APPENDIX H- ALTERNATIVES PREVIOUSLY CONSIDERED
This appendix provides an overview of the process that led to the selection of the Locally Preferred Alternative (LPA) for the Dulles Corridor Rapid Transit Project, and includes a summary of the reasons why particular alternatives were eliminated from further consideration. This provides a record that all reasonable alternatives for the project were examined and presented to the public during the preliminary engineering and environmental review process.

Section H.1 outlines the process used to identify and evaluate the initial list of alternatives for the Dulles Corridor Rapid Transit Project. A more comprehensive description of the evaluation methodology and the screening evaluation conducted in the early stages of the Draft Environmental Impact Statement (EIS) process can be found in the Evaluation Methodology Report (November 2000) and the Final Alternatives Analysis Report (May 2001).

Section H.2 addresses alternatives considered during the development of the Draft EIS. Detailed information on the continued evolution and evaluation of alternatives prior to publication of the Draft EIS can be found in the Addendum to the Final Alternatives Analysis Report (August 2003).

Section H.3 focuses on the evaluation of alternatives considered as a result of public comment on the Draft EIS following its publication. Additional detail is included in the Addendum to the Final Alternatives Analysis Report.

Section H.4 includes a summary of the reasons particular alternatives considered in the Draft EIS were not recommended as the LPA. The Project Team recommendations for the LPA are included as Attachment A to the Public Hearings Report Supplement (November 2002).

H.1 ALTERNATIVES CONSIDERED DURING INITIAL ALTERNATIVES ANALYSIS PROCESS BUT NOT CARRIED FORWARD

Numerous alternatives were evaluated during the early stages of the Dulles Corridor Rapid Transit Project. These alternatives were subjected to a two-phase screening process that applied increasingly detailed and comprehensive measures of effectiveness to a decreasing number of alternatives. This process allowed decision makers to identify similarities, differences, and trade-offs between each alternative, and carry forward those alternatives that performed better in meeting the transportation needs of the corridor for further evaluation in the Draft EIS. This screening process is described in more detail in the following sections, and the reasons for eliminating specific alternatives are presented.
H.1.1 INITIAL NEPA ALTERNATIVES

As shown in Table H-1.1 and in Figures H.1-1, H.1-2, H.1-3, H.1-4, the initial set of alternatives included various rapid transit modes, alignments, station locations, and ancillary facilities. These alternatives were developed based on recommendations from the MIS and MIS Supplement (see Section 2.1 of the Final EIS) and the scoping process for the Draft EIS.

