **Airport Shuttle**

The Airport Shuttle offers door to door reservation service covering the State of Maryland. Arriving passengers are tracked and passengers are met at the curbside. Vans carry 7 to 10 passengers. Corporate and charter programs are also available. Service is not available from midnight – 3 a.m.

ii. **Smart Ride, Inc**.

Smart Ride, Inc provides shuttle to/from Southern Maryland and Southern Anne Arundel County to/from BWI Airport. Smart Ride provides door to door service, seven days a week, 24 hours a day.

iii. Bayrunner Shuttle

Bayrunner shuttle provides daily, scheduled, high quality transportation services for airline passengers traveling to/from the Greater Salisbury and Easton service area to BWI Airport.

b) Taxi Service

Taxi service at BWI Thurgood Marshall International Airport is operated by BWI Taxi Management, Inc. The BWI Taxi stand is located just outside of the baggage claim area of the Lower Level of the BWI

Airport Terminal. Taxicab service is available from BWI Airport only.

c) **Private Car/Limousine Service**

Sedan and limousine service at BWI Thurgood Marshall International Airport is provided by Private Car/RMA Worldwide Chauffeured Transportation. They provide round trip services, immaculate late model luxury sedans, limousines and van, professional chauffeurs and 24 hour service.

d) **Courtesy Buses**

In the Washington region, a number of hotels, rental car agencies and travel agencies provide transportation to/from Ronald Reagan National Airport for their customers. While still a significant number of passengers, courtesy buses accounted for only 5 percent of arriving passengers at this airport in 2005.

B. Ronald Reagan Washington National Airport

I. Public Transit Service

Public transit to Ronald Reagan Washington National Airport is provided by the Washington Metropolitan Area Transit Authority (WMATA) through its Metrorail and Metrobus operations. At present, the Yellow line provides service between Huntington in Southern Fairfax County, Virginia and U Street-Cardoza in the District of Columbia, allowing access to the Pentagon, the L'Enfant Plaza area of Southwest D.C., and the downtown section of the District. The Blue line currently provides service from Van Dorn Street in Alexandria, Virginia to Addison Road in Prince George's County, Maryland affording access to the Pentagon, the Rosslyn section of Arlington, Virginia, the K Street Corridor, downtown and Capitol Hill in Washington D.C. Through transferring to the other lines of the Metrorail system, access also is provided to western Fairfax (Vienna), the Ballston corridor in Arlington County, Virginia, the I-270 corridor (Shady Grove/Rockville)and the Silver Spring area in Montgomery County, Maryland and the New Carrollton

section of Prince George's County.

Metrobus provides limited service to National Airport, stopping at several stops throughout the airport grounds. The 11P route provides regular daily service between Fort Belvoir in Southern Fairfax County and the Pentagon, by way of Mount Vernon, Alexandria and National Airport. One additional route provides service from National Airport to Southwest D.C., by way of the Pentagon. This route, however, operates only operates during the early morning hours on Saturday and Sunday when Metrorail is not in operation.

II. **Paratransit Operations**

Paratransit service to Ronald Reagan Washington National Airport is provided by the Washington Flyer, the official ground transportation system of the Metropolitan Washington Airports Authority (MWAA), taxicabs, shuttle buses, and courtesy bus service from a number of hotels and rental car agencies,

a) **Washington Flyer Express Bus**

The Washington Flyer offers express bus service from National Airport to downtown Washington, to suburban Maryland and to Washington Dulles International Airport.

b) **Washington Flyer Limousine Service**

The Washington Flyer offers executive-class sedans and stretch limousines with wireless phones, available both by reservation and on a walk up basis.

c) **On-Demand Shuttle Service**

Supershuttle door to door service is also available for air passengers traveling to/from National Airport. Shuttles operate on a shared ride on-demand basis.

d) **Taxicab Service**

Washington, D.C, Virginia and Maryland licensed taxicabs are available at the exits of each terminal. The rates that are charged are established

by the respective jurisdiction in which the taxicab is licensed. Dispatchers are available at the airport to assign individual passengers or preformed groups of travelers to appropriate taxis.

e) **Courtesy Buses**

In the Washington region, a number of hotels, rental car agencies and travel agencies provide transportation to/from Ronald Reagan National Airport for their customers. While still a significant number of passengers, courtesy buses accounted for only 6 percent of arriving passengers at this airport in 2005.

C. Washington Dulles International Airport

I. Public Transit Service

Public transit to Washington Dulles International Airport is provided by the DC-Dulles 5A Metrobus route that runs from L'Enfant Plaza to Dulles Airport in the AM Peak, Midday, PM peak and evening time periods. Also, the Washington Flyer Coach Service provides service to Dulles from the West Falls Church Orange Line Metrorail station. Air passengers can reach this coach service at the West Falls Church station via the Metrorail system that serves the entire Washington region. In the future, air passengers will be able to access this airport via a Metrorail line extension to Dulles Airport that is currently being planned. This planned rail extension is included in the 2005 Constrained Long Range Plan for the National Capital Region.

II. Paratransit Operations

As at Ronald Reagan Washington National Airport, paratransit service at Washington Dulles International Airport is provided by the Washington Flyer, the official ground transportation of the Metropolitan Washington Airports Authority, taxicabs, shuttle buses, and hotel and rental car courtesy buses.

a) **Washington Flyer Express Bus**

The Washington Flyer offers express bus service to/from Washington Dulles International Airport for air passengers traveling to/from downtown Washington, suburban Maryland and to Ronald Reagan Washington National Airport. It operates seven days a week and departs approximately every 30 minutes. Boarding announcements are made inside the airport. Transfers to local public bus service are available from Metrorail stations, including the West Falls Church station.

b) **Washington Flyer Limousine Service**

The Washington Flyer offers executive-class sedans and stretch limousines with wireless phones, available both by reservation and on a walk up basis.

c) **Taxicab Service**

Washington Flyer taxicabs are available curbside on the arrivals level at Washington Dulles International Airport to take passengers to any destination in the metropolitan Washington area. The cabs are operated under contract to the airport authority. Uniformed dispatchers are on duty to assist passengers with the cabs.

d) **On-Demand Shuttle Service**

Supershuttle door to door shared ride van service is available to the Washington Flyer Coach Stop as well as Union Station. Supershuttle stops are clearly identified on the Ground Transportation roadway outside the Main Terminal at Dulles Airport. Shuttles operate on an on-demand basis.

e) **Greyhound Airport Service**

Greyhound discontinued its direct service to Dulles, effective August 17, 2005.

6. Review of Current Travel Times/Ground Access Issues and Problems

A. 2003 Ground Access Travel Time Study

In the fall of 2003, COG staff conducted the third Airport Ground Access Travel Time survey, during the time periods of 6:30-9:30 AM (for AM peak period), 11:30 AM - 1:30 PM (for mid-day period), and 3:30 – 6:30 PM (for PM peak period). Travel time, speed and delays were collected using Geographical Positioning System (GPS) technology. The findings and evaluation of the data are based on the Functional and Design Categories rating system outlined in the Highway Capacity Manual.

The purpose of the travel time study was to:

1. Provide current data on travel times and level of service for highway and transit access to the three commercial airports, to support airport planning activities.
2. Analyze changes in peak and non-peak period delay and level of service on principal airport serving roadways and transit facilities; and
3. Analyze changes in airport accessibility due to highway and transit improvements made.

Table 1 lists activity centers chosen for analysis in the 2003 Ground Access Travel Time Study Update. The travel time runs began at a major intersection within the activity centers of aviation demand, and terminated at the respective airport terminal.

The ground access travel time survey data collection was performed on 36 routes, (13 routes to BWI, 12 to IAD and 11 to DCA), covering a total distance of 1,183 miles. Of these, 72% or 846 miles were on freeways, 27% or 315 miles on major arterials and 1% or 22 miles on minor arterials. The longest trip was from Waldorf, MD to IAD, 56.2 miles and the shortest was from Washington, D.C. (16^{th} and K) to DCA 4.9 miles.

Table 1
Washington-Baltimore Regional Airports
2003 Ground Access Travel Time Study Update
Activity Centers by Airport

No.	Activity Center	Airport		
		BWI	DCA	IAD
1	Annapolis, MD	✓		
2	Baltimore, MD	✓		
3	Columbia, MD *	✓		
4	Frederick, MD *	✓	✓	✓
5	Gaithersburg, MD *	✓	✓	✓
6	Greenbelt, MD *	✓	✓	✓
7	Largo, MD *	✓	✓	✓
8	Manassas, VA *			✓
9	National Harbor, MD *	✓	✓	✓
10	Rockville, MD	✓	✓	✓
11	Sprigfield/Franconia, VA *		✓	✓
12	Towson, MD *	✓		
13	Tyson's Corner, VA		✓	✓
14	Waldorf, MD *	✓	✓	✓
15	Washington, DC	✓	✓	✓
16	White Marsh, MD *	✓		
17	Woodbridge, VA		✓	✓

Note:- * Activity Centers added in the 2003 study
Not included in the survey

1. Analysis of Auto Ground Access Travel Time

During the AM peak period, 17% or 77 route segments were operating with LOS A. Of these only14 (18%) were freeway segments, while the majority were principal arterials (78%). Segments operating in LOS B, accounted for 24% of total segments, in which a little over 60% were freeway segments. Twelve percent of route segments were operating in LOS C and almost 46% of the route segments were operating in LOS D or lower.

Route segments operating in LOA A almost doubled during the mid-day peak period to 32%, when compared with the AM peak. However, almost 48% of the segments operating with LOS A were freeways, and 46% principal arterials. Segments operating with LOS B also increased to 29% during the mid-day peak. Route segments operating in LOS D and lower declined by almost half in which the majority shifted to LOS C.

Conditions during the PM peak almost mirror that of the AM peak. Routes operating at LOS A, B and C almost equally distributed with 20% share each. Forty percent of the route segments during the PM peak were operating in LOA D or lower

Rockville to Baltimore/Washington International Thurgood Marshall Airport travel time runs were conducted along two routes. Travel time along the I-270/I-495/I-95 during the PM peak period averaged 49 minutes. In 1995, segments along the I-495 (Capital Beltway) between the I-270 spur and I-95 (north) experienced LOS F conditions. In 2003, none of the segments along this route were operating at LOS E or F conditions. However, travel time along the MD 28/32 averaged a little over an hour, an increase of almost 17% when compared with 1995. Much of the delays were observed segments along Route 28 (Norbeck Road) and New Hampshire Avenue. None of the route segments along this route were operating at LOS E or F.

Average travel time from downtown, Washington, D.C., to Baltimore/Washington International Thurgood Marshall Airport during the PM peak from both 16th and K along New York Avenue and BW Parkway, and from 14th and Independence along Anacostia Freeway and BW Parkway has increased by 37% and 85% respectively. In 1995, none of the route segments along the K Street/New York Avenue/Baltimore-Washington Parkway were operating at LOS E or F conditions. In 2003, K Street from 16th to 7th Street, New York Avenue from 7th Street to Florida Avenue and Baltimore Washington Parkway from New York Avenue to Powder Mill Road were operating at LOS E and F conditions. Similarly, only route segment on I-295 from Benning Road to BW Parkway were operating at LOS F condition in 1995, for the Washington to BWI along the Southeast

Route (via Pennsylvania Avenue). In 2003, segments along Independence Avenue and BW parkway between New York Avenue and Powder Mill Road operated at LOS E and F conditions.

