This chapter describes the Dulles Corridor and identifies the need for the proposed Dulles Corridor Rapid Transit Project.

The alternative formerly known as "LPA Phase 1" in the October 2003 Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation has been renamed the Wiehle Avenue Extension in this Final EIS and is expected to begin operations in 2011. This change reflects the federal approach to the project's funding under the Federal Transit Administration's New Starts program. It will assure consistency among the environmental, engineering and financial documents during the project's development.

In the October 2003 Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation as well as this Final EIS, the term “full LPA” represents the Wiehle Avenue Extension and the second phase of the Dulles Corridor Rapid Transit Project. This second phase would extend west from Wiehle Avenue to Washington Dulles International Airport and Route 772 and is expected to begin operations in 2015.

The term “LPA”, “proposed action”, or “selected LPA” refers to both the Wiehle Avenue Extension and the full LPA collectively.

Section 1.1 provides an overview of the Dulles Corridor, the corridor needs, and the proposed project. It also includes a brief introduction of the various sponsoring agencies for the project.

Section 1.2 briefly introduces the proposed action for the Dulles Corridor Rapid Transit Project.

Section 1.3 describes the planning context in which the Dulles Corridor Rapid Transit Project was developed, including identification of the various methods used to create public involvement opportunities. In addition to a discussion of previous studies, related studies, and plans, the section includes an overview of the role of this Final Environmental Impact Statement (EIS) in the environmental review and project development process.

Section 1.4 defines the boundaries of both the Washington metropolitan region and the Dulles Corridor, and describes key characteristics of both. The activity centers within the corridor are identified, the existing transportation network is described, and the overall travel patterns between the corridor and the region are outlined.

Section 1.5 discusses the need for transportation improvements in the Dulles Corridor.

Section 1.6 identifies the goals and objectives of the project, which were used to evaluate the relative merits of the alternatives under consideration in this Final EIS.
1.1 OVERVIEW

The Dulles Corridor, located in Northern Virginia, west of the nation’s capital (see Figure 1.1-1) is home to several of the Washington metropolitan region’s most dynamic and rapidly growing activity centers. Extending from the vicinity of West Falls Church Metrorail Station in Fairfax County, Virginia, to Route 772 in Loudoun County, Virginia, the 23-mile corridor includes the high-density office buildings and regional shopping centers of Tysons Corner; the residences, shopping centers, and suburban office complexes of the Reston-Herndon area; the rapidly growing Washington Dulles International Airport (Dulles Airport); and an emerging residential and employment center in eastern Loudoun County.

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

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

The ability to expand roadway capacity in the corridor beyond currently planned improvements is limited. Planned roadway enhancements are not expected to relieve the current state of congestion, which is already near or at gridlock conditions in many locations. Moreover, the existing corridor transit system is limited as an alternative to auto travel because local bus service is also hampered by traffic congestion. Given these factors and a need to reduce auto emissions in the region to meet federal air quality standards, alternative transportation improvements in the Dulles Corridor, such as a high-quality, high-capacity rapid transit line, have long been the focus of public and private sector studies.

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

In recent years, providing a rapid transit connection to Dulles Airport was evaluated in the Dulles Corridor Transportation Study (1997) and the Supplement to the Dulles Corridor Transportation Study (1999). The former, a Major Investment Study (MIS), recommended developing a rail line between the Metrorail Orange Line and Route 772 primarily using the median of the DIAAH. The MIS Supplement in 1999 recommended developing this rail line through a phased implementation program that would begin with enhanced express bus services, then use bus rapid transit (BRT) technology to institute rapid transit service in the Dulles Corridor as quickly as possible. BRT is an emerging transit mode in which buses are used to provide high-quality service akin to a rapid rail system. The BRT line would then be converted to rail use as project development progressed.
Figure 1.1-1

Dulles Corridor

DIAAH/DTR is the Dulles International Airport Access Highway/Dulles Toll Road

0  1.75  3.5 MILES
Most recently, these recommended transit alternatives for the Dulles Corridor were evaluated for the Dulles Corridor Rapid Transit Project Draft Environmental Impact Statement and Section 4(f) Evaluation (Draft EIS) published in June 2002. The results of the evaluation assisted the Commonwealth of Virginia, the Washington Metropolitan Area Transit Authority (WMATA), the Federal Transit Administration (FTA), the Federal Aviation Administration (FAA), local and regional decision-makers, and the public in understanding the potential effects of the alternatives under consideration for the project and in selecting a proposed action. Based on the analysis contained in the Draft EIS, public comments received on the document, and agency coordination, a new Metrorail extension from the existing Orange Line to Route 772 in Loudoun County was selected as the Locally Preferred Alternative (LPA) for the project by the Commonwealth Transportation Board (CTB) and by the WMATA Board of Directors in late 2002. Like the alternative recommended in the 1997 MIS, the rail line would primarily use the median of the DIAAH, leaving the highway to directly serve Tysons Corner and Dulles Airport. However, unlike the recommendations of the MIS Supplement, the selected LPA was not proposed to be developed through a phased implementation program that included BRT as an interim step to rail.

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

The Locally Preferred Alternative, as it is now defined, is described and evaluated in this Final EIS (See Figure 1.1-2). The following chapters contain an analysis of the relative merits and potential impacts of these improvements, as compared to a No Build Alternative.

1.2 PROPOSED ACTION

Based on work completed in prior studies, and in order to respond to continuing transportation needs in the Dulles Corridor, Department of Rail and Public Transportation (DRPT) and WMATA have proposed the Dulles Corridor Rapid Transit Project. The proposed project consists of transit system enhancements operating in the 23-mile Dulles Corridor, providing a seamless connection to the existing Metrorail system. These enhancements would offer an alternative means of travel for the growing number of residents, employees, and visitors in the Dulles Corridor and, as a high-quality link to the Metrorail system, would improve mobility throughout the region. By providing a high-capacity transportation choice for travelers, the proposed project would be better able to meet the anticipated increases in travel demand and help reduce future congestion in the corridor. Moreover, the ability of the proposed improvements to increase person-moving capacity over long distances with fewer numbers of vehicles should help minimize future increases in vehicle miles traveled in the corridor and vehicle emissions.
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The LPA for the Dulles Corridor Rapid Transit Project is an extension of the regional Metrorail system, which would provide service to key activity centers along the corridor, including Dulles Airport. Metrorail is a high-speed passenger rail system that is powered by an electrified third rail and operates in exclusive rights-of-way. By using multiple-car trains, Metrorail is capable of moving high volumes of passengers. Key features of the Metrorail system are fixed stations, dedicated right-of-way, advanced fare collection, relatively simple transfers between different lines, and multiple-door boarding from level platforms.

The LPA follows an alignment that primarily runs along the Dulles Connector Road, the DIAAH, and the Dulles Greenway. At its eastern end, the alignment would directly connect to the Metrorail Orange Line, allowing eastbound trains on the Dulles Corridor line to continue on to East Falls Church Station and the region’s core. Passengers traveling to points east on the Orange Line would not have to transfer; passengers from the Dulles Corridor wishing to travel to points west on the Orange Line would change trains at East Falls Church Station. Through the Dulles Corridor, the LPA would operate at ground level in the median of the Dulles Connector Road, the DIAAH, and the Dulles Greenway, diverting at Tysons Corner and Dulles Airport to provide direct service to these key activity centers.

In the central portion of the Dulles Corridor, the LPA includes stations located in the median of the DIAAH. These median stations would have a similar design to those on the existing Metrorail system, and passengers would access the stations via pedestrian bridges that connect to station facilities located on the north and/or south sides of the Dulles Toll Road.

The LPA also includes one underground station and three aerial stations in Tysons Corner, an underground station at Dulles Airport, and additional median stations along the Dulles Greenway.

The LPA would include a new rail Service & Inspection (S&I) yard near the western end of the corridor, as well as traction power substations, tie-breaker stations, and stormwater management facilities. Traction power substations and tie-breaker stations (ancillary facilities associated with the supply of power to the rail line) would be located at various points along the alignment. In addition, the project would include a new lead track to the West Falls Church S&I Yard and other improvements to accommodate the new rail line. Improvements would include new storage tracks, new maintenance bays in the S&I building, and a sound attenuation box over the existing loop track and a portion of the new lead track.

A more detailed description of the selected Locally Preferred Alternative and a description of the No Build Alternative are presented in Chapter 2.

The proposed project would be constructed in two phases. The phasing of construction is necessary to spread the costs of construction over a longer period of time to reduce annual funding needs. FTA is considering only the first phase of construction (i.e., the segment between West Falls Church and Wiehle Avenue) for New Starts funding from the anticipated six-year reauthorization of the Federal New Starts program. FTA may consider the proposed subsequent phase for FTA funding in the future but has made no commitment to do so. Furthermore, FTA has determined that the first phase now being considered for funding has independent utility even if the subsequent phase is never built. (The first phase serves the high employment area of Tysons Corner.) Therefore, FTA will make a decision on the funding of the first phase without regard to possible future phases.

The Commonwealth of Virginia has proposed the following approach to implement the LPA: DRPT would be the project sponsor, federal grant recipient, design/build contracting authority, and initial owner. WMATA would be DRPT’s technical manager for preliminary engineering and for the design/build contract, leaseholder, operator of the project, and ultimate owner.
1.3 PLANNING CONTEXT

The planning context for the Dulles Corridor Rapid Transit Project includes previous studies and plans, related studies, and the overall process for project development. In the following sections, previous studies related to transit in the Dulles Corridor and plans that include the project as a future improvement are identified, and related studies that would affect or be affected by the project are discussed. In addition, its relationship to the purpose of the Final EIS is explained in more detail, its relationship to the environmental review and project development process is described, and decision-making bodies and required approvals are identified.

1.3.1 PREVIOUS STUDIES AND PLANS

Over the last four decades the transportation needs of the Dulles Corridor and potential improvements for the corridor have been the subject of several studies conducted by public agencies and private businesses. Most of the studies have identified mass transit alternatives as part of the transportation solution for the corridor and, as a result, numerous comprehensive and regional plans have included references to specific transit alternatives, supportive land use measures, and potential funding sources for the Dulles Corridor. Proposed transit solutions for the Dulles Corridor have also been recognized at the federal level, including the identification of the Dulles Corridor Rapid Transit Project as one of the candidate projects to receive federal funding in the Transportation Equity Act for the 21st Century (TEA-21), a federal law that authorizes the government to fund transportation projects.

In the following sections the major studies and plans related to the Dulles Corridor are identified and the alternatives or measures proposed in them are briefly described.

1.3.1.1 Recent Studies

This section includes a discussion of those studies that led most directly to the development of the Dulles Corridor Rapid Transit Project and this Final EIS.

A. Dulles Corridor Transportation Study and Supplement (1997, 1999)

DRPT initiated the Dulles Corridor Transportation Study, a Major Investment Study (MIS), as a response to the Dulles Corridor Plan, adopted by the CTB in 1992. The study and its 1999 Supplement were conducted with the oversight of a policy advisory committee and a technical committee, the guidance of three county-sponsored task forces and committees, and ideas and comments received through extensive public participation.