Table H-1.1: Initial NEPA Alternatives

<table>
<thead>
<tr>
<th>Modes</th>
<th>BRT</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Metrorail</td>
</tr>
<tr>
<td>`</td>
<td>Light rail transit (LRT)</td>
</tr>
<tr>
<td>`</td>
<td>Personal rapid transit</td>
</tr>
<tr>
<td>`</td>
<td>Monorail</td>
</tr>
<tr>
<td>`</td>
<td>Feeder system to Metrorail stations in Tysons Corner (LRT, people mover)</td>
</tr>
<tr>
<td>`</td>
<td>BRT or express buses in a dedicated lane on the DIAAH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alignments</th>
<th>BRT Alignment. Alignment recommended in MIS Supplement. Serves Tysons Corner via DIAAH with station at Spring Hill Road.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Line O1. Orange Line through Tysons Corner via Dulles Connector Road.</td>
</tr>
<tr>
<td></td>
<td>Line O2. MIS Alignment with western leg that provides service to West Falls Church Station.</td>
</tr>
<tr>
<td></td>
<td>Line T1. Tysons Corner via Route 123 and Route 7.</td>
</tr>
<tr>
<td></td>
<td>Line T2. Tysons Corner aerial loop via Route 123, Route 7, and Westpark Drive.</td>
</tr>
<tr>
<td></td>
<td>Line T3. Alignment that connects the Dulles Corridor Rapid Transit Project to a possible rail line in the Capital Beltway Corridor.</td>
</tr>
<tr>
<td></td>
<td>Line T4. Alignment T2 with pocket tracks instead of loop connectors.</td>
</tr>
<tr>
<td></td>
<td>Line T5. Underground loop alignment.</td>
</tr>
<tr>
<td></td>
<td>Line T6. Alignment T1 with an additional station.</td>
</tr>
<tr>
<td></td>
<td>Line T7. Alignment from the Orange Line via Tysons Corner via Route 7.</td>
</tr>
<tr>
<td></td>
<td>` Line T8. Station in DIAAH near Spring Hill Road that connects to a feeder system to serve Tysons Corner.</td>
</tr>
<tr>
<td></td>
<td>` Line T9. Alignment T1 with a completely aerial structure.</td>
</tr>
<tr>
<td></td>
<td>` Line T10. Alignment T2 with an additional track on the southern leg of the loop.</td>
</tr>
<tr>
<td></td>
<td>Line T11. Large aerial loop that would include a station adjacent to the Capital Beltway. This alignment could connect to Alignment B1 as well as a possible future transit line in the Beltway Corridor. (This alignment was developed by WMATA subsequent to the scoping process.)</td>
</tr>
<tr>
<td></td>
<td>Line D1. Tysons Corner to Washington Dulles International Airport via DIAAH or DIAAH median.</td>
</tr>
<tr>
<td></td>
<td>` Line D2. Direct service to Reston Town Center via the Washington &amp; Old Dominion Railroad Regional Park.</td>
</tr>
<tr>
<td></td>
<td>Line A1. Dulles Airport via service roads for BRT and underground alignment for Metrorail.</td>
</tr>
<tr>
<td></td>
<td>Line L1. Dulles Airport to Route 772 in Loudoun County via Dulles Greenway.</td>
</tr>
<tr>
<td></td>
<td>Line S1. Combined rail alignments in Dulles, I-66, Route 50, and Route 28 corridors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stations</th>
<th>Spring Hill Road (BRT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tysons East (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Tysons Central (Metrorail, T1)</td>
</tr>
<tr>
<td></td>
<td>Tysons Central Alternative. Shift of Tysons Central Station for T1 to the east. (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Tysons Central A, B, C, and D (Metrorail, T2)</td>
</tr>
<tr>
<td></td>
<td>Tysons West (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Tysons East and West with third tracks and second platform (comparable to configuration at National Airport). (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>BRT/Metrorail Transfer Station (location to be determined)</td>
</tr>
<tr>
<td></td>
<td>` Wolf Trap Farm Park. Determine whether station is viable. (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Addition of Hunter Mill Road Station (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Wiehle Avenue (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>` Removal of Wiehle Avenue Station (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Reston Parkway (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Relocate Wiehle Avenue and Reston Parkway stations near or under the highway overpasses (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Herndon-Monroe (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Route 28 BRT Station. Addition of a BRT station in DIAAH median (BRT to Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Route 28 (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Accommodate a future LRT station at Route 28 (Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Dulles Airport (BRT, Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Route 606 (BRT, Metrorail)</td>
</tr>
<tr>
<td></td>
<td>Route 772 (BRT, Metrorail)</td>
</tr>
</tbody>
</table>
Dulles Corridor Alignments Considered during Alternatives Screening
### Ancillary Facilities

- Three yard sites along Dulles Greenway north of Dulles Airport
- One yard site south of the airport, adjacent to Route 28 and south of the Dulles Toll Road (DTR)
- Additional yard sites identified during agency coordination
- West Falls Church Yard Complex
- Traction power substations
- Tie-breaker stations

* Indicates alternatives that were examined during the MIS process, but were eliminated from further evaluation.

For the stations, “BRT to Metrorail” indicates BRT stations that would be convertible to Metrorail, and “BRT, Metrorail” indicates locations that would have BRT stops or Metrorail stations.

During the alternatives analysis process, it was assumed that the BRT Maintenance and Storage Facility and the Metrorail S&I Yard would be collocated on a single site.

Because of the large number of rail alignment alternatives, the corridor was divided into geographic sections to facilitate presentation and discussion. The labels of the alignments conform to the sections of the corridor below, and are presented in general east-to-west order:

- **O** is for the section of line connecting to the existing Metrorail Orange Line.
- **B** is for a transit line under study in the Beltway Corridor.
- **T** is for the section of line in Tysons Corner.
- **D** is for the section of line in the Dulles Airport Access Road.
- **A** is for the section of line at Dulles Airport.
- **L** is for the section of line in Loudoun County.
- **S** is for a rail line in the Sully Road (Route 28) corridor.

The development of the initial National Environmental Policy Act of 1969 (NEPA) alternatives is described in more detail in the *Scoping Process Report* (September 2000). Some alternatives were added following publication of the *Scoping Process Report*, in response to either ongoing engineering studies or additional public comment.