Average travel time from Annapolis to BWI in 2003 was 35 minutes, an increase of 17% when compared with 1995. Average speed also decreased by 34% to 33 mph, compared with 50 mph in 1995. Segments in downtown Annapolis and along MD 170 between Aviation Boulevard to airport terminal operated at LOS E or F conditions.

Travel time from downtown Baltimore to BWI averaged 21 minutes. There has not been much a difference when compared with 1995; the segment operating at LOS E/F conditions along Greene Street showed the same conditions in 2003.

The average travel time from Woodbridge, VA to Ronald Reagan Washington National has shown improvement when compared with the 1988 and 1995 data. However like 1995, the majority of the travel time (25.8 minutes) was spent in LOS E and/or F conditions along the I-95 and I-395.

From Tyson's Corner, the average travel time to Ronald Reagan Washington National airport almost doubled when compared to that of 1995 data. Route segments along VA 123 and George Washington Parkway were operating with LOS E and/or F, where much of the delays are observed. The average speed also has decreased by 31% from 42 mph in 1995.

Travel time from Rockville during the morning peak increased by almost 50% to 50.3 minutes. In 1995, only segment along the I-270 Western Spur to I-495 were operating with LOS E and/or F. However, during the 2003 survey period segments between MD 28 to George Washington Parkway, along I-270 and I-495, and from VA 123 to DCA exit ramp along George Washington Parkway were operating with LOS E and/or F conditions.

Total travel time from downtown Washington, D.C. to Ronald Reagan Washington National Airport averaged 12.3 minutes. In 1995, none of the segments along the route experienced LOS E or F conditions. However, in 2003, segments within the city, along K Street and 14th Street, as well as George Washington Parkway experienced LOS E and/or F conditions. The average speed remained almost the same when compared with 1995.

Total travel time from Tyson's Corner, Rockville and Washington, D.C. to Washington Dulles International airport during the PM Peak period has increased respectively when compared with 1995. Average travel time from Tyson's Corner was 24 minutes, an increase of 7 minutes when compared with 1995. None of the segments along this route were operating at LOS E or F in 1995. However, in 2003 the segment from VA 123 to Dulles Access Road along VA 7 (Leesburg Pike) was operating at LOS E conditions.

From Rockville, the average travel time to Washington Dulles International increased slightly to 39 minutes from 36 minutes in 1995. The same route segments along the I-495 showed LOS F conditions, from Clara Barton Parkway to Dulles Access Road exit.

Average travel time from Washington, D.C. to Washington Dulles International in 2003 was 51.5 minutes. In 1995, link segment along K Street in downtown Washington experienced LOS F conditions. However, in 2003 additional segments along Constitution Avenue and I-66 from Glebe Road to Dulles Access Road exit experienced LOS F conditions.

2. Analysis of Transit Ground Access Travel Time

The most predominant mode of travel for passengers going to and from the three commercial airports has been the automobile, including private cars, rental cars and taxi cabs. Based on the 2005 Washington-Baltimore Regional Air Passenger Survey data, almost 93 percent of the region's originating air passengers used modes of transportation to the airport that travel by way of the highway network (autos, taxis, rental cars, airport bus/limo, and hotel/motel courtesy bus). Only about 5 percent of the originating passenger trips used rail and bus public transportation services to access the airports.

Transit travel times summarized were taken from published schedules by the service providers. The data does not include access time to the services, possible wait times, or egress times from the service to the airport terminals. Travel time data from activity centers to each of the airports are provided by time period.

a) Baltimore/Washington International Thurgood Marshall Airport

Non-automobile ground access to BWI Airport is provided by train and shuttle bus services, from downtown Baltimore and Washington, Greenbelt, Columbia, Tri-County, and Annapolis. From Baltimore Penn Station rail service is offered to BWI Rail Station on both MARC and Amtrak trains. Total travel time downtown Baltimore to BWI by both MARC and Amtrak would be 23 to 27 minutes from including an average of 10 minutes travel time to Penn Station, and does not include trips from the train station to the terminal. Auto travel from downtown Baltimore averaged 17 minutes for the AM, 15 minutes during the mid-day and 20 minutes for the PM peak periods.

Rail services are provided by Amtrak and MARC trains from Washington's Union Station to BWI. From Farragut North station, the average travel time by rail to Union Station is 7 minutes, not including transfer time at Union Station from Metrorail to

MARC/Amtrak, the average travel time to BWI Rail station is 42 to 45 minutes, not including travel to the airport terminal. In comparison, the average auto travel time from downtown Washington to BWI airport is 45 minutes for the AM and mid-day peak, periods, and over 60 minutes during the PM peak hour.

Express bus service is provided by WMATA from Greenbelt Metrorail station to BWI terminal on line B30. The average scheduled travel time is 30 minutes, to the main airport terminal. In comparison, the average travel time by auto from Greenbelt, Greenway Shopping center to BWI terminal is between 25 to 30 minutes.

Airport Shuttle service started operating in 2003 for the Tri-County region (Calvert, Charles and St. Mary's counties), from Captain Walter F. Duke Regional Airport to BWI. The average scheduled travel time is 2 hours.

The Howard Transit service, provides the Red Express line from Columbia Mall to BWI Terminal, with an average scheduled travel time of 80 minutes to BWI terminal. These times compare to an average travel time by car between 25 to 30 minutes.

b) Ronald Reagan Washington National Airport

Non-automobile ground access to Ronald Reagan Washington National is provided by the Metrorail system and by the Washington Flyer Express Bus service.

From Gaithersburg, access to the Metrorail system is provided by Ride-On bus. The overall average scheduled travel time to national airport (not including transfer time from Ride-On), to Ronald Reagan Washington National Airport on Metrorail is 50 to 55 minutes, during the AM and PM peak, and the Noon non-peak periods respectively. This time assumes a three (3) to five (5) minutes transfer time from Red Line to Yellow Line at Gallery Place Station or Red Line to Blue Line at Metro Center Station. From Rockville, using the same Metrorail lines, the travel time ranges

from 45 to 50 minutes with the same travel pattern for the same time periods. Auto travel time from Gaithersburg and Rockville to National airport would be 55 to 50 minutes for the Am peak, 30 to 35 minutes during the Noon, and 40 to 42 minutes during the PM peak periods respectively.

From downtown Washington, travel time to Ronald Reagan Washington National is scheduled to be between 20 to 22 minutes, from Farragut North Station, including transfer time at either Metro Center or Gallery Place stations. Auto travel time ranges from 13 to 15 minutes for the same time periods.

Service to Greenbelt Metro Station from Greenway Shopping Center is provided by Metro Bus R12, with an average travel time of 15 minutes. From Greenbelt Metro Station to Ronald Reagan Washington National Airport Metro Station, the average scheduled travel time is 35 to 40 minutes, including a 3 to 5 minutes transfer time at Gallery Place, during the AM and PM peak, and noon time periods respectively. Therefore the overall average travel time from Greenway Shopping Center to National Airport would be 50 to 55 minutes. The average travel time by car for the same time periods ranges from 41 minutes during the Am peak, 32 minutes for the mid-day and PM peak periods.

From Springfield/Franconia, to Ronald Reagan Washington National on the average is 20 minutes on the Blue Line service. In comparison, auto travel time ranges from 30 minutes during the AM period, 25 minutes for the mid-day and PM peak periods.

c) Washington Dulles International Airport

Non-automobile ground access to Washington Dulles International Airport is provided by the Washington Flyer Express Bus service and Metrobus DC-Dulles Line 5A. The Washington Flyer provides service from West Falls Church Metrorail Station to the airport. Therefore a combined Metrorail/Washington Flyer trip from Gaithersburg, Rockville, downtown Washington, Greenbelt and Springfield/Franconia can be

analyzed. From West Falls Metro Station the Washington Flyer provides service every half-hour, with a scheduled travel time of 25 minutes.

From Farragut North Metro station (downtown Washington), the average scheduled travel time to West Falls Metrorail Station, (using the Red line and Orange Line), is 20 to 25 minutes, with the assumption of a three (3) to five (5) minutes transfer time during the rush and non-rush hour periods. However, a .1 mile walk to Farragut West Metrorail station would also result in the same travel time. Scheduled travel time from West Falls Church Metrorail station to Washington Dulles Airport by Washington Flyer is 25 minutes. Therefore the overall average travel time from downtown Washington to Washington Dulles International, not including transfer time from Metrorail to bus, would be between 45 to 50 minutes for the AM and PM peak periods and Mid-day period respectively. The scheduled travel time by Metrobus line 5A, from L'Enfant Plaza to Dulles Airport is 60 minutes for the AM and PM peak periods and 45 minutes during the mid-day period. In comparison travel time by auto is 45 minutes during the AM peak, 38 minutes for the mid-day and 52 minutes for the PM period.

From Franconia/Springfield to West Falls Metro station, the average travel time using the Blue line and Orange line would be 50 minutes during the AM and PM peak periods and 56 minutes during mid-day period including transfer time at Rosslyn metro station. The combined travel time to Washington Dulles International is 75 to 81 minutes during the AM and PM peak and mid-day periods respectively. Fairfax Connector bus line 401 provides service from Franconia to Dunn Loring metro station with a 53 minutes travel time. Not including transfer time at Dunn Loring , the combined Fairfax Connector/Metro, average travel; time to West Falls Metro Station is 57 minutes, and with the Washington Flyer it will be 80 to 85 minutes. Average auto travel time on the other hand is between 45 to 50 minutes.

Travel time from Greenbelt to West Falls Metro station by way of the Green Line and the Orange Line is between 65 to 75 minutes for the AM and PM peak period and Mid-day periods, including a seven (7) to fifteen (15) minutes transfer time respectively. The combined travel time to Washington Dulles International together with the Washington Flyer is between 90 to 100 minutes. In comparison auto travel time from Greenbelt to Washington Dulles International Airport is 93 minutes for the AM peak, 51 minutes for the mid-day and 66 minutes for the PM peak periods.

From Gaithersburg with 10 minutes Ride-On bus time, from Shady Grove metro station to West Falls Church, the average travel time is 62 to 68 minutes including a six (6) to twelve (12) minutes transfer time at Metro Center Metrorail station. Together with the Washington Flyer, the combined travel time is 87 to 93 minutes for the AM and PM peak and Mid-day peak periods respectively. From Rockville to Washington Dulles International Airport is between 77 to 83 minutes. Auto travel time, in comparison from Gaithersburg is 49 minutes for the AM peak, 35 minutes for the Mid-day and 40 minutes for the PM peak period. From Rockville, auto travel time is 43 minutes for the AM, 33 minutes for the mid-day and 38 minutes for the PM peak periods.