For the MIS and its Supplement, the study team examined the growth projections for the Dulles Corridor and the region, analyzed changes in travel patterns resulting from development in the corridor, considered a variety of transportation improvements to reflect the identified travel needs, and discussed the costs, benefits, and impacts of these alternatives. It was also determined that the transit improvements should begin at the Orange Line and terminate in eastern Loudoun County, due to the amount of growth projected there.

It was recommended in the MIS that a rail extension of the Metrorail system be implemented in the median of the DIAAH and the Dulles Greenway. The study team for the MIS Supplement subsequently recommended that this rail line be implemented through a multi-modal transportation investment program. The program would begin with express bus service, and then enhanced express bus services would be
implemented. Subsequent phases included developing a BRT system along the DIAAH and converting this BRT system to a rail line in two stages.


The BRT and rail alternatives and the proposed phasing approach developed during the MIS and MIS Supplement were carried forward as the Dulles Corridor Rapid Transit Project. The project is identified in TEA-21 as one of the candidate projects to receive federal funding from FTA. Under the National Environmental Policy Act of 1969 (NEPA), as amended, federal agencies must consider the environmental consequences associated with all alternatives for a project involving federal action. This evaluation of environmental consequences is required to assist decision-makers and the public in evaluating the relative merits of the project (as compared to a No Build Alternative) and in selecting a preferred course of action from the alternatives evaluated.

To address environmental requirements under NEPA and to further advance the project development and review process, a Draft EIS was prepared for the Dulles Corridor Rapid Transit Project. The Draft EIS documents the potential social, environmental, economic, and transportation effects of constructing and operating the proposed rapid transit improvements in the Dulles Corridor. Several alternatives were considered, including a No Build or Baseline Alternative, a BRT Alternative, a Metrorail Alternative, an alternative that combines these modes (BRT/Metrorail Alternative), and a Phased Implementation Alternative, in which the alternatives are implemented through a staged program of rapid transit improvements. All of the proposed Build Alternatives follow an alignment that generally runs along the Dulles Connector Road, the DIAAH, and the Dulles Greenway. Several alignment variations in Tysons Corner and along the DIAAH were examined for each alternative, and multiple rail yard sites were considered for the Metrorail and Phased Implementation alternatives.

Based on the analysis contained in the Draft EIS, agency coordination, and comments received during the public review process, the Metrorail Alternative (T6) with a service and inspection (S&I) yard near Dulles Airport (Y15) was selected in late 2002 by the CTB and the WMATA Board of Directors as the LPA for the project. More detailed information about the evaluated alternatives can be found in Chapter 2 of this Final EIS.

**C. Dulles Corridor Rapid Transit Project Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation (2003)**

After the selection of the LPA, continuing public and agency coordination resulted in modifications to the proposed project, including design modifications to the alignment and facilities and proposed construction of the project in two phases. A Supplemental Draft EIS was prepared to assess the potential effects of the revised LPA on the human and natural environment and to provide a basis for further public discussion. Effects were evaluated relative to those anticipated for a No Build Alternative and the Metrorail Alternative (T6/Y15) evaluated in the Draft EIS and selected as the LPA. In general, the effects and merits of the revised LPA were similar to those presented in the Draft EIS.

Based on the analysis contained in the Supplemental Draft EIS, public comments received on the document, and agency coordination, in March 2004 the CTB approved the revision of the LPA to incorporate the elements required for phased construction and the design refinements outlined in the Supplemental Draft EIS and recommended in the Public Hearings Report. In April 2004, the WMATA Board of Directors took similar action to revise the LPA.
1.3.1.2 Earlier Corridor Studies and Plans

Table 1.3-1 identifies and briefly describes early studies in which high-capacity transit or supportive elements were considered for the Dulles Corridor. Many of the studies recommended potential transportation solutions for the corridor as a whole, whereas others addressed a particular part of the corridor.

Table 1.3-1: Early Corridor Studies and Plans

<table>
<thead>
<tr>
<th>Study/Plan</th>
<th>Description and Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dulles International Airport – Master Plan</td>
<td>The original Master Plan for Dulles Airport envisioned the eventual construction of transit to the airport, indicating that the design of the access road included reserved space in the median which “might ultimately be employed to provide some form of mass transportation, utilizing either bus or rail transit,” (Ammann &amp; Whitney, et al. 1964: 49).</td>
</tr>
<tr>
<td>Report (1964)</td>
<td>In 1985, during the update process for the Dulles Airport Master Plan, FAA recommended that the median of the DIAAH continue to be reserved for a future transit line to the airport. It was anticipated that the future transit line would likely be an expansion of the Metrorail system.</td>
</tr>
<tr>
<td>Adopted Washington Regional Metrorail System</td>
<td>Serving Dulles Airport with rail transit was considered during WMATA’s initial planning and construction of the Metrorail system. However, a Metrorail extension to Dulles Airport was not included in the original Adopted Regional System because the level of development in the corridor did not warrant an extension at that time.</td>
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<tr>
<td>(1969)</td>
<td></td>
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<tr>
<td>Northern Virginia Light Rail, Inc. (1983)</td>
<td>In response to a perceived need for transit improvements in the Dulles Corridor, a private consortium known as Northern Virginia Light Rail, Inc. proposed to collect contributions from local developers to build a light rail line to Dulles Airport. Operation of the line would be turned over to WMATA following construction.</td>
</tr>
<tr>
<td>Dulles Corridor Transit Development</td>
<td>For this study, private-sector strategies for funding transit improvements in the Dulles Corridor were examined. A number of private and public funding mechanisms were considered, and it was determined that a combination of these mechanisms could be used to develop funding for a Dulles Corridor rail line.</td>
</tr>
<tr>
<td>Feasibility Study (1985)</td>
<td></td>
</tr>
<tr>
<td>DartRAIL (1985 – 1992)</td>
<td>A private group named Dulles Access Rapid Transit (DartRAIL) proposed building a rail transit line between the West Falls Church Metrorail Station and Dulles Airport. Proposed funding sources included surplus Dulles Toll Road revenues and assessments and donations from interested parties, property owners, developers, and the operators of Dulles Airport.</td>
</tr>
<tr>
<td>Dulles Airport Access Road Corridor Transit</td>
<td>To evaluate various transit options for the corridor, Fairfax County sponsored an alternatives analysis study that focused on the DIAAH (then called the Dulles Airport Access Road). Study recommendations included pursuing an enhanced express bus system to serve residential neighborhoods and a number of new park-and-ride lots throughout the corridor. The initial elements of the recommended system have since been implemented.</td>
</tr>
<tr>
<td>Alternatives Analysis Study (1990)</td>
<td></td>
</tr>
<tr>
<td>Dulles Corridor Plan (1992)</td>
<td>Recognizing the need for improved transit access in the Dulles Corridor, the CTB passed a resolution that led to the adoption of the Dulles Corridor Plan. The plan endorsed implementation of rail in the Dulles Corridor by 2005. Interim development of high-level bus service and park-and-ride lots were among the actions identified.</td>
</tr>
</tbody>
</table>

1.3.2 FUTURE PLANS

Several local and regional plans identify the Dulles Corridor Rapid Transit Project as an element of the future transportation network. The project is included in these plans as an essential element in meeting future transportation and development goals.

1.3.2.1 County Transportation and Comprehensive Plans

The planned improvements for the Dulles Corridor Rapid Transit Project, or supportive measures for the project, are included in the following plans, which identify needs and planned improvements for the counties as a whole:
PURPOSE AND NEED FOR THE PROPOSED ACTION

- Fairfax County Transportation Plan (1995);
- Fairfax County Comprehensive Plan (2000);
- Loudoun County Countywide Transportation Plan (1995, revised 2001); and
- Loudoun County Revised General Plan (2001).

Because they were completed prior to the 1997 MIS and its 1999 Supplement, the two transportation plans include less specific actions relative to the Dulles Corridor. In the Fairfax County Transportation Plan, the corridor is referenced in the plan’s transportation enhancement map, on which the corridor is highlighted. The Loudoun County Countywide Transportation Plan generally recognizes a need to plan for supportive land uses in the vicinity of future transit centers in specific corridors, including centers at the western end of the Dulles Corridor.

The county comprehensive plans, on the other hand, include much more specific measures in support of planned improvements in the Dulles Corridor. The Fairfax County plan calls for dense development in the corridor, ranging from 8 to 45 dwelling units per acre with a Floor Area Ratio (FAR) – a ratio of the gross floor area of a building to the total area of the site – in excess of 1.0. Higher-density, mixed-use development will be allowed in the core of Tysons Corner in conjunction with proposed rail stations. The Loudoun County plan allows for up to 50 dwelling units per acre to support proposed transit stations along the Dulles Greenway. The Loudoun County Revised General Plan also includes public support for transit services that would use the corridor, such as carpools, vanpools, bus and rail services, and other alternative modes, with specific funding support for bus services.

During work on the Draft EIS, the Dulles Corridor Land Use Task Force was appointed by the Fairfax County Board of Supervisors to review the Fairfax County Comprehensive Plan as part of the County’s commitment to transit supportive policies in the corridor. The Task Force reviewed the plan’s existing land use recommendations for the corridor and recommended changes to better support transit in the Dulles Corridor, such as density increases and mixed-use provisions triggered by the implementation of BRT or Metrorail, and a set of design guidelines that encouraged transit-oriented development. Fairfax County reviewed these changes, and a modified set of changes was forwarded to the County Board of Supervisors for approval. The resulting amendments to the Fairfax County Comprehensive Plan were formally adopted in June 2001 and are described in Chapter 3.

1.3.2.2 Regional Plans and Initiatives

The Dulles Corridor Rapid Transit Project, or supportive measures for the project, are also specifically identified in several regional plans. These regional plans, identified below, focus on issues and needs for the Washington metropolitan region as a whole, or for portions of the region.

- Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region (2003)
- WMATA 10-Year Capital Improvement Plan (2002)
- Northern Virginia 2020 Transportation Plan (1999)

The National Capital Region Transportation Planning Board develops the constrained long-range plan (CLRP) and the TIP for the region. They include projects that are designed to ensure environmental quality and maintain the regional transportation system. All planned projects or studies included in the
PURPOSE AND NEED FOR THE PROPOSED ACTION

CLRP are those for which funds are “reasonably expected to be available.” Highway, transit, and pedestrian/bicycle projects, as well as regional transportation studies, are included. The TIP translates the CLRP into a program of action for the current six-year period. The Dulles Corridor Rapid Transit Project was initially identified in both plans as the phased implementation of rail service in the corridor between the existing Metrorail Orange Line and Route 772 in Loudoun County, with all phases included in the CLRP and the early phases of the project (express bus and fixed-guideway bus) programmed in the TIP. In January 2003, the 2002 CLRP was amended with a resolution to reflect the selection of the LPA for the Dulles Corridor Rapid Transit Project and the capital cost information for the LPA.

The SIP outlines measures and identifies projects intended to help the region achieve or maintain attainment status for six criteria pollutants. The Severe Area Attainment Plan for the Metropolitan Washington, DC Nonattainment Area was developed by the Metropolitan Washington Air Quality Committee (MWAQC), a multi-jurisdictional committee established by the governors of Maryland and Virginia and the mayor of Washington, D.C., to focus on air quality issues in the Washington metropolitan region. The plan, which was incorporated into the SIPs for Maryland, Virginia, and Washington, D.C., identifies transportation emissions control measures intended to bring the region into attainment for ozone. These measures should help reduce emissions by 2020. The Dulles Corridor Rapid Transit Project, as defined in the TIP, is considered one of these measures.