#### H.1.2 EVALUATION PROCESS

To determine which alternatives would move forward for detailed evaluation in this Draft EIS, the initial NEPA alternatives were evaluated and screened in a two-phase process: initial screening and intermediate screening. As outlined in the *Evaluation Methodology Report*, the process applied increasingly detailed and comprehensive measures of effectiveness to a decreasing number of alternatives. The alternatives advanced or carried forward for further evaluation at the end of each phase were the ones that were determined to best achieve the following:

- Improved transportation service;
- Increased transit ridership;
- Supported future development;
- Supported environmental quality;
- Provided cost-effective, achievable transportation choices; and
- Served diverse populations.

These project goals are based on those originally developed during the 1997 MIS.
The intent of the initial and intermediate screening evaluations was to compare the relative performance of a large number of alternatives using a small number of criteria. The four basic categories of evaluation criteria identified in the *Evaluation Methodology Report* are social, environmental, economic, and transportation. Analysis of performance relative to these criteria enabled the project team to distinguish between those alternatives that were likely to be most effective in meeting the project’s goals and those that were not.

The results of the alternatives screening process are presented in Table H.1-2. Each of the alternatives eliminated from further consideration is discussed in more detail in the following sections.

### H.1.3 INITIAL SCREENING

The initial screening criteria, as defined in the *Evaluation Methodology Report*, included consistency with land use plans, order of magnitude capital costs, service to activity centers within the Dulles Corridor and the region, and compatibility with existing infrastructure, among others. At this level of analysis, most measures were qualitative. Because not all of these criteria are sensitive to differences between modes, the initial screening was conducted as a two-part process. First, the modes (i.e., Metrorail, BRT, light rail, personal rapid transit, and monorail) were reviewed using appropriate measures of effectiveness. Then, the alternative alignments, stations, and ancillary facilities were evaluated. The following sections identify the alternatives that were eliminated from further study during initial screening and summarize why these alternatives were not carried forward for additional analysis.

#### H.1.3.1 Modes

Several modes added to the list of alternatives during the scoping process were previously examined and eliminated from further study during the 1997 MIS. The project team reviewed the reasons for the decisions to eliminate these modes and reaffirmed the validity of these decisions based on current data.

**Light Rail Transit**

Light rail transit was suggested in lieu of Metrorail because it is a rail technology that can operate on alignments that are not grade-separated. Typically, light rail is a mode that consists of passenger rail cars operating in short trains. The cars are usually powered electrically by overhead catenary lines, although diesel-powered systems do exist. This mode was eliminated during the 1997 MIS.

It was determined that light rail would not be as cost-effective as Metrorail because it would require a transfer at the Metrorail Orange Line, which would reduce ridership in the Dulles Corridor. Also, the capital costs for light rail would be similar to those for Metrorail because it would have to follow the same grade-separated alignment as a Metrorail alternative through Tysons Corner and at Dulles Airport, reducing any potential cost-savings benefits. For these reasons, light rail transit was eliminated from further consideration.

**Personal Rapid Transit**

Personal rapid transit is a technology typically envisioned to function like an automobile in an urban setting. The technology uses small, low-capacity vehicles (one to four persons) and, ideally, would have numerous closely spaced stations in a dense guideway network.
This mode, eliminated during the 1997 MIS, was also suggested in lieu of Metrorail, but was eliminated from further consideration because it is not a technology intended to provide the long-distance, high-speed service required in the Dulles Corridor.