B. Ground Access Issue and Problems

This section will document major ground access issues and problems that need to be addressed in multi-modal planning for improved ground access to the region's airports. The ground access-related issues identified below highlight facilities identified in the 2003 Ground Access Travel Time Study as operating at Level of Service (LOS) E or F. These highway link segments that had LOS "E" or "F" during the AM, Mid-day and PM peak hour periods are illustrated in figures 2, 3 and 4.

Airport Access Highway Segments that had LOS "E" or "F" in the AM Peak Period

- I-695 – Southbound/Eastbound from intersection with I-795 to Route 295 (Baltimore/Washington Parkway).
- I-95 – Southbound Route MD 43 (White Marsh Boulevard) intersection to I-695.
- School Street – Eastbound from State Circle to Church Street in Annapolis.
- Elm Road – Southbound from intersection with Route MD 170 to Baltimore Washington International Airport terminal.
- Baltimore/Washington Parkway – Northbound from Route MD 198 (Fort Mead Rd.) to Route MD 32 (Savage Rd.).
- I-495 – Westbound from intersection with Baltimore/Washington Parkway to Route MD 185 (Connecticut Avenue).
- I-495 – Westbound from intersection with I-270 West-spur to intersection with Dulles Access / Toll Rd.
- I-270 – Southbound from Route MD 27 (Father Hurley Boulevard) to I-495/95 (Western spur).
- I-495 – Northbound/Westbound From I-395 to Dulles Access / Toll Rd.
- I-66 – Westbound from Glebe Rd. to Dulles Access / Toll Rd. exit.
- George/Washington Parkway – Southbound from Chain Bridge Rd. (Route VA 123) to DCA Exit ramp.
- Dolley Madison Rd. (Route VA 123) – From Route VA 7 (Leesburg Pike) to Chain Bridge Rd. in Mclean.

- Dulles Greenway – From Toll Plaza to Route VA 28.
- I-495/95 – Westbound from Route MD 414 (St. Barnabas Rd.) to US 1 (Richmond Highway) Exit.
- I-95/I-395 – Northbound from US 1 to Hayes Street Exit in Pentagon City.
- Pennsylvania Avenue – Southbound from Independence Avenue to Route MD 295 (Anacostia Freeway).
- Leonardtown Road – Westbound from Washington Rd. to Route US 301(Crain Highway).
- Baltimore/Washington Parkway –Southbound from Route MD 410 East-West Highway to New York Avenue.
- New York Avenue (US 50) – Westbound from South Dakota Avenue to Bladensburg Rd.
- New York Avenue – Westbound from North Capitol Street to 3rd Street.
- Centerville Road – Northbound from Prescott Avenue to Liberia Avenue in Manassas.
- Route MD 28 (Norbeck Road) – Eastbound/Northbound from Bel Pre Road to MD 97 Georgia Avenue.
- K Street NW – Eastbound from 16th Street, NW to 7th Street NW.

Airport Access Highway Segments that had LOS "E" or "F" in the Mid-Day Period

- School Street - Westbound from State Circle to Bladen Street in Annapolis.
- Elm Road – Southbound from intersection with Route MD 170 to Baltimore Washington International Airport terminal.
- Little Patuxent Parkway – Eastbound from Governor Warfield Parkway to Route US 29 (Columbia Pike) in Columbia.
- Green Street - Southbound from Fayette Street to Washington Boulevard in Baltimore City.
- Independence Avenue – Eastbound from 14th Street to South Capitol Street.
- K Street NW – Eastbound from 16th Street, NW to 7th Street NW.

- Diamond Avenue (MD 117) – Eastbound from Route MD 124 (Quince Orchard Rd.) to I-270.
- Route MD 32 (Savage Road) – From I-95 to Baltimore Washington Parkway.
- I-70 – Eastbound from I-270 to Mount Airy, Howard County line.
- Baltimore Washington Parkway – Northbound from US 50 (New York Avenue) to I-495/95.
- New York Avenue (US 50) –Westbound from North Capitol Street to 3rd Street.
- I-395 – Southbound from New York Avenue to 14th Street Bridge to Exit ramp to George Washington Parkway.
- 14th Street – Southbound from K Street, NW to Constitution Avenue.
- Constitution Avenue – From 14th Street to 23rd Street.
- George Washington Parkway – Southbound from Key Bridge to 14th Street Bridge (I-395 North Exit ramp).
- Hayes Street/15th Street – Southbound from I-395 to US 1 (Jefferson Davis Highway) in Crystal City.
- US 1 (Jefferson Davis Highway) – Southbound from 15th Street to DCA Exit. In Crystal City.
- George Washington Parkway – Northbound from Powhatan Street to DCA Exit.
- Washington Street – Northbound from Church Street to King Street in Alexandria.
- I-495 – Westbound from MD 355 (Rockville Pike) to I-270 (East Spur), and from McArthur Boulevard to George Washington Parkway.
- Leonardtown Road – Westbound from Washington Rd. to Route US 301(Crain Highway).
- Jefferson Street – Westbound from Braddock Rd. to I-70 in Frederick, MD
- I-95 – Southbound from I-895 to Toll Plaza, in Baltimore.
- I-95 – Northbound from Franconia Parkway to I-495/95.
- VA Route 28 (Sully Road) - Northbound from Liberia Road to Centerville Road in Manassas.

Airport Access Highway Segments that had LOS "E" or "F" in the PM Peak Period

- School Street - Westbound from State Circle to Bladen Street in Annapolis.
- Dulaney Valley Road – Northbound from Joppa Road to I-695 in Towson.
- I-695 – Westbound/Southbound from Dulaney Valley Road to I-795 and from I-70 to Baltimore/Washington Parkway.
- I-70 – Eastbound from US 29 to I-695.
- Green Street - Southbound from Fayette Street to Washington Boulevard in Baltimore City.
- I-95 – Southbound from I-895 to Toll Plaza, in Baltimore.
- Baltimore-Washington Parkway – Northbound from Route I-495 to Powder Mill Road.
- Anacostia Freeway / Baltimore-Washington Parkway – Northbound from Suitland Parkway to Good Luck Road.
- Independence Avenue – Eastbound from South Capitol Street to Pennsylvania Avenue.
- K Street NW – Eastbound from 16th Street, NW to 7th Street NW.
- New York Avenue – Eastbound from 7th Street, NW to Florida Avenue.
- New York Avenue – Westbound from Florida Avenue to 3rd Street.
- I-395 – Southbound from New York Avenue to George Washington Parkway.
- 14th Street – Southbound from K Street to Independence Avenue.
- Independence Avenue – Westbound from 14th Street to 23rd Street.
- George Washington Parkway – Southbound from Key Bridge to 14th Street Bridge (I-395 North Exit ramp).
- I-66 – Westbound from Glebe Rd. to Dulles Access / Toll Rd. exit.
- I-395 – Northbound from Route VA 7 (King Street) to Hayes Street.
- US 1 (Jefferson Davis Highway) – Southbound from 15th Street to DCA Exit. In Crystal City.
- George Washington Parkway – Northbound from Duke Street to King Street and from Powhatan Street to DCA Exit.

- I-95 – Northbound from Franconia Parkway to I-495/95.
- VA 7 (Leesburg Pike) – Northbound from Chain Bridge Road to Dulles Access Road.
- Dulles Access Road – Westbound From I-495 to VA 7 (Leesburg Pike).
- I-495 – Westbound/Southbound from Georgia Avenue to Wisconsin Avenue and from I-270 East Spur to Dulles Access Road.
- Prescott Avenue – Northbound from Center Street to Centerville Road in Manassas.
- Centerville Road (VA 28) - From Prescott Avenue to Liberia Avenue in Manassas.

Figure 2
Washington-Baltimore Regional Airport
2003 Ground Access Travel Time Study Update
AM Peak Period
Segments with LOS E&F

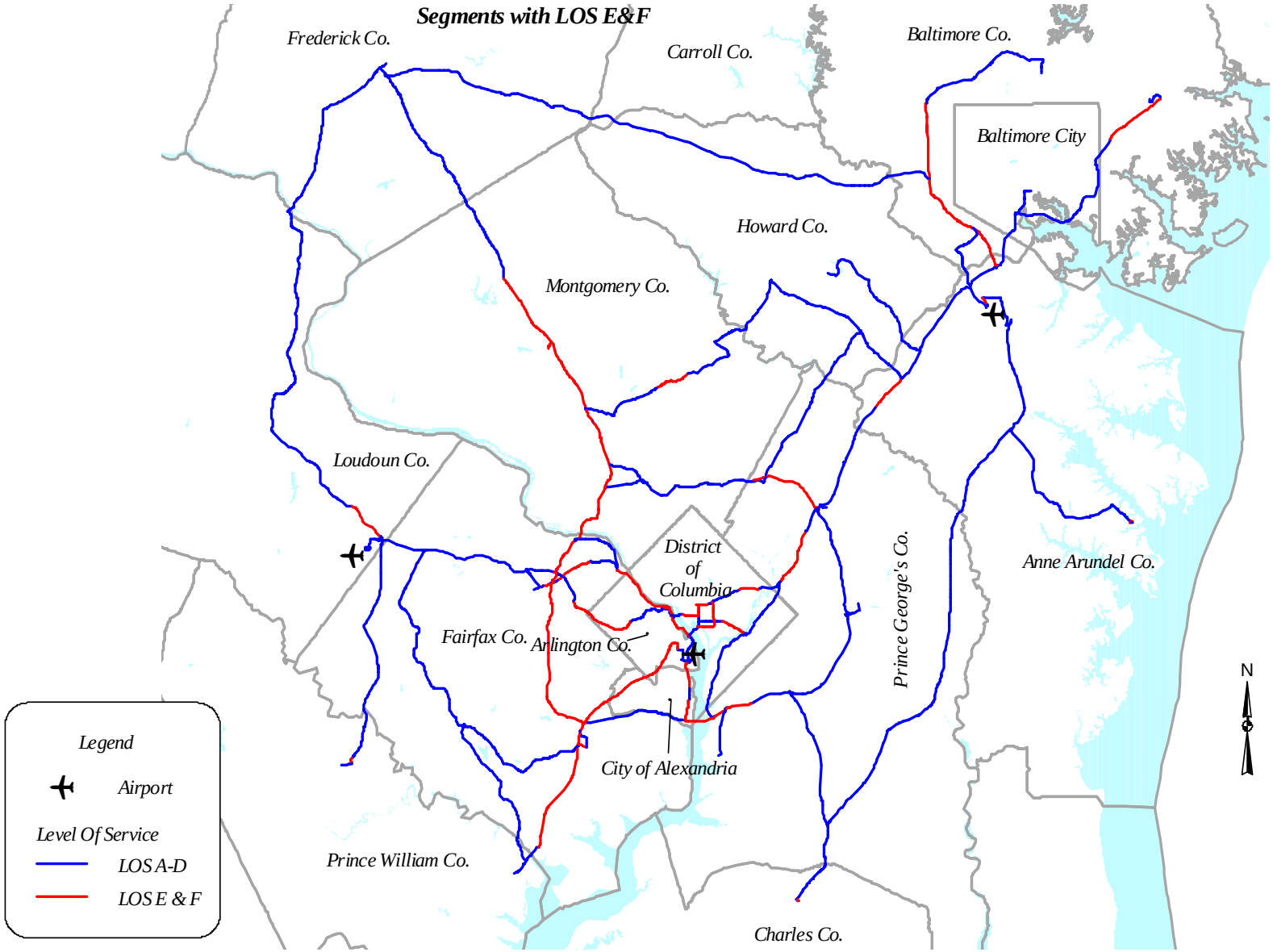


Figure 3
Washington-Baltimore Regional Airport
2003 Ground Access Travel Time Study Update
Mid-Day Peak Period
Segments with LOS E&F