In November 2002, the WMATA Board approved the transit agency’s 10-year Capital Improvement Plan (CIP). The CIP evolved from the Metrorail Core Capacity Study, WMATA, 2001; the Regional Bus Study; and the Infrastructure Renewal Program for Metrorail and Metrobus. Due to the fiscal constraints of the WMATA Compact member jurisdictions, the plan as a whole could not become a funded program. The WMATA Board did identify, by resolution in January 2003, the “unfunded urgent priorities” of the CIP. Those priorities became the basis of the current Metro Matters program, whereby WMATA has successfully garnered funding agreements among its Compact jurisdictions for the most crucial elements of the CIP’s Infrastructure Renewal Program and its Systems Access Program. The Metrorail sub-element of Metro Matters is most important for the Dulles Corridor Rapid Transit Project since it implements eight-car train operations. Metro Matters would fund the Metrorail improvements of the No Build Alternative described in the FEIS. The evaluation of Build Alternatives in the Draft EIS, Supplemental Draft EIS, and this Final EIS have assumed that the No Build Alternative includes eight-car train operations.

The Metro Matters implementation of eight-car train operations involves the procurement of 26 rail cars, expansion of maintenance shops at three yards, upgrade to traction power, and upgrade of automatic train control. Implementation would provide eight-car train operations making up one-third of peak period Metrorail operations. The CIP’s System Access Program also addresses the service reliability of the Metrorail System. Prior to the opening year of the Wiehle Avenue Extension, WMATA will reconfigure the Blue Line and other lines and increase headways from six to seven minutes.

The Northern Virginia 2020 Transportation Plan was developed by the Transportation Coordinating Council of Northern Virginia to meet the transportation needs of the western portion of the Washington metropolitan region. Because the proposed project is consistent with the Northern Virginia goals of reducing commute times, improving regional trip times, and increasing transportation options, the phased implementation of Metrorail in the Dulles Corridor (as recommended in the MIS Supplement) is included in the 2020 Plan.
1.3.3 RELATED STUDIES

The Dulles Corridor Rapid Transit Project is related to several recently completed or ongoing studies. Decisions to be made for this project may be affected by the outcomes and decisions associated with these related studies, and vice versa. These studies and their relationship to the Dulles Corridor Rapid Transit Project are summarized in Table 1.3-2.

Table 1.3-2: Related Studies

<table>
<thead>
<tr>
<th>Study/Plan</th>
<th>Description and Recommendations</th>
<th>Relationship to Project</th>
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<tbody>
<tr>
<td>Metrorail Core Capacity Study, WMATA (2001)</td>
<td>Examined the capacity limits of the existing Metrorail system relative to projected ridership growth. Recommendations included improvements to maximize peak period capacity and the reliability of the existing system, such as the implementation of eight-car train operations, reconfiguration of Blue and Orange line service patterns, and associated improvements.</td>
<td>The baseline condition assumed for the Dulles Corridor Rapid Transit Project includes several improvements to the existing Metrorail system that would be required to meet growth in passenger demand by 2025 and the opening years. These improvements are identified in the Core Capacity Study, planned in the 10-Year CIP, and to be funded initially by Metro Matters.</td>
</tr>
<tr>
<td>Metro Matters, WMATA (2003)</td>
<td>The “unfunded urgent priorities” of the CIP became the basis of the current Metro Matters initiative, whereby WMATA seeks funding from federal sources and its Compact jurisdictions for the most crucial elements of the CIP’s Infrastructure Renewal Program and its Systems Access Program.</td>
<td>The Metrorail sub-element of Metro Matters implements eight-car train operations.</td>
</tr>
<tr>
<td>Capital Beltway Study, Virginia Department of Transportation (VDOT) (ongoing)</td>
<td>Study to identify, design, and assess the best combination of improvements for the Capital Beltway in Virginia. The study area for the proposed improvements extends 14 miles, from Backlick Road in Springfield (the western limits of the Springfield interchange) to the American Legion Bridge, crossing through the eastern end of the Dulles Corridor. Proposed improvements are identified in the Capital Beltway Study Draft EIS (published in March 2002).</td>
<td>This project and the Dulles Corridor Rapid Transit Project will overlap in the vicinity of the Beltway/Route 123 interchange. Metrorail has a higher profile than necessary in order not to conflict with proposed directional ramps of the interchange. During preliminary engineering, both projects’ staffs will continue to work together to coordinate engineering designs.</td>
</tr>
<tr>
<td>Capital Beltway Corridor Rail Feasibility Study, DRPT (2001)</td>
<td>Assessed the feasibility of a fixed-guideway service in the Beltway Corridor between Springfield and Tysons Corner. Several options in the Beltway Corridor were deemed feasible, and several modes and alignments were recommended for further analysis.</td>
<td>Any Beltway Corridor improvements extending into Tysons Corner would need to be coordinated with the planned Dulles Corridor Rapid Transit Project improvements in this area. Depending on the final alignment and timing of proposed improvements, it is anticipated that any further study of Beltway rail will take into account the results and design of the Dulles Corridor Rapid Transit Project. See Figure 1.3-1 to view the intermodal connection between projects.</td>
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![Capital Beltway Corridor Interface](image_url)
### Study/Plan Description and Recommendations Relationship to Project

<table>
<thead>
<tr>
<th>Study/Plan</th>
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</tr>
</thead>
<tbody>
<tr>
<td>I-66 EIS (Outside the Capital Beltway), VDOT/DRPT (ongoing)</td>
<td>MIS for I-66 corridor west of the Capital Beltway (completed January 1999). Recommendations included extension of the Metrorail Orange Line from Vienna to Centreville, improvements in bus and Virginia Rail Express (VRE) commuter rail service, and the addition of general purpose and High Occupancy Vehicle (HOV) lanes to I-66. Draft EIS was initiated in Fall 2001. Study team evaluated transportation conditions and developed initial concepts. The study was put on hold indefinitely in early 2003.</td>
<td>Any improvements examined in the I-66 EIS (if implemented) will have an effect on travel patterns and transit demand in the Dulles Corridor. Any future EIS activities will be coordinated with the Dulles Corridor Rapid Transit Project.</td>
</tr>
<tr>
<td>I-66 Feasibility Study (Inside the Beltway)</td>
<td>The Virginia Department of Transportation (VDOT) is cooperation with the Virginia Division of the Federal Highway Administration, has undertaken a review of I-66 westbound, between Rosslyn and the Dulles Airport Access Highway. The study was initiated in July 2004 and is scheduled to be completed by early 2005. Concepts to be studied, at a minimum, will include transit, roadway widening, High Occupancy Vehicle/High Occupancy Toll Lanes, as well as a No Build option.</td>
<td>Any improvements examined in the I-66 study (if implemented) will have an effect on travel patterns and transit demand in the Dulles Corridor. Future study activities will be coordinated with the Dulles Corridor Rapid Transit Project.</td>
</tr>
<tr>
<td>Metropolitan Washington Airports Authority (MWAA) Capital Improvement Program-Landside (2001-2011)</td>
<td>The $2.6 billion 10-year CIP includes projects designed to enhance the safety, security, and capacity of the Dulles International Airport. Among the improvements are widening and expansion of several roadways providing access to the airport including the DIAAH.</td>
<td>Improvements to the DIAAH, which would widen the facility from 4 lanes to 6 lanes, could require realignment of the Dulles Toll Road at the Herndon-Monroe and Route 28 stations. The design of the Dulles Corridor Rapid Transit Project will be coordinated with the MWAA design of the DIAAH widening.</td>
</tr>
<tr>
<td>Metropolitan Washington Airports Authority (MWAA) Capital Improvement Program-Airside (2001-2011)</td>
<td>FAA in association with MWAA is exploring ways that Dulles Airport can meet the projected demands for air transportation while minimizing impact on the environment through the construction of two new air carrier runways. This study, and preparation of the EIS, will take approximately three years and will include gathering public opinion, defining alternative solutions, and studying environmental and community impacts. A final public hearing is scheduled for the Fall 2004.</td>
<td>The runway approach zone of the proposed north-south runway is in proximity to the project’s S&amp;I Yard 15 on airport property.</td>
</tr>
</tbody>
</table>

### 1.3.4 ENVIRONMENTAL REVIEW AND PROJECT DEVELOPMENT PROCESS

The Dulles Corridor Rapid Transit Project is identified in the Transportation Equity Act for the 21st Century (TEA-21) as one of the candidate projects to receive federal funding from FTA. Under the National Environmental Policy Act of 1969 (NEPA), as amended, federal agencies must consider the environmental consequences associated with all alternatives for a project involving federal action. This evaluation of environmental consequences is required to assist decision-makers and the public in evaluating the relative merits of the project (as compared to a No Build Alternative) and in selecting a preferred course of action from the alternatives evaluated.

NEPA requires that federal decision-making include consideration of the potential impacts of a proposed project and its alternatives on the natural and human environment. If substantial environmental impacts are anticipated and cannot be avoided, a plan for mitigating these impacts must be proposed. As part of the decision-making process, reasonable alternatives that would avoid or reduce adverse impacts must
be considered, analyzed, and documented. In addition, the public must be given adequate opportunity to comment on a proposed project, and the project must be coordinated with appropriate agencies.

The level of documentation required for compliance with NEPA varies depending on the class of the proposed action. Class I actions—such as construction of new highway or rail transit facilities, extensions of rail transit facilities, or construction of separate roadways for buses or HOVs—require the preparation of an EIS. An EIS describes in detail how project actions would affect the environment, as well as any proposed mitigation.

1.3.4.1 The Role of the Final EIS

The primary purpose of the Final EIS is to respond to comments and issues raised during the circulation of the Draft EIS and Supplemental Draft EIS and to provide more detailed information on the design of proposed mitigation for unavoidable impacts associated with the project. The information presented in the Final EIS is based on information developed for the Draft EIS and Supplemental Draft EIS and on numerous preliminary technical studies, and reflects comments or suggestions received in the course of public review and agency coordination activities conducted during the evaluation of alternatives.

This Final EIS presents responses to comments received on the Draft EIS and Supplemental Draft EIS and documents any additional analysis required by the comments on the selected LPA. The document will be circulated for agency review, then FTA, as the lead federal agency, will document the completion of the NEPA environmental review process for the project in a Record of Decision (ROD). The Record of Decision will identify the action to be undertaken, environmental findings resulting from the proposed action, and mitigation commitments associated with project implementation.

In addition to FTA, the Federal Aviation Administration (FAA) has been invited and has agreed to participate as a cooperating agency in the Project’s NEPA review. A cooperating agency is an agency that has jurisdiction by law or special expertise regarding potential environmental impacts resulting from a proposed action. The FAA is participating as a cooperating agency because construction of project elements on airport property will require a revision to the Airport Layout Plan (ALP) for Washington Dulles International Airport and the use of airport property. An ALP is a planning document used by the FAA to identify proposed new runways, runway extensions, terminal buildings, and other major developments on airport property. A change to an approved ALP and transfer of airport property are considered a Federal action that requires FAA environmental review under NEPA.