Table H.1-2: Alternatives Considered During the Screening Process

<table>
<thead>
<tr>
<th>MODES</th>
<th>Alternatives Eliminated in Initial Screening</th>
<th>Alternatives Eliminated in Intermediate Screening</th>
<th>Alternatives Evaluated in Draft EIS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal Rapid Transit</td>
<td>None</td>
<td>BRT</td>
</tr>
<tr>
<td></td>
<td>Light Rail Transit (LRT)</td>
<td></td>
<td>Metrorail</td>
</tr>
<tr>
<td></td>
<td>Monorail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feeder System to Metrorail stations in Tysons Corner</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>BRT or Express Buses in a Dedicated Lane on the DIAAH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALIGNMENTS</td>
<td>Route 7 (T7)</td>
<td>Service to West Falls Church (O2)</td>
<td>MIS Supplement BRT Alignment(b)</td>
</tr>
<tr>
<td></td>
<td>Tysons DIAAH Station with Feeder System (T8)</td>
<td>Tysons Loops (T2, T5)</td>
<td>MIS Rail Alignment (O1, T1, D1, A1, L1)</td>
</tr>
<tr>
<td></td>
<td>Partial Double-Track Loop (T10)</td>
<td>Interface with Beltway Rail Line (T3)(a)</td>
<td>Tysons MIS Alignment Variations (T6, T9)(d)</td>
</tr>
<tr>
<td></td>
<td>Large Aerial Loop (T11)</td>
<td></td>
<td>Tysons Loop (T4)</td>
</tr>
<tr>
<td></td>
<td>Beltway Access thru Tysons (B1)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Direct Service to Reston Town Center (D2)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Dullies, I-66, Route 50, and Route 28 Connection (S1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STATIONS</td>
<td>Stations that were only associated with Alignments T7, T8, T11, and D2</td>
<td>Platform connection to West Falls Church for O2</td>
<td>Stations and stops associated with the MIS Supplement BRT Alignment</td>
</tr>
<tr>
<td></td>
<td>Addition of Hunter Mill Road Station</td>
<td>The MIS Tysons Central Station for T1</td>
<td>Stations associated with the MIS Metrorail Alignment and its variations (O1, T1, D1, A1, L1 and T6, T9)(e)</td>
</tr>
<tr>
<td></td>
<td>Removal of Wiehle Avenue Station</td>
<td>Wolf Trap Farm Park Station as a special use station(c)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relocation of the Wiehle Avenue and Reston Parkway stations under or near the highway overpasses Accommodation for Route 28 LRT(a)</td>
<td></td>
</tr>
<tr>
<td>ANCILLARY FACILITIES</td>
<td>Nine potential yard sites in Loudoun County</td>
<td>Two sites for BRT maintenance facility and rail yard near Route 606 interchange (Y6, Y10)</td>
<td>One rail yard site near Route 606 interchange (Y7)(k)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rail yard site at south end of Dulles Airport property (Y13)</td>
<td>One BRT maintenance facility site at north end of Dulles Airport property (Y14)(a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two potential yard sites in Loudoun County and three sites on Dulles Airport as part of a supplemental study.</td>
<td>Two additional sites south of the Dulles Greenway along Route 606 (Y15, Y20)(c)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>West Falls Church Yard Complex</td>
</tr>
</tbody>
</table>

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a In the future, the project team will cooperate with the groups implementing these projects and coordinate design with them to the extent feasible.

b The BRT alignment was refined after Intermediate Screening. Two options were added with varying station and stop locations.

c Only provisions to accommodate a future station at Wolf Trap Farm Park were evaluated in the Draft EIS.

d Alignment T9 was refined after Intermediate Screening. It remained a largely aerial alignment, with a short underground section. A technical memorandum was prepared discussing the rationale for revising Alignment T9.

e Site 14 was introduced after Intermediate Screening. It was carried forward in lieu of Site 7 for the BRT maintenance facility.

f Sites 15 and 20 were introduced after Intermediate Screening as part of the Supplemental Rail Yard Study (described in more detail in Section 2.6.5). Site 15 would include a rail yard only. Site 20 could support both a BRT maintenance facility and a rail yard.
Monorail
Monorail consists of automated transit vehicles operating on or suspended from a single rail, beam, or tube. Even though it was eliminated during the 1997 MIS, monorail was considered in lieu of Metrorail in the Dulles Corridor. As was the case with light rail, monorail would not be as cost-effective as a Metrorail alternative due to comparable or higher capital costs and lower ridership resulting from the forced transfer at the Orange Line. Therefore, monorail was eliminated from further consideration.

Feeder Systems
Different feeder system alternatives considered for the project included light rail transit and an elevated people-mover within Tysons Corner as a feeder to Dulles Corridor stations. People-movers are typically automated rail systems that use passenger vehicles operating individually or in multi-car trains. The guideway for this mode must be grade-separated.

These options for a fixed-guideway feeder system were eliminated from further consideration because they would not be cost-effective. Analysis conducted for the MIS demonstrated that a fixed-guideway feeder system would not enhance ridership on a Dulles Corridor line that followed either a Route 123-Route 7 alignment or a loop configuration in Tysons Corner. Moreover, the analysis showed that such a feeder system would substantially add to the cost of the project. Given that the feeder system would not substantially increase ridership on the Dulles Corridor line as a whole, it would be considered an unreasonable expenditure in the context of the Dulles Corridor Rapid Transit Project.