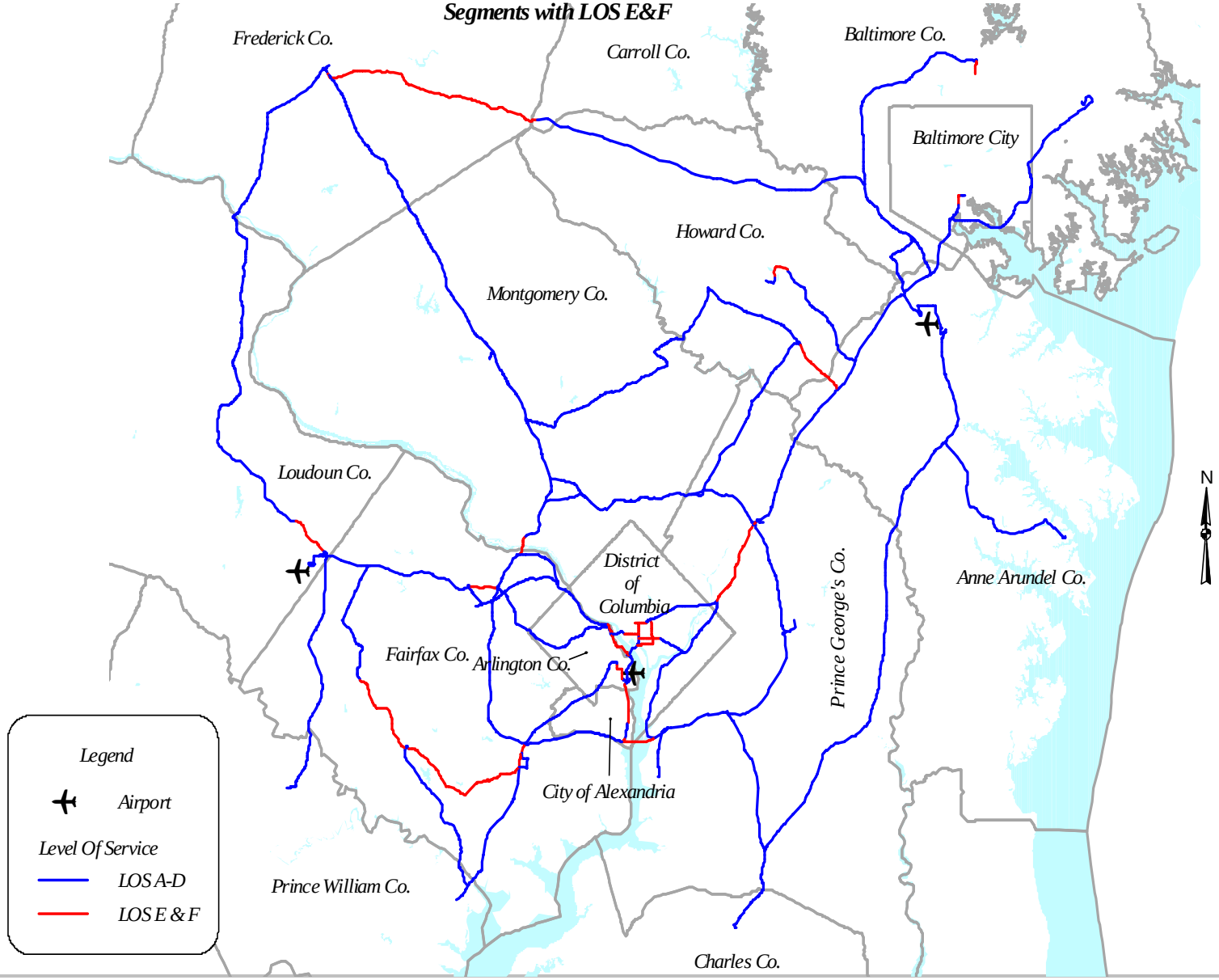
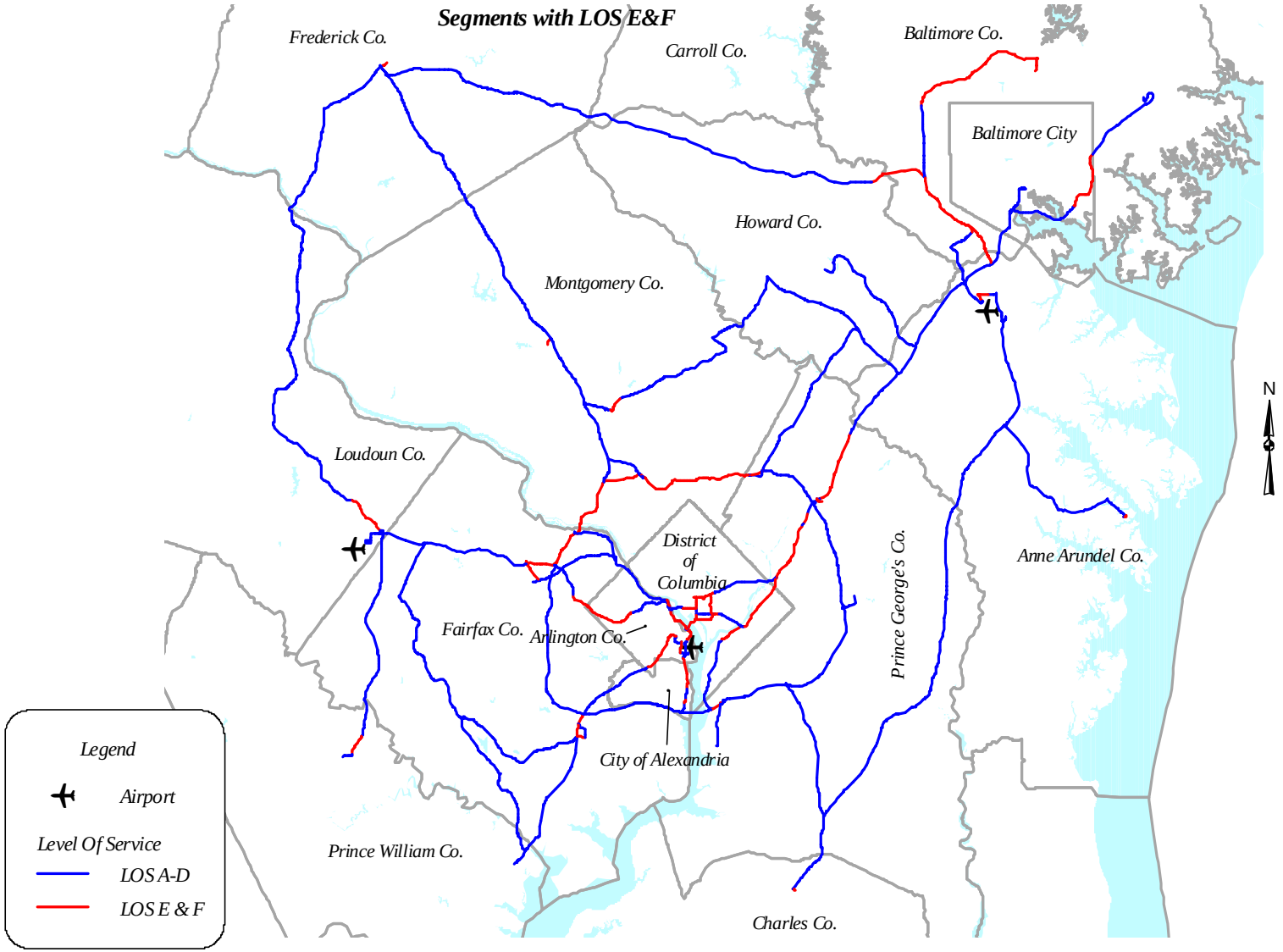


Figure 4
Washington-Baltimore Regional Airport
2003 Ground Access Travel Time Study Update
PM Peak Period
Segments with LOS E&F



7. Planned and Programmed Highway and Transit Improvements

The TPB Financially Constrained Long-Range Transportation Plan, or CLRP, and BRTB Transportation 2030, includes all "regionally significant" highway, transit and High-Occupancy Vehicle (HOV), bicycle and pedestrian projects, and studies that are realistically anticipated to be implemented by 2030. Some of these projects are scheduled for completion in the next few years; others will be completed much later. Each year the plan is updated to include new projects and programs, and analyzed to ensure that it meets federal requirements relating to air quality and funding. Both the CLRP and Transportation 2030 give considerations to the multimodal, interdependent nature of the region's transportation system. The process addresses the region's highway, transit, and bicycle, and pedestrian modes, as well as access to the regional airports.

The 2005 Constrained Long Range Plan for the National Capital Region and the 2004 Baltimore Regional Transportation Plan (Transportation 2030) includes several regionally significant highway and transit improvement projects that will improve ground access for air passengers traveling to the three regional airports in the future. The adopted TPB's 2005 Constrained Long Range Plan (CLRP) for the National Capital Region outlined a total of 120 major highway and transit projects (115 highway and 15 transit), while the BRP's adopted Transportation 2030 outlined sixty-eight (68) preferred highway and transit projects (58 highway and 4 transit). Below are some of the major regional highway and transit improvements and/or studies which are significant to trips to the three regional airports within the airport system planning area.

A. Major Highway Improvements and Studies

Following are highway improvements/study significant to airport trips (see Figure 5)

1. I-70, widening from Mt. Phillip Road to Patrick Street (MD 144) to 4/6 lanes (5.30 miles), 2010.
2. I-70, widen from 4 to 6 lanes between Baltimore National Pike (US 40) to Columbia Pike (US 29), 2030.

3. I-695 (Baltimore Beltway) upgrade to an 8 lane freeway from I-83 (Baltimore Harrisburg Expressway) to I-95 (John F. Kennedy Memorial Highway) 11.38 miles , and from Security Boulevard (MD 122) to I-95 south in Arbutus, 5.67 miles.

4. I-95 (John F. Kennedy Highway)

- Widen from 8 to 12 lanes, from I-895 (East Baltimore) to North of White Marsh Boulevard (MD 43), 2020.
- From I-895 (East Baltimore) to I-695 (Baltimore Beltway) widen from 4 to 5 lanes southbound.
- Widen from 6 to 8 lanes between north of White Marsh Boulevard (MD 43) and Churchville Rd. (MD 22), near Aberdeen, 2015.