The FAA will use this Final EIS to satisfy its NEPA responsibilities, including its approval of project elements shown on the March 2004 revision of the ALP for Washington Dulles International Airport, and its concurrence that it meets the environmental review requirements specified in FAA’s Airport Environmental Handbook (Order 5050.4A).

The project elements include the project’s alignment, station, ancillary facilities, and S&I yard located on airport property. These project elements have been shown on the ALP since February 2003, pending completion of the NEPA environmental review process.

Following completion of FTA’s Record of Decision (ROD) on the project, the FAA will issue its own ROD based on the findings of this Final EIS. The FTA ROD signifies Federal environmental approval to construct the project itself, while the FAA ROD documents FAA’s environmental approval of project-related changes to the ALP. FAA’s provisions for any conveyance of airport land related to the project will also be addressed in its ROD. Together, the two RODs will document the project’s compliance with
PURPOSE AND NEED FOR THE PROPOSED ACTION

NEPA and outline any required mitigation measures. The overall environmental review process and schedule are shown in Figure 1.3-2.

1.3.4.2 Decision-Making Bodies and Required Approvals
Several local deliberative bodies are responsible for making decisions during the preliminary engineering and environmental review phase of project development. The CTB, a 17-member board appointed by the Governor of Virginia, is primarily responsible for locating routes, approving construction contracts, creating traffic regulations, naming highways, and administering and allocating transportation funds in Virginia. The CTB’s role on the Dulles Corridor Rapid Transit Project is to select the LPA, as appropriate, prior to the issuance of the Records of Decision by FTA and FAA. Selection is in cooperation with state, regional, and local jurisdictions and agencies. At its December 19, 2002 meeting, the CTB selected the Metrorail Alternative, with Alignment T6 in Tysons Corner and with a S&I yard at Site 15, as the Locally Preferred Alternative based on the information contained within the Draft EIS. On March 18, 2004 the CTB approved the revision of the LPA to incorporate the elements required for phased construction and the design refinements as outlined in the Supplemental Draft EIS and recommended in the Public Hearings Report.

The WMATA Board of Directors is a six-member board consisting, in part, of two principal Directors from each signatory jurisdiction (Virginia, Maryland, and the District of Columbia). In addition, the Board includes six alternate Directors who may act in the absence of the Principal Director. The WMATA Board is responsible for the mass transit plan for the Washington Metropolitan Area Transit Zone, which includes the Dulles Corridor. Concurrent with the CTB’s actions, the WMATA Board of Directors selected and revised the same LPA and amended the Adopted Regional System for Metrorail.

The Metropolitan Washington Airports Authority (MWAA) Board of Directors is a 12-member board whose mission is to direct the development and operation of Ronald Reagan Washington National Airport and Washington Dulles International Airport. In addition to Dulles Airport proper, MWAA operates the DIAAH under a long-term lease from the federal government. Use of the airport roadways and land will require approval of the MWAA Board of Directors and FAA. On November 6, 2002, the MWAA Board voted in favor of a Metrorail Alternative as the Locally Preferred Alternative.

1.3.4.3 Public Involvement
A comprehensive public involvement program has been implemented throughout planning and project development and the environmental review process to support decision-making. A summary of the public involvement process, including agency coordination to date, is included in Chapter 11.

1.4 DESCRIPTION OF THE REGION AND CORRIDOR

From a small collection of communities along the Potomac River, the Washington metropolitan region has grown to an internationally prominent region of more than 4 million people and 2 million jobs. The region has a diversified employment base, with the second-highest concentration of information technology firms in the United States. The region continues to experience growth with a population increase in the last decade of more than 8.5 percent, including more than 350,000 immigrants.

Much of the region’s growth is occurring along suburban corridors in Maryland and Northern Virginia. One of the most important and rapidly developing areas in Northern Virginia is the Dulles Corridor, which is characterized by a variety of residential communities, office complexes, retail centers, and a mix of educational, recreational, and leisure facilities.
Figure 1.3-2
Environmental Review Process and Schedule
1.4.1 REGION AND CORRIDOR BOUNDARIES

For the purposes of discussion in this Final EIS, the “region” is defined as the District of Columbia; the Virginia jurisdictions of Arlington County, City of Alexandria, Fairfax County, City of Fairfax, City of Falls Church, Loudoun County, Prince William County, City of Manassas, City of Manassas Park, and Stafford County; and the Maryland jurisdictions of Calvert County, Charles County, Frederick County, Montgomery County, and Prince George's County (see Figure 1.4-1).

Northern Virginia forms the western portion of the Washington metropolitan region (see Figure 1.4-1). The Northern Virginia Transportation Coordinating Council defines Northern Virginia as the jurisdictions of Arlington, Fairfax, Loudoun, and Prince William Counties; the independent cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park; and the towns of Dumfries, Herndon, Leesburg, and Vienna.

The Dulles Corridor is located in Northern Virginia, and is defined as the east-west corridor extending from the vicinity of the West Falls Church Metrorail Station in Fairfax County to Route 772 in eastern Loudoun County. The 23-mile corridor is primarily located in the northern part of Fairfax County. Together, the Dulles Connector Road, DIAAH, Dulles Toll Road, and the Dulles Greenway serve as the corridor’s central axis.

1.4.2 CORRIDOR ACTIVITY CENTERS

Several major activity centers are located throughout the Dulles Corridor (see Figure 1.4-2). These activity centers include major employment and commercial centers surrounded by low- to medium-density residential development, as well as tourist destinations and educational facilities.

1.4.2.1 Falls Church

The City of Falls Church is located nine miles west of Washington, D.C. and has well-established residential, shopping, and office developments. The Northern Virginia campuses of the University of Virginia and the Virginia Polytechnic Institute (Virginia Tech) Graduate Center are located near the West Falls Church Metrorail Station. Currently, the East Falls Church and West Falls Church stations on the Metrorail Orange Line provide transit access from Falls Church to the core of the region. However, transit access to the Dulles Corridor is limited to express and local bus service, mostly from the West Falls Church Station.

1.4.2.2 Tysons Corner

Tysons Corner, the “downtown” of Fairfax County, lies adjacent to the Capital Beltway (I-495) between the Dulles Toll Road and Leesburg Pike (Route 7). Today, Tysons Corner is larger, in both geographic size and employment, than many of the central business districts in major U.S. cities, and is one of the largest suburban business districts in the country. Approximately 87,000 people work and 26,000 people live in approximately 3 square miles at Tysons Corner. By 2025, Tysons Corner is projected to provide nearly 124,000 jobs and grow to 30,000 residents.

More than 41 million square feet of commercial and retail space has been developed in Tysons Corner. With Tysons Corner Center and Tysons Galleria as its centerpieces, Tysons Corner has emerged as a regional shopping center. These shopping complexes house more than 350 stores and 5.1 million square
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Figure 1.4-I
Washington Metropolitan Region and Northern Virginia

LEGEND
- Regional Jurisdictions
- Water Bodies
- State Boundaries

Note: Metropolitan Washington Region as defined by MWCOG
Eastern Loudoun County
Residential & Mixed-Use Development

Eastern Loudoun County
Commercial & Industrial Development

Reston, Herndon
& Dulles Corner

Tysons Corner

Falls Church

Dulles International Airport

Fairfax

Vienna

Capital Beltway

Maryland

Old Dominion Drive

George Washington Memorial Parkway

Wiehle Avenue

Old Ox Road

Virginia

Loudoun County Parkway

Leesburg Pike

Virginia Avenue

Wiehle Avenue

DULLES GREENWAY

DULLES CONNECTOR

7100 66

LEGEND

Existing Metrorail Orange Line and Stations

Limited Access Highways

U.S. Highways

Major Arterials

Major Activity Centers

DIAAH/DTR is the Dulles International Airport Access Highway/Dulles Toll Road

Figure 1.4-2

Major Activity Centers
and Existing Transportation Network

Dulles Corridor
Rapid Transit Project
feet of retail space, attracting 1.9 million visitors annually. Currently more than eight million square feet of new development is under construction or in the planning phase in the core of Tysons Corner.

1.4.2.3 Reston, Herndon, and Dulles Corner

The planned community of Reston is located in northwestern Fairfax County, five miles east of Dulles Airport. Reston encompasses 7,400 acres, and in 2000 had a population of more than 63,000 people. Commercial facilities are clustered along three main arteries—Reston Parkway, Sunrise Valley Drive, and Sunset Hills Road—all with easy access to the Dulles Toll Road. While Reston Parkway is a north-south road, Sunrise Valley Drive and Sunset Hills Road run parallel to the Dulles Toll Road, roughly between Hunter Mill Road and the Fairfax County Parkway.

Within the Dulles Corridor, Reston has emerged as a center for high-technology firms and residential development. The area has the second largest amount of office development in Fairfax County (Tysons Corner has the largest), and Reston Town Center has more than 50 shops and restaurants, a multiplex theater, an outdoor ice rink, a 514-room hotel, and almost 1 million square feet of office space. Additional high-intensity development is planned for the Town Center, including a significant increase in residential uses, much of which is currently under construction.

The Town of Herndon is located in northwestern Fairfax County, three miles east of Dulles Airport, and occupies 2,337 acres. Herndon has experienced increased growth in the last decade, and has maintained a balance of commercial, residential, and recreational components. Growth is projected to continue, with a build-out potential for Herndon commercial properties in excess of 30 million square feet of floor space.

Dulles Corner is an emerging activity center located at the interchange of the Dulles Toll Road and Route 28. New developments planned for the area include Dulles Station, a mixed-use development project located on 63 acres directly south of the Toll Road and east of Route 28. Fairfax County approved Dulles Station for transit-oriented development consisting of 1.5 million square feet of office space and 1.2 million square feet of space for multi-family residential use. The development will be centered on a planned transit parking area. In addition, more than nine million square feet of non-residential development is planned for Dulles Corner as part of the Dulles Suburban Center, which is identified in the adopted Comprehensive Plan for the area.

The Reston, Herndon, and Dulles Corner areas of Fairfax County are projected to grow to more than 119,000 residents and to provide 106,000 jobs by 2025. While many Herndon and Reston residents work in this growing technology hub, most still commute daily to other areas of the region, such as southern Fairfax County and the outer Northern Virginia suburbs.

1.4.2.4 Dulles Airport

Dulles Airport is an 11,000-acre, full-service, international airport with more than 370,000 annual domestic and international flights to accommodate passengers and air cargo. After several decades of steady growth, activity at the airport increased rapidly in the last several years of the twentieth century. From 1995 to 1998, the number of passengers using the airport increased by 28 percent, from 12.5 million to nearly 16 million. In 1999, Dulles was the fastest growing airport in the nation, serving 19.8 million passengers, a 26 percent increase from 1998, and handling 470,000 aircraft operations, a 23 percent increase from the previous year. More than 20 million passengers used the airport in 2000, including
more than 4 million international passengers. According to the MWAA website, the total number of passengers decreased in both 2001 and 2002 following the events of September 11, 2001. However, it is still anticipated that the airport will be able to accommodate 55 million annual passengers and more than 1 million metric tons of international and domestic freight when all planned facilities are built. Dulles Airport currently employs more than 18,800 people, and as airport passenger and cargo operations increase, employment is projected to increase as well.