BRT or Express Bus (in lieu of BRT) Operating in Dedicated Third Lane on the DIAAH
These options were eliminated from further consideration because current and future traffic projections for the existing configuration of the DIAAH do not warrant construction of a dedicated lane as part of the Dulles Corridor Rapid Transit Project. Because the DIAAH only provides service to and from the airport and does not serve general traffic, it is expected that traffic flow on this road during peak periods will be, at worst, moderately congested. This flow of traffic would not interfere with the speed or reliability of bus operations in the DIAAH. When traffic flow on the DIAAH degrades, the Metropolitan Washington Airports Authority (MWAA) plans to build this additional lane for all airport traffic.

Current express bus operations in the corridor and planned operational enhancements are part of the phased implementation program recommended in the MIS Supplement. These operations were analyzed as an alternative to BRT as part of the No Build Alternative.

H.1.3.2 Alignments
With the exception of the BRT alignment, most of the alignment alternatives under consideration were variations of the rail alignment recommended in the MIS. Each of the alignments eliminated during initial screening and discussed below were proposed rail alignments.

Route 7 Connection (T7)
Alignment T7 was a connection from the Orange Line through Tysons Corner via Route 7. This alignment was eliminated from further consideration because it would not serve the eastern part of the Tysons Corner area as effectively as other proposed alternatives.
DIAAH Alternative with a Feeder System (T8)
Alignment T8 consisted of a rail station in the DIAAH near Spring Hill Road that connected to a feeder system to serve Tysons Corner. This alignment was examined during the MIS and was eliminated from further consideration because ridership would be lower due to the forced transfer between Metrorail and the feeder system. In addition, it was determined that this alternative might have impacts on residences and historic resources near the Spring Hill Road Station. The MIS assumptions were examined and verified during initial screening.

Partial Double-Track Loop (T10)
This alignment consisted of an aerial loop in Tysons Corner following Route 123, Route 7, and Westpark Drive with a double-track configuration on the southern leg of the loop. It was determined that T10 could provide operational flexibility in Tysons Corner; however, this flexibility could be provided through less costly options. The alternative was eliminated from further consideration because its additional costs and impacts would yield little or no additional benefit, particularly given that T10 was not likely to provide better service than the single-track loop configuration under consideration.

Beltway Connection (B1 and T11)
Alignment B1 provided an Orange Line connection via the Capital Beltway, while Alignment T11 consisted of a large aerial loop that would include a station adjacent to the Capital Beltway. Alignment T11 could connect to Alignment B1, as well as a possible future transit line in the Beltway Corridor.

Alignments B1 and T11 were eliminated from further consideration because they would have higher costs but not greater benefits than other proposed alternatives. Because of the planned widening of the Beltway, I-66, Route 7, and Route 123, implementation of Alignment B1 would require significant right-of-way acquisition at substantial cost. In addition, the larger loop of Alignment T11 would provide inferior service coverage compared to other loop alternatives and would be more costly than the smaller loop.

Alignment D2
Alignment D2 would provide direct service to Reston Town Center via the Washington & Old Dominion (W&OD) Railroad Regional Park, in lieu of the indirect service provided by an alignment in the DIAAH median. Alignment D2 is not consistent with existing land use, nor is it consistent with local or regional land use plans. Development of Alignment D2 would not preclude other planned improvements from occurring, but it would preclude the continued use of the W&OD Railroad Regional Park in certain areas because parkland would be converted for permanent use as a rail line. Because the DIAAH median alignment provides a prudent and feasible alternative to the use of this parkland, and would not have impacts on the park, Alignment D2 was eliminated from further consideration, consistent with Section 4(f) of the U.S. Department of Transportation Act of 1966.

Alignment S1
Several alignments suggested during the scoping process involved connections to transit improvements in the corridor that are either currently under study or are identified in long-range plans. Alignment S1 combined the proposed Dulles Corridor alignment with two other rail alignments: one an Orange Line extension in the I-66 Corridor that is currently under study as a separate project, and the other a proposed rail line along the Route 28 and Route 50 corridors. This large loop alignment was eliminated from further consideration because it was inconsistent with federal guidelines for defining the scope of a project for evaluation in an EIS. The guidelines state that a proposed project should have logical endpoints and should be usable as an independent improvement, even if additional transportation
improvements in the area are not made. The various segments of Alignment S1 would each have logical endpoints and would function as independent improvements if the other segments were not developed. Therefore, each should be studied as a separate project.