5. I-95 South, widen from 8 to 10 lanes between prince George's and Howard County lines to I-695 (Baltimore Beltway), 2020.

6. MD 295 (Baltimore Washington Parkway), widen from 4 to 6 lanes, I-695 to I-195,2010.

7. MD 295 (Baltimore Washington Parkway), widen from 4 to 6 lanes, MD 100 to I-195, 2010.

8. US 50 / US 301, widen from 6 to 8 lanes, from Anne Arundel/Prince George's County line to Bay Bridge, 2020.

9. I-97, widen from 4 to 6 lanes, between John Hanson Highway (US 50/301) to Crain Highway and Patuxent Freeway (MD 32/3) intersection at Millersville, MD, 2010.

10. MD 3, Robert Crain Highway, study to widen/upgrade from 4 to 6 lanes between John Hanson Highway (US 50) to Patuxent Freeway (MD 32)/I-97 intersection, 20030.

11. MD 32, widen/upgrade from 4/6 lane to 8 lanes between Cedar Lane to Anne Arundel County Line and from Clarksville Pike (MD 108) to Carroll County line , 2025, 2030.

12. US 29, upgrade, including intersections/interchanges, from Sligo Creek Parkway to MD 100 , 2005, 2006, 2010, 2020, and widen from MD 100 to I-70, to 6/8 lanes 2015, 2030.

13. I-270 widen, 2025.

14. Inter County Connector, (ICC), construct 17 mile, 6 lane road between I-270 near Gaithersburg and I-95/US1 near Laurel, 2010.

15. MD 28/MD 198, construct widen, from Georgia Avenue (MD97) to I-95 from 2/4 lanes to 4/6 lanes 2030.

16. Crain Highway (US 301), widen from 4/6 lane to 8 lanes between Mount Oak Road to John Hanson Highway (US 50), 2030.

17. Pennsylvania Road (MD 4), upgrade/widen from 4 to 6 lanes between Woodyard Road (MD 223) to Capitol Beltway (I-95/495), 2010.

18. MD 5, upgrade, widen from Crain Highway (US 301) intersection to the Capital Beltway (I-95) from 4 to 6 lanes, including interchanges, 2010.

19. MD 210, upgrade from Berry Road (MD 228) to Capital Beltway (I-95) 6 lanes, 2020.

20. MD 100, widen/reconstruct from 4/6 to 6/8 lanes between Columbia Pike (US 29) to Anne Arundel County line, 2002.

21. VA 7/US 15 Bypass, widen to 6 lanes, 2015.

22. Dulles Greenway, widen from 4 to 6 lanes between Goose Creek Bridge Road to VA 7/US 15 Bypass 2005, 2006.

23. Market Street / Harry Byrd Highway (VA 7), upgrade/widen from 4 to 6 lanes between Charles Town Pike (VA 9) to Sully Road (VA 28), 2015.

24. Loudoun County Parkway, widen/upgrade 2/4 to 6 lanes from Old Ox Road (VA 606) to Leesburg Pike (VA 7), 2005, 2010.

25. Old Ox Road (VA 606), widen/upgrade from 2 to 4 lanes, between Gum Spring Road (VA 659) to Dulles Greenway interchange, 2015.

26. Sully Road (VA 28), widen to 6/8 lanes, from Fauquier County line to Wellington Road in Manassas and from Eastern City limit of Manassas Park to Leesburg Pike (VA 7), with interchanges, 2006, 2007, 2008, 2010, 2015, 2025.

27. Leesburg Pike (VA 7), widen from 4 to 6 lanes between Rolling Holly Drive to Capitol Beltway (I-495), 2009, 2012, 2013.

28. Dulles Access Road, widen to 6 lanes including interchange reconstruct at I-495, 2010.

29. Dolley Madison Blvd (VA 123), widen 4/6 to 6/8 lanes from Great Falls Street (VA 694) to Leesburg Pike (VA 7), 2010, 2013.

30. John Mosby Highway (US 50), widen 4/5 to 6 lanes between Gum Spring Road (VA 659) to Lee Road (VA 661), 2010, 2012.

31. Tri-County Parkway (VA 411), construct a 4/6 lane highway from Prince William/Fairfax County line to Braddock Road (VA 620), 2015, 2020.

32. Fairfax County Parkway (VA 7100), widen from 4 to 6 lanes between Sunrise Valley Drive and Ox Road (VA 123), 2015.

33. Fairfax County Parkway (VA 7100), widen from 4 to 6 lanes between Hooes Road (VA 636) to Franconia-Springfield Parkway (VA 7900), 2015.

34. Ox Road (VA 123), widen from 2/4 lane to 6 lanes from Braddock Road (VA 620) to Jefferson Davis Highway (US 1) in Woodbridge, 2006, 2015, 2020.

35. Fairfax County Parkway (VA 7100), construct between Hooes Road (VA 636) and Fullerton Road (VA 4600), 2007, 2025.

36. Jefferson Davis Highway (US 1), widen from 4/6 to 6/8 lanes, from Stafford County line to Southern City Limit of Alexandria (I-95 Capital Beltway)2015, 2025.

37. I-95/I-395/I-495, widening and interchange reconstruction with access ramps to I-495 HOV, 2007.

38. Little River Turnpike (VA 236), upgrade/widen from 4 to 6 lanes between Picket Road to I-395, 2020.

39. Arlington Boulevard (US 50), upgrade/widen 4 to 6 lanes between Eastern Fairfax City Limit to Fort Myer Drive in Rosslyn, 2015, 2020.

40. Lee Highway (US 29), widen 4 to 6 lanes between Eastern Fairfax City Limit to Capitol Beltway (I-495), 2015.

41. Leesburg Pike (VA 7), widen from 4 to 6 lanes between Seven Corners to Baileys Crossroads, Columbia Pike (VA 244), 2020.

42. Prince William Parkway (VA 3000), widen 4 to 6 lanes between Minnieville Road (VA 640) to Liberia Avenue (VA 776), 2025.

43. Dumfries Road (VA 234), widen 4 to 6 lanes between Country Club Road and Purcell Road, 2003, 2006.

44. Manassas Bypass (VA 234), construct/widen 4 to 6 lanes between Southern City limit of Manassas and I-66, 2020.

45. I-95, widen from 6 to 8 lanes between Gordon Boulevard (VA 123) to Fairfax County Parkway (VA 7100) in Newington, 2009.

46. I-95, Woodrow Wilson Bridge, build 12-lane bridge, 2009.

47. I-495 (Capital Beltway), widen and construct High Occupancy/Toll (HOT) lanes, between I-395 / I-95 and Georgetown Pike (VA 193), 2015.

48. I-95, construct HOV extension from Prince William / Stafford County line to Garrisonville Road (VA 610), 2011.

49. Jefferson Davis Highway (US 1), widen from 4 to 6 lanes between Telegraph Road (VA 637) to Courthouse Road (VA 630), 2025.

50. Jefferson Davis Highway (US 1), widen from 4 to 6 lanes between Warrenton Road (VA 212) to Mills Drive (VA 17 Bypass), 2010, 2015, 2020, 2025, 2030.

51. I-495/I-95 42.2 miles of the Capital Beltway, study to widen and determine the feasibility of managed lanes from American Legion Bridge to Woodrow Wilson Bridge.

52. US 301 South Corridor Transportation Study, which is a multi modal corridor study to consider highway/transit improvements from the Potomac River in Charles County to US 301/US 50 interchange in Bowie (45.5 miles).

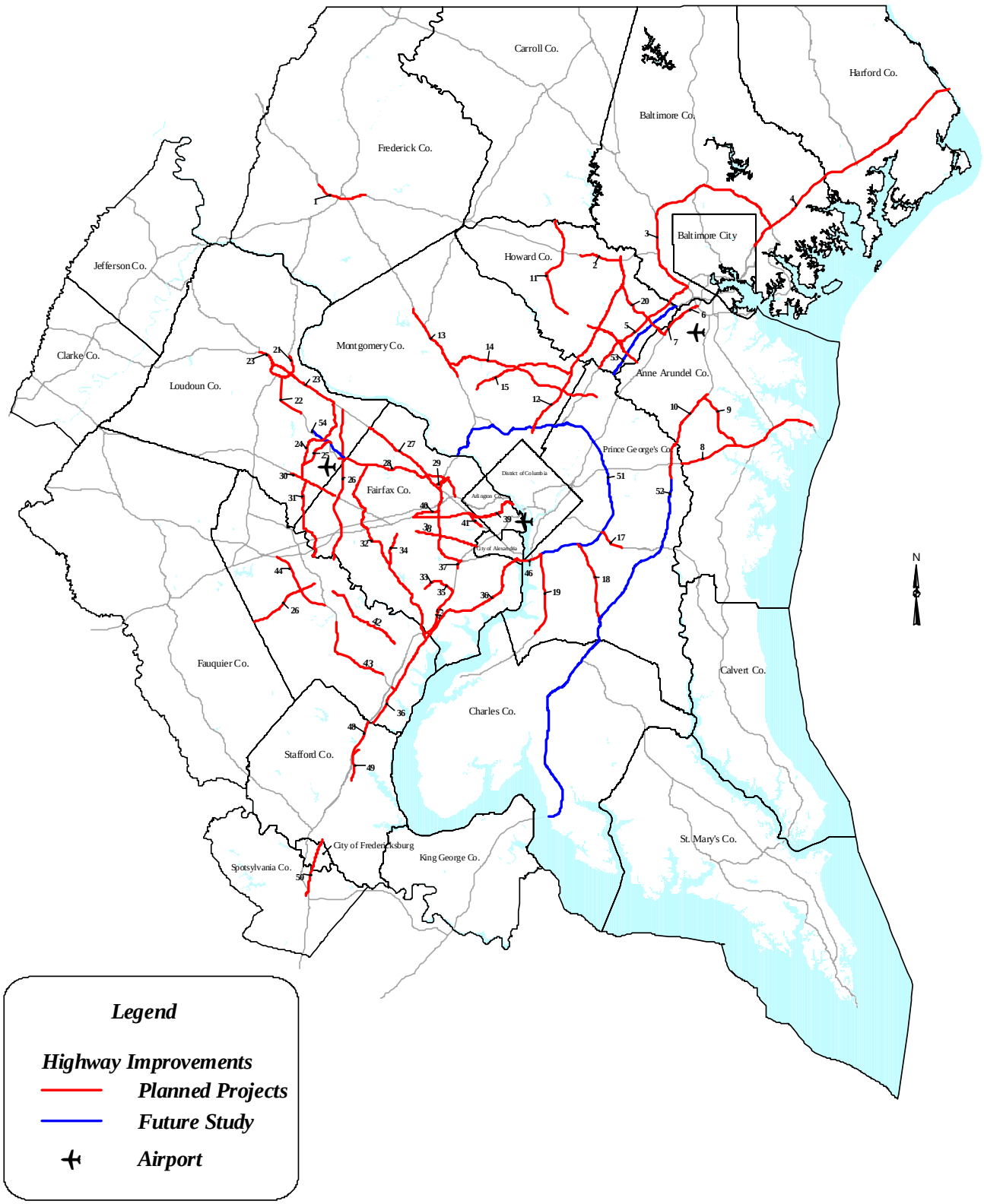
53. US 1, Washington Boulevard, study improvements such as widening and interchanges along the US 1 corridor from Price George's County line to Baltimore County line.