Dulles Airport has expanded to accommodate the rapid increase in passengers, and more construction is planned in the future. Expansion of the terminal to twice its former size was completed in 1996, and two new concourses were opened in 1998 and 1999. In 2000, the MWAA launched a six-year, $2.6 billion capital construction program. The program includes construction of an underground people mover between the main terminal and concourses, additional public parking, a new concourse, and two new runways. At full build-out, Dulles will be able to handle 55 million passengers per year (150,000 per day).

The Smithsonian Institution’s National Air and Space Museum Steven F. Udvar-Hazy Center is located on the south end of the airport property. The museum, which opened in December 2003, is a 700,000-square-foot facility on a 176-acre site. The Institution estimates that three million people will visit the museum annually. This number is projected to increase to five million annual visitors within a few years.

1.4.2.5 Eastern Loudoun County
Over the past ten years Loudoun County, in the westernmost portion of the Dulles Corridor, has experienced substantial growth spurred by the high-tech industry. America Online/Time Warner, MCI, and Orbital Sciences have added a total of 7,350 jobs to the eastern portion of the county. Nearly 50 percent of these jobs are located in Ashburn, home to the MCI campus. The campus is currently in the second phase of development and employs 3,300 people.

Most of the commercial development in Loudoun County is focused along Route 28, between Dulles Airport and Route 7. Due to its proximity to the airport, this area also includes a large amount of industrial development. In total, eastern Loudoun County is planned to include 9.2 million square feet of industrial space. There are a number of industrial parks to the north of Route 606 and the airport, the largest of which is the Beaumeade Corporate Park. This industrial park has more than 1.8 million square feet of office and industrial development already in place and is approved for a total of 3.5 million square feet in the future. A number of smaller office and industrial developments (existing and planned) are located closer to Route 606.

In addition to job growth, Loudoun County has been experiencing extensive population growth. Between 1990 and 1999, the county’s population grew at a rate of roughly seven percent per year, making it the fastest-growing county in Virginia and one of the fastest growing counties in the nation. Much of this residential growth has occurred north of the Dulles Greenway and west of the Route 28 corridor.

Future development is planned for the residential communities of Ashburn Village and Ashburn Farm, which will have more than 9,000 homes and nearly 23,000 residents when completed. Other planned residential developments, which will include a mix of land uses, are Belmont, Broadlands, and Brambleton. Together these communities will include more than 11,000 homes, as well as substantial office and retail development. Much of this future development will be concentrated along the Dulles Greenway, west of the Route 28 corridor. In addition, two adjacent mixed-use developments, Loudoun
Station (awaiting site plan approval) and Moorefield Station, are planned for the areas north and south of the Route 772/Dulles Greenway interchange, near the proposed Route 772 Station.

1.4.3 CORRIDOR TRANSPORTATION SYSTEM

The transportation system in the corridor includes the existing roadway and transit networks. The diverse roadway network ranges from limited access highways to local streets. The transit network includes services from several providers, but is primarily limited to bus transit.

1.4.3.1 Roadway Network

The heart of the Dulles Corridor roadway network is the east-west transportation facility formed by the Dulles Connector Road, the DIAAH, the Dulles Toll Road in Fairfax County, and the Dulles Greenway in Loudoun County (see Figure 1.4-2).

The Dulles Connector Road is a four-lane facility that serves traffic using I-66 to and from the east, the Capital Beltway, Route 123, the Dulles Toll Road, and the DIAAH. In the eastbound direction, the shoulder of the Connector Road has been widened and reinforced, and buses are permitted to use it during periods of severe congestion. The Dulles Connector Road is owned by the federal government, leased by MWAA, and operated by Virginia Department of Transportation (VDOT).

The DIAAH is located in the median of the Dulles Toll Road and is reserved for travelers with business at Dulles Airport, including air passengers, air-freight customers, and employees. In peak periods, this roadway also provides access for express buses serving Fairfax County and Dulles Airport. The DIAAH is owned by the federal government, but is operated by MWAA under a long-term lease agreement with FAA.

The Dulles Toll Road is an eight-lane toll facility that provides direct access between the Capital Beltway, eastern Loudoun County, and various activity centers in between. The Dulles Toll Road is operated by VDOT.

The Dulles Greenway is a four- and six-lane privately owned toll facility that connects to the Dulles Toll Road at Route 28 and extends to the Route 7 Bypass east of Leesburg. Together, the Toll Road and the Greenway form Route 267.

Other regionally essential roadways include Interstate 66 (I-66), Interstate 495 (I-495, Capital Beltway), Route 7 (Leesburg Pike), Route 123 (Chain Bridge Road/Dolley Madison Boulevard), Route 193 (Georgetown Pike), Route 7100 (Fairfax County Parkway), Route 28 (Sully Road), Route 50 (Lee-Jackson Memorial Highway), and the Loudoun County Parkway. Route 7 and Route 193 form the northern boundary of the corridor, while I-66 and Route 50 form the southern boundary. These roadways are primarily oriented east-west. I-495, Route 123, Route 7100, and Route 28 provide north-south passage through the corridor, connecting to its northern and southern boundaries, and, in most cases, extending beyond the corridor.

With the exception of Route 193 and portions of the Loudoun County Parkway, which have two lanes in some locations, these regional roadways are limited-access freeways or arterial routes with at least four lanes. Portions of I-66, Route 7, Route 123, Route 50, and Loudoun County Parkway have six lanes, and Route 28 has six lanes throughout. I-495 is an eight-lane facility. Segments of several of these regional roadways are planned for expansion within the next ten years.
Other key roadways in the corridor that provide access to the DIAAH, the Dulles Toll Road, and the Greenway include Hunter Mill Road, Wiehle Avenue, Reston Parkway, Centreville Road, and Route 606. These roads primarily serve local travelers in north and central Fairfax County and eastern Loudoun County. Hunter Mill Road provides north-south access through most of the corridor, roughly extending between Route 7 in the north and I-66 in the south. Similarly, Reston Parkway allows north-south travel through the corridor, extending between Route 7 and the southern portion of Reston, where it briefly becomes Lawyers Road, then merges into Route 608 (West Ox Road), and eventually connects to Route 50 at the southern end of the corridor. Centreville Road and Route 606 serve travel in the vicinity of Dulles Airport, extending between the Town of Herndon and Route 50. Centreville Road serves travelers on the east side of the airport, whereas Route 606 runs along the northern and western edges of the airport.

Two other roadways of note are Sunset Hills Road and Sunrise Valley Drive. These collector roadways parallel the Dulles Toll Road, and provide access to neighborhoods and office complexes bordering the Toll Road. To some extent, Sunset Hills Road and Sunrise Valley Drive are alternative routes to the Toll Road through Reston.

1.4.3.2 Transit Network

Existing transit services within the Dulles Corridor include Metrorail and Metrobus operated by WMATA, express and local buses provided by Fairfax County, express and local buses provided by Loudoun County, and Washington Flyer buses provided by MWAA. These transit services are integrated with transit centers and park-and-ride lots throughout the corridor.

A. WMATA

WMATA is the Washington, D.C. metropolitan region’s primary public transportation provider. Created in 1967 through a congressionally approved interstate compact, WMATA is the public agency responsible for planning, developing, constructing, and operating the regional rail, bus and paratransit systems. The agency now operates a multi-branch network stretching nearly 1,500 square miles of the District of Columbia, Arlington County, Fairfax County, the City of Alexandria, and the City of Fairfax in Virginia; and Montgomery and Prince George’s counties in Maryland—an area encompassing approximately 3.2 million residents.

Metrorail is the rapid rail component of WMATA’s public transportation system (see Figure 1.4-3). With 103 miles of track and 83 stations, the Metrorail system connects major activity centers within the region’s urban core to those within and beyond the Capital Beltway. The system also links to the two regional commuter rail systems: Virginia Rail Express (VRE) and the Maryland Rail Commuter (MARC) service. In 2004, the Metrorail system carries approximately 650,000 weekday passengers. The Metrorail Orange Line serves the southeastern portion of the Dulles Corridor, with stations at East Falls Church, West Falls Church, Dunn Loring, and Vienna (see Figure 1.4-3). These stations primarily serve travel to and from the region’s core, and do not adequately serve travel within the Dulles Corridor.

Metrobus, WMATA’s regional bus system, operates 322 routes. Systemwide, Metrobus carries 510,000 daily passengers in 2004. Currently, 14 Metrobus routes operate in the Dulles Corridor, primarily providing service between Tysons Corner, the corridor Metrorail stations, and areas to the south and east. Several of the routes also provide feeder service to the Ballston and Rosslyn Metrorail stations in Arlington. One route provides express service between downtown Washington, D.C. and Dulles Airport, with stops at the Tysons-West Park Transit Station and the Herndon-Monroe Park-and-Ride, and another provides express service between downtown and Tysons Corner Center. Though some routes operate
Figure 1.4-3
Regional Metrorail System

LEGEND
- Red Line • Glenmont to Shady Grove
- Orange Line • New Carrollton to Vienna/Fairfax-GMU
- Blue Line • Franconia-Springfield to Largo Town Center
- Green Line • Branch Ave to Greenbelt
- Yellow Line • Huntington to Mt Vernon Sq/7th St-Convention Center
with 20- or 60-minute headways, most operate with 30-minute headways during the peak period. Many corridor buses are frequently delayed by heavy traffic congestion in Tysons Corner and elsewhere in the region.

B. Fairfax County

Fairfax County provides public transportation via the Fairfax Connector bus system. The system includes 54 regular routes operating throughout the county, some of which provide connections to Falls Church, Arlington, and Alexandria. The Fairfax Connector service also includes four Reston Internal Bus Service (RIBS) routes, which provide circulator service within the Reston-Herndon area. Fairfax Connector had 27,800 average weekday boardings systemwide in 2004.

The Dulles Corridor is served by 28 of the Fairfax Connector routes. This service includes Express Bus Service operating in the DIAAH and Dulles Toll Road, RIBS circulator service in Reston-Herndon, and circulator services operating within Tysons Corner. In general, peak service frequencies range from 15 minutes to 30 minutes. In 2003, Fairfax Connector ridership in the corridor was on average approximately 13,800 weekday passengers.

C. Loudoun County

Currently, Loudoun County contracts to provide 16 peak-period express bus trips from the eastern part of the county to Rosslyn, the Pentagon, the State Department, and other locations in downtown Washington, D.C. The County also provides reverse-peak express trips from West Falls Church Metrorail Station to Dulles North Transit Center and the AOL/MCI campuses in the county (one trip in the a.m. peak, two trips in the p.m. peak). Recently, the County began offering local circulator services along Route 7, in the Sterling and Purcellville areas, and between Dulles Town Center and Dulles Airport. A major hub for the County's express and local service is the 750-space Dulles North Transit Center at the north end of Dulles Airport near the Route 606/Dulles Greenway interchange. In 2004, Loudoun County’s Express Bus Service serves about 1,700 average weekday passengers.

D. Transit Centers

An important element of the existing Dulles Corridor transit service is the network of bus transit centers and park-and-ride lots. Overall, there are ten bus transit facilities in the corridor, including the Dulles North Transit Center, the Herndon-Monroe Park-and-Ride lot in Herndon, 3 park-and-ride lots in Reston (Reston South, Reston East, and Reston North), and the Tysons-West Park Transit Station in Tysons Corner, among others. Most of these transit centers provide short-term parking or Kiss & Ride spaces for passengers being dropped off or picked up, and seven centers also provide all-day parking for commuters. Commuter parking is in heavy demand at the eastern end of the corridor. As a result, the parking facilities at the East Falls Church and West Falls Church Metrorail stations, and at the Reston East Park-and-Ride near the Wiehle Avenue/Dulles Toll Road interchange are generally full on an average weekday.