H.1.3.3 Stations
Stations that were located only on alignments that were eliminated from further consideration were also eliminated. For example, Alignment D2 was eliminated from further consideration, precluding stations proposed along the former W&OD right-of-way at Wiehle Avenue and Reston Town Center. Summarized below is the initial screening analysis for eliminated station alternatives that were not alignment-specific.

Hunter Mill Road Station
The proposed Hunter Mill Road Station was eliminated from further consideration because the station is not consistent with current or planned land use in the vicinity. Low-density land uses surrounding the proposed site would not generate enough ridership to support a station at this location. In addition, the citizens in the area have expressed strong opposition to a station at Hunter Mill Road.

The Dulles Corridor Land Use Task Force, appointed by the Fairfax County Board of Supervisors, stated strong opposition to a station at Hunter Mill Road in lieu of the proposed station at Wiehle Avenue. The Task Force voted at its session on February 26, 2001 to endorse the elimination of the Hunter Mill station and continued planning for the Wiehle Avenue station. The Comprehensive Plan changes adopted by the Fairfax County Board of Supervisors on May 21, 2001 support this position; no transit-oriented land use plans have been adopted or considered for a proposed station in the vicinity of Hunter Mill Road.

Though it was suggested during scoping that the proposed Wiehle Avenue Station be eliminated from the project, this station was retained for further analysis based on the current and planned uses for the area surrounding the proposed station location. These uses generate demand that cannot be adequately served by the Reston Parkway Station. As described above, the Dulles Corridor Land Use Task Force endorsed the continued consideration of the Wiehle Avenue Station.

H.1.3.4 Ancillary Facilities
During initial screening, 13 potential sites were examined for the BRT Maintenance and Storage Facility and the Metrorail Service and Inspection (S&I) Yard as shown in Figure H.1-4. Four sites were recommended during the MIS and additional sites were identified during agency coordination for the Draft EIS.

Nine of the proposed sites were eliminated during initial screening because they were inconsistent with local land use plans and zoning designations or because they contained or were crossed by important water resources in Loudoun County. For instance, sites located in areas consisting of, or zoned for, residential development or mixed-use and office park development were eliminated because these uses were not considered consistent with a transit system maintenance and storage facility. In addition, sites that traversed or were located near Broad Run and Horsepen Run (two streams in Loudoun County) were eliminated from further consideration.

Other ancillary facilities, such as traction power substations and tie-breaker stations, were not evaluated during initial screening because siting of these facilities was not complete at that time.
H.1.4 INTERMEDIATE SCREENING

The alternatives carried forward from initial screening were subjected to a more robust evaluation in intermediate screening. In this phase of evaluation, many of the criteria applied during initial screening were measured more quantitatively. For instance, the initial screening only considered the number of trip generators or the amount of employment within walking distance of a station to determine an alternative’s ridership potential, whereas the intermediate screening used output from the travel demand model to generate preliminary ridership estimates for the remaining alternatives. Project staff also developed preliminary capital costs for the alternatives based on standard costs for various project elements.

Alternatives that were eliminated during intermediate screening and the reasons they were not carried forward for full evaluation in the Draft EIS are discussed in the following sections.

H.1.4.1 Alignments
Alignments eliminated during intermediate screening were proposed Metrorail alignment alternatives.

Orange Line Connection (O2)
Evaluation of the Orange Line Connection focused on the relative costs and benefits of a western leg that would allow trains from the Dulles Corridor to continue directly to the western end of the Orange Line. The configuration with the western leg, called Alignment O2, was a design variation of Alignment O1, the MIS configuration for connecting to the Orange Line. Alignment O1 is the basic configuration required to allow trains from the Dulles Corridor line to connect to the rest of the Metrorail system, but would require a transfer for passengers traveling west on the Orange Line.

The intermediate screening evaluation showed that Alignment O2 would cost nearly twice as much as Alignment O1, but the expected increase in ridership for Alignment O2 was negligible. In addition, Alignment O2 was expected to have greater impacts on adjacent communities. Because the higher costs and impacts associated with Alignment O2 would not be warranted by the small expected increase in ridership, it was eliminated from further consideration.