54. Dulles Greenway, study to widen to 6 lanes (4 unrestricted lanes plus 2 HOV lanes), from Loudoun County Parkway (VA 772) to Sully Road (VA 28).

Other highway improvements/study which are not listed above and are also significant to airport trips include:

- East-West Intersection Improvement Program:- is a series of minor projects in Northern Montgomery and western Prince George's counties, will provide relief to traffic congestion and improve east/west travel between the I-270 and I-95 / US 1 corridors.
- Construction and reconstruction of interchanges along the I-95 north corridor in VA.

Figure 5
Washington-Baltimore Air System Planning Region
TPB/BRTP Highway Improvement/Study Projects



B. Major Transit Improvements and Studies

Following are transit improvements/study significant to airport trips (see Figure 6 and 7)

1. Corridor Cities Transitway, from Shady Grove to COMSAT, 2012, 2020.
2. Baltimore Corridor Transit Red Line, study/construct an east-west rapid transit system from social Security to Fells Point (Patterson Park) in Baltimore, 2015.
3. Dulles Corridor Rapid transit:- a 23 mile extension of the Metrorail system from West Falls Church to eastern Loudoun County, with a total of 11 new stations in Tysons Corner, Reston/Herndon area, at Washington Dulles International Airport and in eastern Loudoun County (Figure 7), 2011, 2015.
4. Bi-County Transitway, Bethesda to Silver Spring, 2012.
5. I-95 HOV/HOT (3 total) re-strip Prince William County Line to I-495.
6. Study Fairfax County Parkway (VA 7100), Priority bus service.
7. Study priority Bus service along the Jefferson Davis Highway (US 1), from Stafford County line to I-495 (Capital Beltway).
8. Study for preferred alternative for mass transit improvements along US 301 / MD 5 corridor from the Branch Avenue Metro station to the White Plains area in La Plata in Charles County.
9. Bi-County Transitway Study:- a 14 mile transitway between New Carrollton and Bethesda Metrorail Stations. This line would serve high congested corridors in Prince George's and Montgomery Counties connecting the existing Metrorail Red, Green and Orange lines to key employment, and residential destinations.
10. Study transit improvement services along the I-66 corridor from Fauquier County line to Vienna Metro Station.
11. Sully Road (VA 28) corridor, study to construct a Light Rail service from Manassas to Dulles Airport.
12. I-495 (Capital Beltway) express bus service with the widening of the Beltway and implementation of HOV/HOT lanes, 2010, 2020.

13. Study Metrorail service extension between Franconia-Springfield and Potomac Mills Mall.

14. Study Light Rail or transit service improvement along Leesburg Pike (VA 7) from Tyson's Corner to Bailey's Crossroads/Skyline and to Pentagon along Columbia Pike (VA 244).

15. Study Light Rail or transit service along the Jefferson Davis Highway (US 1) corridor in Alexandria from King Street Metro station to Pentagon Metro station.

16. Construct new Metrorail Station at Potomac Yards, 2015.

17. Metrorail stations along the Dulles Corridor rail line.

18. Construct MARC rail station at East Baltimore, 2020.

19. Study the construction of Metrorail stations along the I-66 Metrorail extension between Vienna and Centerville.

20. Construct VRE Commuter rail station at Cherry Hill, Prince William County, 2006.

21. Construct Transit Center at Silver Spring Metro station 2007.

22. Construct Transit Center at Four Corners intersection of Colesville Road (US 29) and University Boulevard (MD 193) 2015.

23. Construct Transit Center at Olney, 2015.

24. Construct Transit Center at Metropolitan Grove, 2015.

25. Construct Transit Center at Clarksburg, 2015.

26. Construct Transit Center at Bradlee Shopping Center in Alexandria, 2015.

27. Construct Transit Center at Seven Corners Shopping Center in Falls Church, 2004.

28. Construct Transit Center at Reston Town Center, 2004.

Other transit improvements/study which are not listed above and are also significant to airport trips include:

- K street Busway :-an express bus lanes running 1.5 miles between 7th street (Mt. Vernon Square) and Washington Circle, NW

- Implementation study of Downtown Circular Bus System in Washington, D.C.
- Implementation of Inter County Connector (ICC) Corridor Bus Service, 2010.
- Construction and expansion of Parking Lots at and on various locations on existing and future Metrorail and Commuter Rail stations.

C. Major Terminal and Access Road Transportation Improvements

Both Metropolitan Washington Airport Authority (MWAA) and Maryland Aviation Administration (MAA) have invested through their Airport Improvement Programs in anticipation of a growing number of travelers. These improvements include the widening of access roads to and at the terminals. The opening of the Terminal B and C, and the separation of arrival and departing passengers terminal, and construction of hourly parking facilities at Ronald Reagan National have eased congestion along the ramps exiting from George Washington Parkway. Recently completed Phase I and planned Phase II of the Terminal Entrance Roadway Improvements at Baltimore/Washington International Thurgood Marshal Airport is intended to relieve traffic congestion. A bottleneck at Elm Road from MD 170 to airport terminal is one section that will see results from these improvements.

As part of the Dulles and Baltimore-Washington International Thurgood Marshall Airports master plan and/or Capital Improvement Programs, various projects are underway and/or are planned to improve air passenger access to and at the airport terminals. Passengers at Dulles International will be able to travel from terminal to concourse using a new underground train system which will replace the existing mobile lounge. This project is underway and is planned to be completed in 2009. At BWI, access roads to the terminal have been widened to support terminal and concourse expansions. Also a study for a people mover system that would connect the BWI rail station, the consolidated rental car facility and the parking facilities to the terminal building is being planned.

Figure 6
Washington-Baltimore Air System Planning Region
TPB/BRTP Transit Improvement/Study Projects

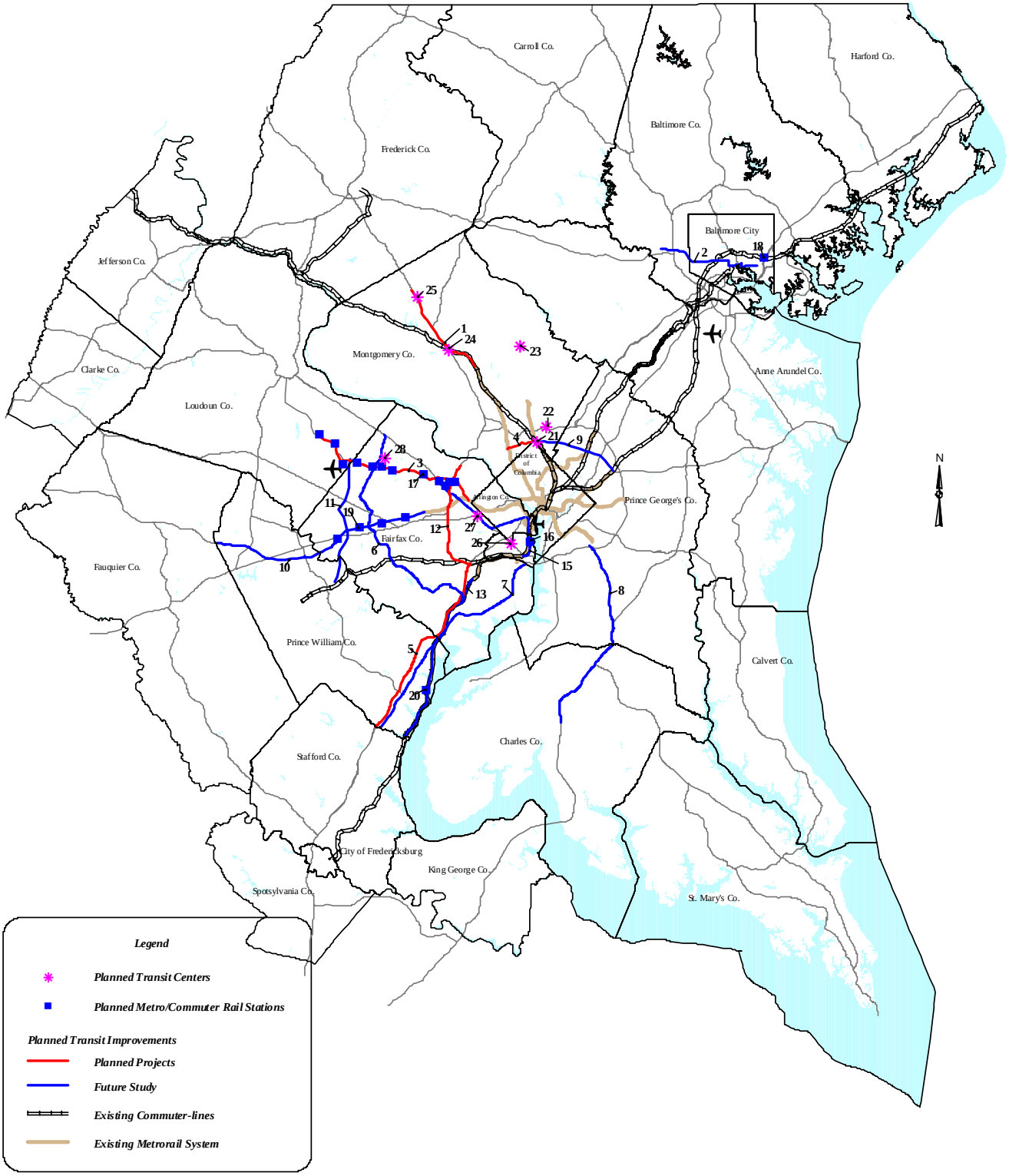
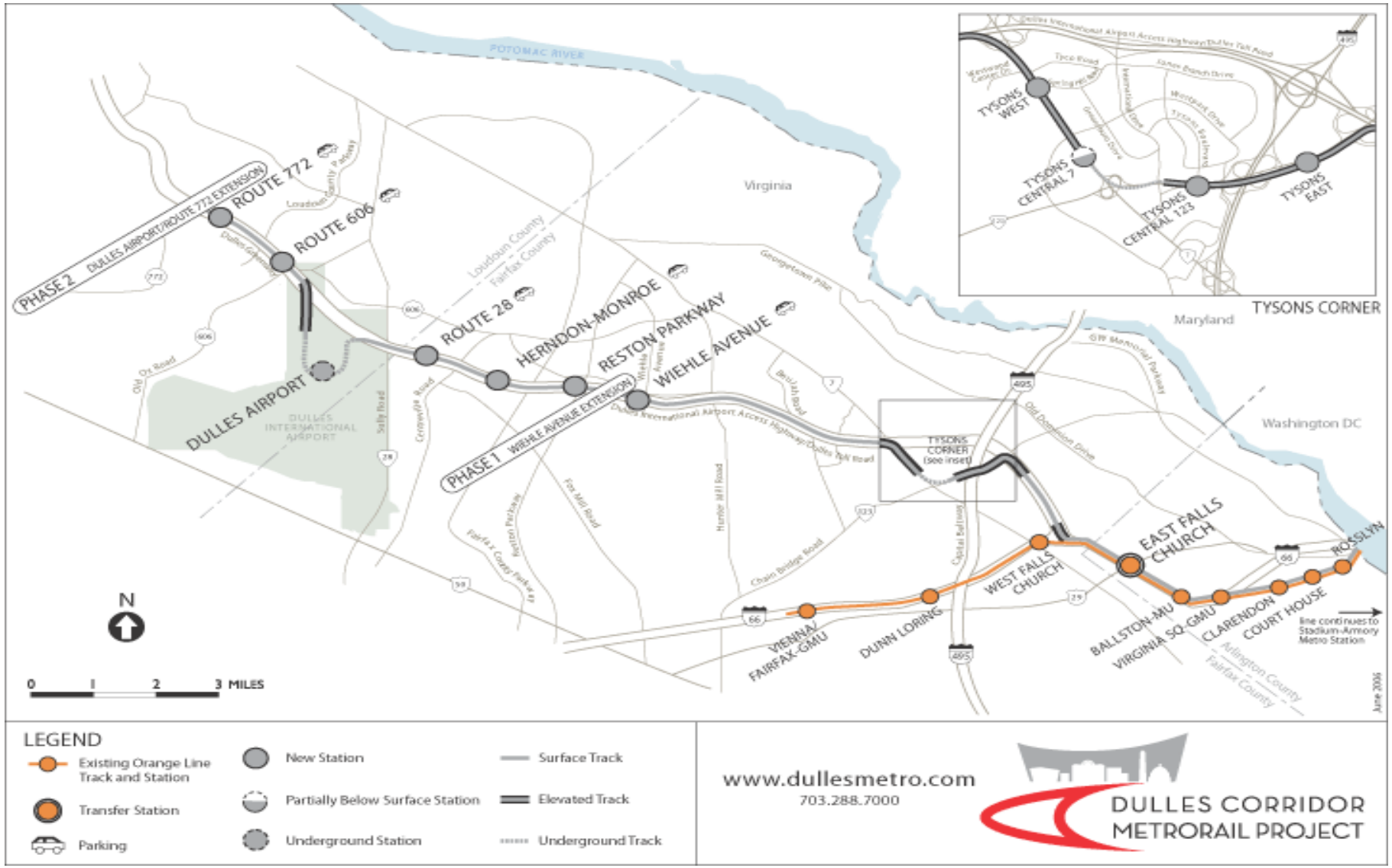