1.4.4 TRAVEL PATTERNS

Historically, the largest segment of travel in the Washington metropolitan region consisted of work travel between suburban homes and jobs in the urban core, and discretionary trips within suburban residential areas. However, continuing growth in employment and retail development in the Maryland and Northern Virginia suburbs shows the changing patterns in which people commute, shop, and travel. Regional travel currently includes a growing number of suburb-to-suburb work trips, core-to-suburb work trips, and discretionary trips to regional entertainment and shopping centers in the suburbs.
As one of the major suburban employment and retail centers in the region, the Dulles Corridor attracts work trips from residences in the core and other suburban areas, as well as shopping and entertainment trips to venues such as Tysons Corner Center, Tysons Galleria, and Wolf Trap National Park. Corridor travel also includes traditional trips from residences in the corridor to jobs in the urban core, trips to work centers in other suburban areas, and discretionary trips from residences to nearby shopping and services.

Though corridor-related trips are projected to increase from 2.2 million to 3.2 million trips per day by 2025, only minor changes in travel patterns are expected within the corridor, because most of the employment and population growth in the corridor is planned for existing and emerging activity centers. The existing and expected patterns for corridor-related travel are summarized in Tables 1.4-1 to 1.4-3. These tables do not present information on travel to and from various areas within the corridor; rather, travel patterns are shown for the corridor as a whole.

Table 1.4-1: Total Weekday Corridor-Related Travel

<table>
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<th>Movement</th>
<th>2000</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor Related Trips</td>
<td>Corridor Related Trips</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>Within Corridor</td>
<td>870,000</td>
<td>40%</td>
</tr>
<tr>
<td>Between Corridor and Fairfax Other</td>
<td>650,000</td>
<td>30%</td>
</tr>
<tr>
<td>Between Corridor and Virginia Other</td>
<td>270,000</td>
<td>13%</td>
</tr>
<tr>
<td>Between Corridor and Arlington Core</td>
<td>200,000</td>
<td>10%</td>
</tr>
<tr>
<td>Between Corridor and Montgomery Other</td>
<td>160,000</td>
<td>7%</td>
</tr>
<tr>
<td>Corridor-Related Trips</td>
<td>2,150,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Trip totals are rounded to the nearest 10,000 and percentages are rounded to the nearest percent. As a result, some totals do not equal 100 percent.

"Fairfax Other" includes those portions of Fairfax County that are not part of the Dulles Corridor. "Virginia Other" includes the City of Alexandria, outlying portions of Loudoun County, and other outlying Virginia counties. "Core" includes the central portion of Washington, D.C. "Montgomery" is Montgomery County, Maryland. "Other" includes other portions of Maryland and portions of Washington, D.C. outside the core.

Source: Projections prepared using MWCOG Round 6.3 Cooperative Forecasts.

Table 1.4-2: Total Weekday Corridor-Related Work Travel

<table>
<thead>
<tr>
<th>Movement</th>
<th>2000</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor Related Work Trips</td>
<td>Corridor Related Work Trips</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>Between Corridor and Fairfax Other</td>
<td>140,000</td>
<td>30%</td>
</tr>
<tr>
<td>Within Corridor</td>
<td>110,000</td>
<td>24%</td>
</tr>
<tr>
<td>Between Corridor and Virginia Other</td>
<td>80,000</td>
<td>18%</td>
</tr>
<tr>
<td>Between Corridor and Arlington Core</td>
<td>70,000</td>
<td>14%</td>
</tr>
<tr>
<td>Between Corridor and Montgomery Other</td>
<td>60,000</td>
<td>13%</td>
</tr>
<tr>
<td>Corridor-Related Work Trips</td>
<td>460,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Trip totals are rounded to the nearest 10,000 and percentages are rounded to the nearest percent. As a result, some totals do not equal 100 percent.

Source: Projections prepared using MWCOG Round 6.3 Cooperative Forecasts.
Table 1.4-3: Total Weekday Corridor-Related Work Travel by Transit

<table>
<thead>
<tr>
<th>Movement</th>
<th>2000</th>
<th>Percent of Total</th>
<th>2025</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Corridor and Arlington Core</td>
<td>19,000</td>
<td>53%</td>
<td>26,000</td>
<td>47%</td>
</tr>
<tr>
<td>Between Corridor and Fairfax Other</td>
<td>5,000</td>
<td>14%</td>
<td>8,000</td>
<td>14%</td>
</tr>
<tr>
<td>Within Corridor</td>
<td>4,000</td>
<td>11%</td>
<td>9,000</td>
<td>17%</td>
</tr>
<tr>
<td>Between Corridor and Montgomery Other</td>
<td>5,000</td>
<td>14%</td>
<td>8,000</td>
<td>15%</td>
</tr>
<tr>
<td>Between Corridor and Virginia Other</td>
<td>3,000</td>
<td>7%</td>
<td>4,000</td>
<td>7%</td>
</tr>
<tr>
<td>Corridor-Related Work Trips by Transit</td>
<td>36,000</td>
<td>100%</td>
<td>55,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Trip totals are rounded to the nearest 1,000 and percentages are rounded to the nearest percent. As a result, some totals do not equal 100 percent.

Source: Projections prepared using MWCOG Round 6.3 Cooperative Forecasts.

1.4.4.1 Overall Travel

The majority of travel in the Dulles Corridor is between points within the corridor or between the corridor and other parts of Northern Virginia. According to estimates prepared by the project team, based on MWCOG projections of population and employment, approximately 40 percent of all corridor-related travel in 2000 was between homes and activity centers within the corridor. An additional 30 percent of corridor-related travel was between the corridor and the southern portions of Fairfax County, and approximately 13 percent was from the outer Virginia suburbs (including western Loudoun, Prince William, Fauquier, and Stafford Counties, and other outlying jurisdictions) to the corridor. Approximately ten percent of corridor-related trips are to and from Arlington County and the regional core, while the remaining seven percent of trips are to and from the Maryland suburbs and Washington, D.C.

In the next 25 years, these patterns are expected to change very little, though the number of trips is expected to increase considerably, especially between the corridor and the outer Virginia suburbs. Travel within the corridor is projected to remain the largest share of corridor-related travel. The next largest share of corridor-related travel is expected to be to and from other parts of Northern Virginia, though the percentage of trips to other parts of Fairfax County is expected to decrease to 26 percent, while the share of trips to and from the outer Virginia suburbs is expected to increase to 18 percent.

Travel to and from the Dulles Corridor is currently spread fairly evenly among the various activity centers. Vienna and the southern parts of the corridor produce a slightly larger share of trips due to the greater concentration of residential developments in these areas. Trips go to and come from all parts of the corridor and the region, but most trips in the corridor begin and end within one activity center or involve travel between neighboring activity centers.

Dulles Airport draws travelers from the entire region, including air passengers, airport employees, and freight carriers. Based on 1998 MWAA traffic counts, approximately 60 percent of the airport traffic uses the DIAAH, and 40 percent of travelers access the airport via Route 28. As the overall number of trips to the airport vicinity increases, the share of traffic coming from the Route 28 corridor is also expected to increase.

1.4.4.2 Work Travel

A key component of the overall travel patterns for the Dulles Corridor is work travel. Work trips most directly influence the effectiveness of the transportation system, because they tend to be limited to the morning and evening peak periods, resulting in the maximum traffic volumes experienced by the system.
For current corridor-related work travel, the largest movements are between the corridor and the southern portions of Fairfax County (30 percent) and between residences and jobs within the corridor (24 percent). Nearly 60 percent of the trips between the corridor and southern Fairfax County are from residences in the county to jobs in the corridor; corridor residents who work in the county make up the remaining 40 percent. Approximately 18 percent of corridor-related work travel consists of trips between the outer Virginia suburbs and the corridor; most of these trips are from residences in the outlying areas to jobs in the corridor. Corridor residents who are employed in western Arlington and the regional core make up another 14 percent of corridor-related work trips, and the remaining 13 percent are between the corridor and the Maryland suburbs and non-core portions of Washington, D.C.

By 2025, it is expected that corridor-related work travel patterns would shift slightly. Jobs within the corridor are expected to attract an increasing share of corridor residents and residents of the outer Virginia suburbs. At the same time, the share of work trips between the corridor and other portions of Fairfax County is expected to decrease. Likewise, it is anticipated that the share of corridor residents attracted to jobs in the region’s core would decrease.

In 2000, nearly 30 percent of all the work trips attracted to the Dulles Corridor went to Tysons Corner. The remaining trips were distributed uniformly between employment centers in Reston, Herndon, Dulles Airport, eastern Loudoun County, and the southern portion of the corridor near Vienna. By 2025, the anticipated growth in eastern Loudoun County is expected to cause a shift in the distribution of work travel within the corridor. The largest share of corridor work trips (28 percent) is expected to go to eastern Loudoun County and the Tysons Corner share of the market would decrease to 25 percent, though the absolute number of trips to both places are expected to increase substantially (from 45,000 to 132,000 daily trips in Loudoun County, and from 85,000 to 118,000 daily trips in Tysons Corner). Reston and Vienna are also expected to attract a smaller share of corridor work trips. The majority of the eastern Loudoun County employees are expected to live in that portion of the corridor or in the outer Virginia suburbs.

1.4.4.3 Work Travel by Transit

Currently, few corridor residents and employees use transit to travel to work. Based on estimates prepared using the Northern Virginia Major Investment Study Model (NVMISM) and the recent MWCOG population and employment forecasts, only 12 percent (30,000 trips) of the work trips beginning in the corridor are made using transit, and an even smaller percentage of travelers commuting to jobs in the corridor use transit (5 percent or 10,000 trips).

Corridor residents who work in western Arlington and the region’s core are far more likely to use transit for their commute than other travelers in the Dulles Corridor. For work travel, residents of the Dulles Corridor who work in western Arlington and the core make 60 percent of all corridor-related transit travel. The next largest share of this travel market are work transit trips between the corridor and southern Fairfax County (15 percent), most of which are made by county residents who work in the corridor. Corridor residents who also work in the corridor make up an additional ten percent of work transit trips. This pattern is not expected to change considerably by 2025, in the absence of the proposed project.

About 53 percent of the corridor-related work transit trips are associated with the West Falls Church and Vienna areas, most likely due to the presence of Metrorail. Most of these trips are made by residents of these areas, rather than by employees. Approximately 23 percent of corridor-related work transit trips are to and from Tysons Corner; however, employees of Tysons Corner rather than residents mostly make
these trips. Residents in the Reston area generate an additional 11 percent of work transit trips in the corridor.

For the baseline condition in 2025, the overall number of work trips made by transit is expected to increase by close to 20,000 trips per day, but the patterns of transit travel are not expected to change substantially. Only 47 percent of the corridor-related work transit trips in 2025 are anticipated to be either to or from West Falls Church and Vienna, whereas Reston transit trips are expected to increase to 14 percent. The share of work transit trips bound for Tysons Corner is not expected to change in 2025.

1.5 NEED FOR IMPROVEMENTS

The transportation needs of the Dulles Corridor have been documented previously in numerous studies and plans (see Section 1.3). The analyses conducted for these studies focused on several interrelated elements.

- **Anticipated Population and Employment Growth.** Growth in the Dulles Corridor is expected to continue at higher rates than the region as a whole.
- **Future Land Use and Development Plans.** Local land use plans call for higher-intensity office, retail, and residential development at existing activity centers in the corridor, and allow for concentrated development on parcels at the emerging activity centers in Dulles Corridor and eastern Loudoun County.
- **Increased Travel Demand.** More residents and more job opportunities, when combined with expected increases in passenger and freight operations at Dulles Airport, will result in higher travel demand on highways and streets in the Dulles Corridor and throughout the region.
- **Limitations of the Existing and Planned Roadway System.** Existing travel demand is straining the roadway system to its capacity, resulting in moderate to severe congestion throughout the Dulles Corridor. Despite planned capacity improvements for various corridor roadways, the future highway system will be unable to meet the anticipated increases in travel demand. However, with a limited amount of remaining right-of-way, the corridor will be unable to support further roadway capacity enhancements.
- **Limitations of the Existing Transit System.** Many existing transit services are a poor alternative to auto travel, because they are also affected by increasing roadway congestion and many services have higher travel times between key origins and destinations than travel by private auto. In the future, transit services that continue to operate on congested roadways will not effectively serve growth in travel demand.
- **Air Quality.** The inability to serve the anticipated demand will cause substantial deterioration in highway and transit operations in the Dulles Corridor, contributing to increased air quality problems in the Washington metropolitan region.

The combined effect of these elements creates a need for improved transportation alternatives and connections in the Dulles Corridor.

1.5.1 ANTICIPATED POPULATION AND EMPLOYMENT GROWTH

MWCOG expects that population and employment in the Dulles Corridor will increase more rapidly than the metropolitan regional averages. Analysis of MWCOG’s Cooperative Forecast Data on population, employment, and household growth shows that by 2025, the corridor will experience a 63 percent increase in jobs, compared to an average increase of 41 percent throughout the region. Likewise,
population in the corridor is expected to increase 45 percent between 2000 and 2025, compared to 32 percent population growth in the region. MWAA projects that Dulles Airport will experience considerable increases in air travel patronage, air cargo operations, and employment. Growth in passenger use alone is projected to reach 55 million trips by 2035—more than twice the current level.

Given these projected levels of growth, improving corridor mobility and creating better intermodal connections will be key factors in meeting the transportation needs of residents and employees in the corridor, as well as the needs of increasing numbers of visitors to the region.

1.5.1.1 Population

Growth statistics for the Washington metropolitan region indicate that current and anticipated growth in suburban population centers far outpaces residential growth in the region’s core, especially for centers in Northern Virginia. According to MWCOG and U.S. Census data, in 1960 Washington, D.C. was the region’s largest population center with 764,000 residents, and Fairfax County was the region’s fourth largest jurisdiction with 275,000 residents. By 2000 the two jurisdictions had switched places: Fairfax was the largest jurisdiction in the region, with almost 970,000 residents, compared to Washington, D.C.’s 572,000 residents according to census data. The latest MWCOG forecasts indicate that this growth trend is expected to continue, with Fairfax County population totals reaching about 1.2 million residents. This total exceeds not only Washington, D.C.’s projected total (666,000 residents), but also the total for Washington, D.C., Arlington County, and the City of Alexandria combined (1 million residents). Moreover, in this same time frame, the outer suburbs in Northern Virginia are expected to grow at a substantial rate. In Loudoun County alone, the population is expected to increase 150 percent from about 169,000 people to over 422,000 people.

Growth trends in Fairfax County and Loudoun County are reflected in the anticipated growth for the Dulles Corridor. As shown in Table 1.5-1, the regional population is expected to increase from nearly 4.5 million residents to around 5.9 million residents by 2025, an increase of about 32 percent. At the same time, the population in the Dulles Corridor is expected to grow by about 45 percent, from approximately 370,000 residents to about 540,000 residents.

Table 1.5-1: Population within the Region and the Dulles Corridor

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>4,458,797</td>
<td>4,877,851</td>
<td>5,208,832</td>
<td>5,507,071</td>
<td>5,887,286</td>
</tr>
<tr>
<td>Persons/Acre</td>
<td>1.60</td>
<td>1.75</td>
<td>1.87</td>
<td>1.98</td>
<td>2.12</td>
</tr>
<tr>
<td>Corridor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>371,578</td>
<td>425,295</td>
<td>469,787</td>
<td>500,716</td>
<td>539,294</td>
</tr>
<tr>
<td>Persons/Acre</td>
<td>3.23</td>
<td>3.70</td>
<td>4.09</td>
<td>4.36</td>
<td>4.69</td>
</tr>
</tbody>
</table>

Source: MWCOG, Round 6.3 Cooperative Forecasts

The bulk of the population growth in Fairfax County will be concentrated around Tysons Corner, Reston, and Herndon, with densities reaching greater than ten persons per acre. In the Loudoun County portion of the corridor growth is projected to occur primarily in the eastern portion of the county, along the Dulles Greenway and Route 28. Here, the number of residents is expected to increase to almost 167,000 from 2000 to 2025. This is an increase of more than 103,000 residents and represents more than 37 percent of all population growth in Loudoun County.
1.5.1.2 Employment

Despite strong employment growth in the Maryland and Northern Virginia suburbs, MWCOG Cooperative Forecasts show that, in 2000, Washington, D.C. had the single largest concentration of employment, with nearly 680,000 jobs. The urban core is expected to remain the largest regional employment center, as it continues to contain the seat of government and the headquarters of most federal agencies. The next largest employment centers were Montgomery County and Fairfax County, with approximately 545,000 jobs and about 573,000 jobs, respectively. Overall, the combined employment totals for the inner suburbs (1.4 million jobs in Montgomery, Prince George’s, and Fairfax Counties, and Rockville, City of Falls Church, and City of Fairfax) were greater than those for the three central jurisdictions (about 978,000 jobs in Washington, D.C., Arlington County, and City of Alexandria).

In 2025, Washington, D.C. is expected to remain the region’s largest employment center, with an increase of approximately 153,000 jobs. The largest absolute job growth is anticipated in Fairfax and Prince George’s counties, with increases of approximately 205,000 jobs and 190,000 jobs, respectively. However, the largest percentage growth in employment, by far, is expected in Loudoun County with a 158 percent increase in jobs. Throughout the region, nearly two thirds of all new jobs are anticipated to be in the service industry, which includes professions related to engineering, computer and data processing, business services, and medical research, among others.

Reflecting the substantial employment increases in Fairfax and Loudoun counties, the Dulles Corridor is projected to have a similar increase in employment between 2000 and 2025. Table 1.5-2 shows that regional employment is forecast to grow by nearly 41 percent between 2000 and 2025—higher than the rate seen for population and household growth. The number of jobs in the Dulles Corridor is projected to increase by roughly 63 percent, adding nearly 185,000 jobs to the corridor.

Table 1.5-2: Employment within the Region and the Dulles Corridor

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>2,826,210</td>
<td>3,079,949</td>
<td>3,376,883</td>
<td>3,584,716</td>
<td>3,994,729</td>
</tr>
<tr>
<td>Jobs/Acre</td>
<td>1.02</td>
<td>1.11</td>
<td>1.21</td>
<td>1.29</td>
<td>1.44</td>
</tr>
<tr>
<td>Corridor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>292,067</td>
<td>339,679</td>
<td>387,332</td>
<td>413,549</td>
<td>477,047</td>
</tr>
<tr>
<td>Jobs/Acre</td>
<td>2.54</td>
<td>2.96</td>
<td>3.37</td>
<td>3.60</td>
<td>4.15</td>
</tr>
</tbody>
</table>

Source: MWCOG, Round 6.3 Cooperative Forecasts

The Fairfax County portion of the corridor is expected to have the largest absolute increase in number of jobs, but it is anticipated that the Loudoun County portion of the corridor will have the largest percent increase in employment. According to MWCOG data, it is anticipated that about 83,000 jobs will be added from 2000 to 2025 in the Loudoun County portion of the corridor, resulting in an average density of more than 4 jobs per acre in the employment zones along the Dulles Greenway, and accounting for almost 60 percent of all employment growth in Loudoun County. A major contributor to job growth in Loudoun County is Dulles Airport, which is one of the largest employers in the corridor with more than 18,800 employees. As passenger and cargo operations at Dulles Airport increase, employment is projected to increase to 65,000 employees by 2035.
1.5.2 FUTURE LAND USE AND DEVELOPMENT PLANS

The economic benefits of new development in the Dulles Corridor are influential not only for Fairfax and Loudoun counties, but for the region as a whole. Improved transportation alternatives and connections are needed to keep pace with the increased travel demand and the patterns of travel created by new development. In response to growing population and employment in the corridor, residential development and commercial real estate activity are occurring at a record pace. More than 23 million square feet of development has recently been constructed or approved for development. As noted in Section 1.4, much of this development is occurring in the vicinity of Dulles Airport at the western end of the corridor. Activity centers such as Dulles Corner and eastern Loudoun County are becoming known as technology and communications centers. Rapidly growing high-tech companies and professional service firms are purchasing and developing large amounts of land in these areas, fueling the region’s largest commercial construction boom in a decade.

Most of the planned development in the corridor over the next 25 years is slated to occur in the existing and emerging activity centers. Development in Tysons Corner is expected to intensify, including higher-density infill development and redevelopment. Office development will be supported by retail and services, and in some cases will be intermixed with higher-intensity residential development. Undeveloped land in the Reston-Herndon area is planned for additional office, retail, and residential use. In the vicinity of key interchanges along the Dulles Toll Road, existing commercial development could be intensified. The current development activities in Dulles Corner and eastern Loudoun County will continue, including large-scale regional office development, hotels, industrial parks, higher-density residential development, and mixed-use development with office, residential, and retail space.

New development is also planned at Dulles Airport to accommodate the anticipated increases in passenger and cargo service. This development includes a new concourse, a new runway, and additional parking, all of which will increase travel demand in the corridor.

1.5.3 INCREASED TRAVEL DEMAND

Continued growth in the Dulles Corridor will result in noticeably higher travel volumes throughout the corridor and the region. Between 2000 and 2025, it is estimated that regional travel will increase by 29 percent, growing from 18.2 million person trips per day to 23.5 million person trips per day. Similarly, work trips in the region are expected to increase 32 percent, from 3.7 million trips per day to 4.9 million. The highest concentrations of travel growth for the region will occur in the Dulles Corridor and the outer Virginia suburbs, especially for trips to and from eastern Loudoun County. Between 2000 and 2025, the total number of corridor-related trips is expected to increase 45 percent (from 2.2 million trips to 3.2 million), while the total number of trips to and from eastern Loudoun County is projected to increase nearly 188 percent (from 400,000 trips to 1.1 million). Work trips to and from eastern Loudoun County are also expected to increase 191 percent (from 70,000 trips to 204,000). In addition, substantial growth is projected for work trips to Herndon and the northern Route 28 corridor (a 65 percent increase from 61,000 to 100,600 trips).