Figure 7


POTOMAC RIVER
Virginia
Maryland
Washington DC
PHASE 2 DULLES AIRPORT/ROUTE 772 EXTENSION
ROUTE 772
ROUTE 606
ROUTE 28
HERNDON-MONROE
RESTON PARKWAY
WIEHLE AVENUE
PHASE 1 WIEHLE AVENUE EXTENSION
DULLES AIRPORT
DULLES INTERNATIONAL AIRPORT
TYSONS CORNER (see inset)
TYSONS WEST
TYSONS CENTRAL 7
TYSONS CENTRAL 123
TYSONS EAST
TYSONS CORNER
EAST FALLS CHURCH
WEST FALLS CHURCH
DUNN LORING
VIENNA/ FAIRFAX-GMU
BALLSTON-MU
VIRGINIA SQ-GMU
CLARENDON
COURT HOUSE
ROSSLYN
line continues to Stadium-Armory Metro Station
Loudoun County
Fairfax County
Arlington County
Old Dominion Drive
Chain Bridge Road
Fox Mill Road
Hunter Mill Road
Capital Beltway
Old Ox Road
Sully Road
Centreville Road
Dulles International Airport Access Highway/Dulles Toll Road
N
0 1 2 3 MILES
June 2006
LEGEND
Existing Orange Line Track and Station
Transfer Station
Parking
New Station
Partially Below Surface Station
Underground Station
Surface Track
Elevated Track
Underground Track
www.dullesmetro.com
703.288.7000
DULLES CORRIDOR METRORAIL PROJECT

D. Forecast Growth in Local Air Passenger Originations, Regional Travel and Recommended Highway and Transit Improvements

Annual air passenger enplanements for Baltimore/Washington International Thurgood Marshall Airport are forecast to reach 23 million by 2030, an increase of 134% compared to 2000. Enplanements at Dulles International will reach over 31.8 million by 2030, and at Ronald Reagan National they are expected to reach more than 9.6 million by 2030, increases of 227% and 35% respectively. Overall annual regional enplanements are projected to increase by more than 140% between 2000 and 2030.

Forecast growth in local air passenger originations is expected to exceed 200% in areas around BWI in Anne Arundel County, Western Howard County, most of Frederick County and in southern Charles County in Maryland (See Figure 8). In Virginia, growth in local air passenger originations is expected to exceed 200% in areas around and to the West of Dulles Airport, in Fauquier County and both the eastern and western parts of Prince William County, in Spotsylvania County and the City of Fredericksburg and in King George County. In the Washington Beltway jurisdictions of Fairfax, Montgomery and Prince George's County, local air passenger originations are forecast to grow between 50% and 200%. Similarly, in the Baltimore region, local originations in Baltimore City, Baltimore County, and Carroll County are expected to also grow by 50%-200%. Only in the parts of the District of Columbia, Arlington and Alexandria, which already have large numbers of locally originating air passenger trips, is the future growth in local originations expected to be less than 50%.

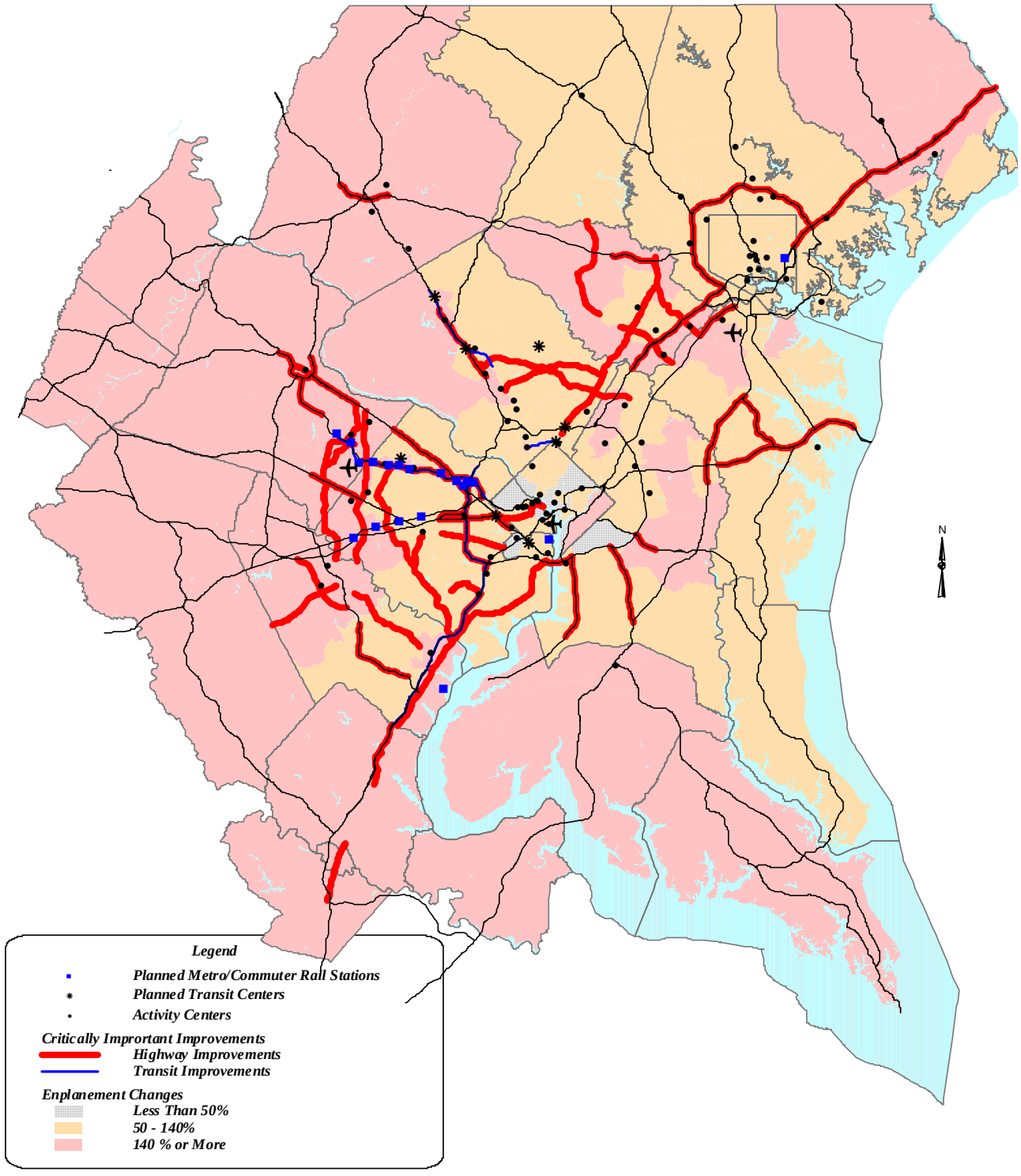
The current state of the regional ground transportation system, most notably the highway network, has a significant impact on ground access to the region's three commercial airports. The facilities/ground access issues and problems identified in Section 6 adversely affect ground access to the region's airports. With continuing growth in air travel now and in the future, the need to maintain quick and efficient access to the region's airports for local residents, business travelers and visitors has become an important priority.

Highway congestion in the region has grown so severe in the last several years that many of the major roads that serve the region's airports are chronically clogged. Though airport destined trips constitute a very small portion of the daily traffic, travel to the airports is being increasingly impacted by the fact that increases highway and transit capacity have not kept pace with the growth in non-airport related travel. Traffic chokepoints observed during the 2003 Airport Ground Access Travel Time survey are along the freeways and major arterials that are major commuting routes. For example, major problem areas during the morning and evening rush hour periods along I495, I-270, I-695 (Baltimore Beltway), I-295 (Baltimore Washington Parkway), I95/395 (Virginia), are largely caused by commuters heading to and from work and home.

Obviously, the current level of congestion on the region's roadways and transit facilities suggests that the future growth in daily travel and airport trips will exacerbate existing traffic problems. This makes completion of some of the planned highway and transit projects in the 2005 Constrained Long Range Plan for the National Capital Region and the 2004 Baltimore Regional Transportation Plan (Transportation 2030) critically important for maintaining and improving ground access for air passengers traveling to the region's airports. Some of these transportation improvements are scheduled for completion in the next 10 years, but others will still only be in the planning stage.

While in the near term completion of the Springfield Interchange and the Woodrow Wilson Bridge projects should result in some immediate improvements in ground access to all three airports, following is a listing of the highway and transit improvements considered essential for maintaining convenient access to the region's airports in the future. These critically important regional transportation improvements are recommended for implementation at the earliest possible date to help ensure attainment of Goal 8 of the TPB Vision, the goal supports the region as a major hub of international and inter-regional travel and commerce.