As discussed in Section 1.4.4, it is anticipated that eastern Loudoun County will attract a larger share of overall corridor-related travel, including an increasing number of trips made by residents from other parts of the corridor (from 50,000 daily trips in 2000 to 103,000 trips in 2025). However, other corridor activity centers will continue to attract and produce large numbers of trips. For example, employment and shopping opportunities in Tysons Corner and Reston will continue to attract numerous residents from the
Dulles Corridor, other parts of Fairfax County, and the outer Virginia suburbs (more than 550,000 daily trips). Jobs in the region's core will also continue to attract large numbers of corridor residents (nearly 95,000 residents).

The minor changes in corridor travel patterns, combined with increasing numbers of trips, will result in noticeably higher traffic volumes throughout the Dulles Corridor. Based on VDOT estimates and project team projections, it is expected that between 2000 and 2025, eastbound traffic volumes on the Dulles Toll Road will increase from 6,200 vehicles to 8,200 vehicles in the peak hour between Hunter Mill Road and Reston Parkway (excluding the high-occupancy vehicle lanes). Similarly, peak volumes at specific locations along other major arterials within the corridor are expected to increase substantially. For example, westbound volumes on the Dulles Connector Road are expected to increase from 3,600 to 6,200 vehicles, while eastbound traffic on the Dulles Greenway is expected to grow from 3,300 to 8,100 vehicles and westbound traffic on Route 50 is projected to increase from 5,700 to 8,300 vehicles. Increasing volumes on these regional routes will force more vehicles onto local roads, causing increases in delay at many key intersections throughout the corridor. For example, in Tysons Corner project team estimates indicate substantial increases in delay are likely along Route 7, International Drive, and Westpark Drive. For some of these locations, delay is expected to increase by nearly 300 seconds, indicating considerable growth in the number of vehicles on the roadways (see Chapter 6 for more detailed information on traffic volumes and intersection delay).

1.5.4 LIMITATIONS OF THE EXISTING ROADWAY SYSTEM

For much of the Dulles Corridor transportation network, current traffic volumes meet or exceed the capacity of roadways and intersections, causing severe congestion in the corridor. Typically, the level of congestion on a roadway or at an intersection is reflected by a qualitative measure called level of service (LOS). In general, LOS represents the average delay experienced by vehicles traveling along a road or through an intersection. Six letter designations (A through F) are used to represent different levels of service, with LOS A reflecting free flow conditions and LOS E and F representing very congested or gridlock conditions. Many of the facilities in the Dulles Corridor are currently at LOS E and F, and increasing demand is only expected to worsen conditions.

As part of efforts to ease congestion in the corridor several roadway expansion projects are planned over the next 20 years. Additional lanes are planned for many corridor routes—including the DIAAH, the Dulles Greenway, I-495, Route 7, Route 123, Route 7100, Route 28, and the Loudoun County Parkway. Most of these routes will be widened for much of their length through the corridor. Additional capacity enhancements include interchange improvements for I-66, the Dulles Toll Road, and I-495, and plans to convert the existing at-grade intersections along Route 28 into interchanges. All of these improvements are scheduled to be in place by 2025, and many will be implemented sooner.

Anticipated transportation improvements are not expected to improve overall travel conditions in the corridor. Forecasts for 2025, which take the planned improvements into account, show that I-66, I-495, the Dulles Connector Road, the Dulles Toll Road, and Route 50 are projected to continue to operate at LOS E or F in the peak hour. At the same time, traffic conditions on the DIAAH and the Dulles Greenway are expected to deteriorate (from LOS C to D and LOS D to F, respectively). Likewise, as detailed in Chapter 6, numerous intersections throughout Tysons Corner, Reston, and Herndon are expected to remain at, or worsen to, LOS E and F.
Though the transportation system requires additional capacity to serve the ever-increasing travel demands in the Dulles Corridor, expansions to the roadway network are constrained by limitations of right-of-way and development patterns. The existing and planned development in the corridor restricts the amount of land available for roadway expansion projects. The expansion of the Dulles Toll Road to an eight-lane facility in 1998 used its remaining right-of-way; as a result, adding new traffic lanes to the main east-west route through the Dulles Corridor is no longer viable. Other planned roadway improvements in the corridor will use the majority of the remaining right-of-way. Further roadway expansions would likely have impacts on a substantial number of businesses and residents.

1.5.5 LIMITATIONS OF THE EXISTING TRANSIT SYSTEM

Because the existing transit system in the Dulles Corridor operates on the congested roadways described above, it offers a limited alternative to auto travel. Congestion reduces the reliability of transit services and increases transit travel times because, in addition to traveling in slow-moving traffic, transit vehicles have to stop to pick up and drop off passengers. For travel between several key origins and destinations in the corridor and the region, current transit travel times are approximately 20 to 30 minutes more than those for travel by private auto. As a result, transit in the corridor is not an attractive travel alternative—as reflected by the nine percent transit share of all daily work trips (approximately 40,000 trips)—and does little to effectively serve the existing high levels of travel demand.

Over the next 25 years, the share of daily transit travel is expected to remain relatively low. Though the absolute number of corridor-related daily transit trips is projected to increase by more than 30,000 trips per day, the transit share of daily work trips is expected to remain at nine percent between 2000 and 2025. This share is much lower than the 16 percent transit share experienced region-wide for daily work travel.

Though transit improvements are needed in the corridor, the effectiveness of planned expansions to the corridor transit system—including enhancements to Fairfax County bus service and new Express Bus Service for Loudoun County—would be hampered by increasing roadway congestion. With the exception of several express routes that use the DIAAH, nearly all transit routes in the corridor travel on the same general-use traffic lanes and arterial routes that private vehicles use. As a result, many of the enhanced transit services in the corridor will continue to experience increased travel times and reduced schedule reliability, decreasing their attractiveness as an alternative to auto travel in the corridor and limiting their ability to adequately serve the anticipated growth in travel demand. (For some routes, however, increases in express and local service are expected to reduce wait times, improving overall travel times for these routes by five to ten minutes.)

Consequently, in order for transit to be effective in the corridor, it would need to operate in a separate or restricted right-of-way. Through operation in a dedicated right-of-way, transit service would be able to bypass much of the congestion in the corridor, offering travel time savings and providing a viable alternative to auto travel on congested roadways.

The DIAAH is an underutilized transportation resource in the corridor, with the potential for developing additional capacity in a separate or restricted right-of-way. The roadway extends through most of the corridor, is close to all the key activity centers in the corridor, and has limited access with reasonably free-flowing traffic, which aids the existing Express Bus Service. In addition, the median of the DIAAH has been reserved for the last 35 years for a future transit line and is capable of supporting a rail line.
1.5.6 **AIR QUALITY**

Current traffic congestion in the Dulles Corridor contributes to air quality problems in the Washington metropolitan region. The region has been designated a severe non-attainment area for ozone, one of the six criteria pollutants monitored by the U.S. Environmental Protection Agency (EPA). A severe non-attainment designation indicates that the measured ozone levels exceed the National Ambient Air Quality Standards (NAAQS) for this pollutant. As a severe non-attainment area, the Washington DC region is required to meet standards defined by the Clean Air Act by November 2005.

To ensure compliance with the NAAQS, each state must develop a State Implementation Plan (SIP) demonstrating that every effort is being made to achieve or maintain attainment status. New programs or projects must be in compliance with this SIP. Because emissions from autos are major components in the formation of ozone, the SIP for Virginia includes transportation control measures to reduce vehicle miles traveled. Reducing vehicle miles traveled should lead to a decrease in emissions and, over time, contribute to the attainment of air quality standards in the region.

Accordingly, there is a need to develop improvements along the Dulles Corridor that would reduce vehicle miles traveled and emissions. The transportation improvements currently planned for the corridor will be unable to effectively serve the anticipated increases in demand and, as a result, congestion and emissions would likely increase. To help attain regional air quality goals, additional transportation improvements in the corridor must be able to move high volumes of travelers while generating low pollutant emissions and reducing vehicle miles traveled.

1.6 **GOALS AND OBJECTIVES**

The LPA evaluated in this Final EIS was developed to meet a specific set of goals and objectives designed to address the transportation needs of the corridor, as well as the transportation goals of the region. Accordingly, the LPA was assessed to determine how well it would:

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

These goals for the Dulles Corridor Rapid Transit Project were originally developed as part of the 1997 MIS. The goals and objectives were reviewed, discussed, and adjusted in response to stated public concerns over the course of project development throughout the MIS process and as part of the preliminary environmental review process for the Draft EIS. The goals and current objectives for the Dulles Corridor Rapid Transit Project are outlined in Table 1.6-1 on the following page. Because several of the goals are interrelated, some of the objectives apply to more than one goal.

Based on these goals and objectives, a set of specific evaluation criteria were developed to determine the relative advantages and disadvantages of each alternative proposed for the Dulles Corridor Rapid Transit Project. The four basic categories of evaluation criteria were: social, environmental, economic, and transportation. In this Final EIS, these criteria and the results are documented to help decision-makers
understand and identify similarities, differences, and trade-offs between the Locally Preferred Alternative and the No Build Alternative and how the LPA was selected.

Table 1.6-1: Goals and Objectives

<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
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| **Goal 1**  
Improve Transportation Service         | ▪ Provide more frequent service for trips to the core of the region, Tysons Corner, Reston/Herndon, Dulles Airport, and eastern Loudoun County.  
▪ Provide multi-modal access.  
▪ Improve travel times within the corridor and the region.  
▪ Provide integrated, seamless transit service to Tysons Corner and other major activity centers.  
▪ Provide improved transit service in the corridor in the near term. |
| **Goal 2**  
Increase Transit Ridership            | ▪ Provide more frequent service for trips to the core of the region, Tysons Corner, Reston/Herndon, Dulles Airport, and eastern Loudoun County.  
▪ Provide multi-modal access.  
▪ Improve the amenities of the existing transit service within the corridor and the region.  
▪ Improve travel times within the corridor and the region.  
▪ Provide integrated, seamless transit service to Tysons Corner and other major activity centers.  
▪ Provide improved transit service in the corridor in the near term. |
| **Goal 3**  
Support Future Development             | ▪ Provide improved accessibility to existing and planned activity centers in the corridor and the region.  
▪ Provide transit service that supports and is consistent with the character of the existing and future land use and development.  
▪ Provide stations that are compatible with the character of the surrounding neighborhoods and encourage transit use. |
| **Goal 4**  
Support Environmental Quality          | ▪ Contribute to the attainment of regional air quality standards.  
▪ Minimize negative impacts to traffic patterns.  
▪ Minimize negative impacts on neighborhoods and residential land uses.  
▪ Minimize negative impacts to ecologically sensitive areas.  
▪ Minimize negative impacts to historic and cultural resources.  
▪ Minimize negative visual and aesthetic impacts. |
| **Goal 5**  
Provide Cost-effective, Achievable      | ▪ Develop transportation improvements that are consistent with the funding and financial capacity of the region.  
▪ Minimize project-operating costs.  
▪ Optimize cost-effectiveness. |
| **Goal 6**  
Serve Diverse Populations               | ▪ Balance benefits and impacts to all residents within the corridor.  
▪ Improve accessibility to existing and planned employment centers from low-income and minority areas.  
▪ Provide transportation improvements that comply with the Americans with Disabilities Act standards.  
▪ Minimize and mitigate negative impacts to low-income and minority populations. |