Figure 8
Critically Improrant Highway and Transit Improvements
in relation to
Forecast Growth in 2030 Local Originations



1. Critically Important Highway Improvements

- The widening sections along the I-270, Columbia Pike (US 29) in Montgomery and Howard counties, and the construction of the ICC (Inter County Connector) a new 6-lane road that would run 17 miles between I-270 near Gaithersburg and I-95 near Laurel, the widening of Norbeck Road/Spencerville Road (MD 28/MD 198) in Montgomery county, together with East-West Intersection Improvement Program will significantly improve airport access from Montgomery and Howard counties to Baltimore Washington International Thurgood Marshall Airport.
- The widening sections along I-70 will significantly improve airport access from Frederick, Carroll and Howard counties to Baltimore Washington International Thurgood Marshall Airport.
- The widening of I-95 north between the Prince George's and Howard County line to I-695 (Baltimore Beltway), and the widening along the Columbia Pike (US 29) in Montgomery and Howard counties will significantly improve north and southbound trips to I-195, a major artery to Baltimore Washington International Thurgood Marshall Airport.
- The widening of I-95 South in Harford and Baltimore counties, and the widening of I-695 (Baltimore Beltway) from the intersection of I-95 South and I-895 to I-95 near Arbutus, (Baltimore county) Maryland will significantly improve travel time to Baltimore Washington International Thurgood Marshall Airport from origins in Baltimore, Harford and Carroll counties as well as trips from further in Pennsylvania.
- The widening of sections of the Baltimore-Washington Parkway (I-295) from I-695 (Baltimore Beltway) to MD 100 near Arundel Mills will significantly improve travel for airport trips southbound from Baltimore County and Baltimore City and beyond, as well as trips northbound from Montgomery, Howard, and Ann Arundel counties and from the DC

metropolitan area to Baltimore Washington International Thurgood Marshall Airport.

- The widening of sections along the John Hanson Highway (US 50) between the Prince George's county line and the Bay Bridge, and the widening along I-97 between John Hanson Highway (US 150/301) and the Patuxent Freeway (MD 32/3) will have a significant impact on travel to Baltimore Washington International Thurgood Marshall Airport from much of Anne Arundel County and the eastern shore as well as from Delaware.
- The widening along sections of Sykesville Road / Patuxent Freeway (MD 32), and widening of sections of MD 100 will have a significant impact on travel to Baltimore Washington International Thurgood Marshall Airport from much of Howard and Carroll counties.
- The widening of Branch Avenue (MD 5), Indian Head Highway (MD210) and Pennsylvania Avenue (MD 4) will improve trips from southern Maryland and Prince George's County to all airports.
- The construction of the Woodrow Wilson Bridge and the widening and reconstruction of the Springfield Interchange will significantly improve travel primarily to Dulles International, Ronald Reagan National and also to Baltimore Washington International Thurgood Marshall Airport.
- The widening of the Richmond Highway (US 1) in Virginia, together with the widening and reconstruction of the Springfield Interchange, will significantly improve airport trips from Fairfax, Prince William counties and from south I-95 in Virginia, primarily to Dulles International and Ronald Reagan National airports.
- The widening of sections of Fairfax County Parkway (VA 7100) and Chain Bridge Road (VA 123), and the construction of High Occupancy/Toll (HOT) lanes along the I-495 from the Springfield interchange to Old Georgetown Road (VA 193), will significantly improve airport trips to Dulles International Airport from Southern Fairfax County, Springfield area, Prince William County and Southern Virginia.

- The widening of Leesburg Bypass (VA 7/US 15), and Harry Byrd Highway (VA 7) in Leesburg will significantly improve airport access trips to Dulles International Airport from much of western Loudoun County, from Jefferson County in West Virginia, and from Frederick county in Maryland.
- The widening of Sully Road (VA 28), widening and upgrade of Loudoun County Parkway, Old Ox Road (VA 606), and the construction of a new 4 to 6 lane highway, Tri-County Parkway from Prince William/Fairfax County Line to Braddock Road (VA 620) will improve travel time from Manassas and much of Prince William and Fauquier Counties to Dulles International Airport.
- The widening of the Dulles Access Road along with improvements on Fairfax County Parkway, Leesburg Pike (VA 7) and I-495 (Capital Beltway) will significantly improve travel to Washington Dulles International Airport from most of the DC Metropolitan area.
- The widening of Arlington Boulevard (US 50), Lee Highway (US 29), and sections of the Little River Turnpike (VA 236) will significantly improve travel to Washington Dulles International Airport from most of Arlington, City of Alexandria and Fairfax County area inside the Capital Beltway.
- The construction of HOV lanes along I-95 in Stafford County, and widening of sections along the Jefferson Davis Highway (US 1) in Stafford County, Spotsylvania County and the City of Fredericksburg will significantly improve airport trips to all airports in general and to Dulles International and Ronald Reagan National airports in particular from Southern Virginia.
- The widening along Dumfries Road (VA 234) and Prince William Parkway (VA 3000), in Prince William County will improve access to Sully Road (VA 28) to Dulles International Airport from much of Prince William County, Fauquier County and Southern Virginia.

2. Critically Important Transit Improvements

- The construction of a 23 mile, 11 station Metrorail to Washington Dulles International Airport, will significantly increase transit access to Dulles Airport from regional core areas in DC and Northern Virginia and other areas throughout the region served by the Metrorail system. This extension of the Metrorail system is expected to carry about 9% of the local originating air passengers traveling to Dulles airport in 2030.
- The Metrorail extension to Dulles International Airport in particular will also generate airport-to-airport passenger trips, especially between Dulles International and Ronald Reagan Washington National Airports.
- The express bus services along I-495 (Capital Beltway), and priority bus service on Fairfax County Parkway (VA 7100) will also play a significant role in increasing transit trips from the Fairfax County suburbs to Dulles International Airport.
- Transit service improvements along the Jefferson Davis Highway (US 1) will significantly increase transit access to all airports in general and to Ronald Reagan National airport in particular.
- Corridor Cities Transitway along the I-270 corridor will make northern Montgomery county accessible by transit to all airports in general and mainly Ronald Reagan National Airport in particular.
- The Bi-County Transitway between Silver Spring and Bethesda Metro stations will significantly increase transit access to all airports in general and Ronald Reagan National airport in particular from areas such as Garrett Park, Kensington, and Chevy Chase.
- The construction of Transit Centers at Silver Spring, Olney, Metropolitan Grove and Clarksburg in Montgomery County will integrate transit services and increase efficiency and ease of use. These services will significantly increase transit access to all airports in general and Ronald Reagan National airport in particular.

- The construction of Transit Centers at Four Corners and Seven Corners in Arlington County and City of Alexandria will integrate transit services and increase efficiency and ease of use. These services will significantly increase transit access to all airports in general and Ronald Reagan National airport in particular.
- The construction of a new VRE Commuter Rail station at Cherry Hill will significantly increase transit access to all airports in general and Ronald Reagan National airport in particular from Prince William County and Southern Virginia.
- The construction of a new MARC Commuter Rail station at East Baltimore will significantly increase transit access to Thurgood Marshall International Airport from Eastern Baltimore City and the adjacent southeast Baltimore County.

3. Transportation Improvements in Higher Density Regional Activity Centers

Little opportunity for street widening or new construction exists in downtown areas, such as K Street, Pennsylvania Avenue, and the New York Avenue corridors in Washington, D.C., in Old Town Alexandria, in Waldorf, or downtown Baltimore. Therefore, any improvements in airport access from these areas must come from Transportation Demand Management measures (TDM), such as parking restrictions, no-left turn restrictions, reversible peak direction lanes, traffic signal timing synchronization, the promotion of peak-hour directional HOV lanes alternatives and from improvement of transit facilities and services.

8. Conclusion

The transportation linkage between airports and local activities is a critical and often overlooked component of the airport system. Choice of airport and even the decision to fly are clearly linked to the quality, cost and travel time associated with the ground journey to the airport. Almost 65% of the region's air passengers cited airport accessibility (closest airport, better public ground transportation and better access road and parking) as the most important reason for choosing the airport they used.

Enplanements at the three regional airports are projected to triple by 2030 when compared with 2000. Forecast growth in local air passenger originations in many areas of the region is expected to increase by even more than this figure. Both Metropolitan Washington Airport Authority (MWAA) and Maryland Aviation Administration (MAA) are investing hundreds of millions of dollars through their Airport Improvement Programs to support these growing numbers of travelers. Such airport improvements include the widening of access roads to and at the terminals.

Beyond the immediate boundaries of the airports themselves, however, highway congestion in the region has grown so severe in recent years that many major roads used to access the region's airports remain clogged for an increasing number of hours each day. Though airport destined trips constitute a very small portion of the daily traffic, travel to the airports has been affected by the growth in non-airport related traffic. Traffic chokepoints observed during the 2003 Airport Ground Access Travel Time survey are along the freeways and major arterials that are major commuting routes. For example, major problem areas during the morning and evening rush hour periods along I495, I-270, I-695 (Baltimore Beltway), I-295 (Baltimore Washington Parkway), I95/395 (Virginia), are largely caused by commuters heading to and from work and home.

The current level of congestion on the region's roadways and transit facilities suggests that the future growth in daily travel and airport trips will exacerbate existing traffic problems. This makes completion of some current and planned highway and transit projects critically important for maintaining and improving airport ground access.

In the near term, the nearly complete Springfield Interchange and the Woodrow Wilson Bridge projects should ease congestion at these high volume bottlenecks and result in some immediate improvements in ground access to all three airports. Nonetheless, much more remains to be done.

When completed, the 23 mile, 11 stations Metrorail line extension to Washington Dulles International Airport will significantly increase transit access to Dulles Airport from all parts of the region served by the Metrorail system. This extension will especially improve access and airport options for persons living, work or visiting higher density regional activity centers located in the District of Columbia and Northern Virginia. This rail extension will also greatly facilitate airport-to-airport passenger trips between Dulles International and Ronald Reagan Washington National Airports. This planned transit improvement is a key regional priority for significantly improving airport access in the future.

In Maryland, the construction of the ICC and widening sections of I-270, US 29, MD 28/MD198, I-95, I-295, I-695, US 50, I-97. MD5 and MD210 are some of the highly recommended priorities for improving airport access, particularly to Baltimore Washington Thurgood Marshall Airport. In Virginia, construction of the Tri-County Parkway, the widening of the Dulles Access Road and major sections of VA 28, the Loudoun County Parkway, VA 123, the Fairfax County Parkway, US 1 and the construction of High Occupancy/Toll (HOT) lanes on the beltway between I-395 and the Dulles Toll/Access Road are some of the highly recommended priorities for improving airport access in the Northern Virginia portion of the region.

These critically important regional transportation improvements are recommended for implementation at the earliest possible date to help ensure the attainment of Goal 8 of the TPB Vision, the goal that supports the region as a major national hub of international and inter-regional travel and commerce.

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