Should the Orange Line be extended to Centreville in the future, travelers from the western portions of the region would be able to access the Orange Line closer to their homes and avoid traffic congestion en route to Vienna. Riders from these areas may create demand for a direct connection between the Dulles Corridor and the western end of the Orange Line. Accordingly, the design of Alignment O1 does not preclude future development of a western connection to the Orange Line.

Loop Alignment and Variations (T2 and T5)
Three variations of the loop alignment for serving Tysons Corner were carried forward from initial screening. These alignments were evaluated relative to one another during intermediate screening, and it was determined that two of the loops would have significantly higher costs and impacts.

Due to the inclusion of loop connectors, Alignment T2 would have greater potential for visual and noise impacts on adjacent residential communities than Alignment T4 (a similar alignment without the loop connectors). Alignment T2 would also have operational difficulties, and higher capital, operating, and maintenance costs than Alignment T4, but would only provide modest ridership benefits. Alignment T5 would avoid many of the impacts of Alignments T2 and T4, but would have much higher costs than these alignments, as well as additional risks associated with underground construction. While Alignment T4
would not be without impacts, it would not have the severity of impacts or the costs associated with Alignment T2, nor would it have the capital cost and level of risk associated with Alignment T5.

Based on these findings, Alignments T2 and T5 were eliminated from further consideration.

Connections to Future Transit Improvements (T3)
During initial screening, study of Alignment T3 was suspended until additional information was available regarding possible modes and alignments for a future rail line in the Capital Beltway Corridor.

The Capital Beltway Corridor Rail Feasibility Study, released in March 2001, included recommendations for three different modes, each with a different alignment and station locations. The current Beltway rail plans are not yet developed to a level that would make it appropriate or feasible to conduct detailed coordination efforts related to those improvements. Therefore, Alignment T3 was eliminated from further consideration, as they would not be developed in a time frame consistent with the schedule for the Dulles Corridor Rapid Transit Project.

As work progresses on a future Capital Beltway rail line, the Dulles Corridor Rapid Transit Project team will coordinate with the groups implementing that project and coordinate with them to the extent feasible regarding a connection between the two transit systems.

H.1.4.2 Stations

Tysons Central Station
During initial screening, the possibility of shifting the Tysons Central Station farther to the east for Alignment T1 was carried forward for additional analysis. In intermediate screening, it was determined that the more easterly station location (Tysons Central Alternative Station) would be less costly and would likely have more benefits than the original Tysons Central Station location. Tysons Central Alternative Station would have better connections to existing employment concentrations and to proposed office developments. It also has higher potential for joint development at sites that are currently undeveloped or underdeveloped. Therefore, the original Tysons Central Station was eliminated from further consideration in favor of the alternative location.

Wolf Trap Farm Park Station
Based on coordination with the National Park Service (NPS) and the Wolf Trap Foundation (a non-profit organization associated with the park), it was determined that a station at Wolf Trap would not be constructed as part of the Dulles Corridor Rapid Transit Project. The project would include provisions to accommodate a future Wolf Trap station, but the station itself and its access facilities were eliminated from further consideration. Only the provisions required to accommodate the future station were fully evaluated in the Draft EIS. Should funding for a station be identified in the future, a separate environmental review process would be required to fully evaluate the proposed station.

Relocation of the Wiehle Avenue and Reston Parkway Stations Under or Near the Highway Overpasses
The project team proposed that the Wiehle Avenue and Reston Parkway stations be located in the median of the DIAAH west of their corresponding highway overpasses at places where the DTR has been realigned to accommodate transit stations in the DIAAH median. During the public scoping process, it was suggested that the stations be relocated under the highway overpasses to provide better access to all four quadrants of the interchanges at Wiehle Avenue and Reston Parkway. The feasibility of this
relocation was examined during initial screening. It was determined that moving the stations would be costly and have substantial impacts, but additional analysis was recommended because the benefits of the relocation were not known at that time.

Following the initial analysis, stakeholders suggested that the project team should examine the feasibility of moving the stations closer to the overpasses, rather than directly under them. The stakeholders also encouraged the provision of station access from all four interchange quadrants. This option and the options originally assessed during initial screening were examined during intermediate screening.

In this second analysis, it was determined that moving the stations from the locations where the Toll Road was realigned would increase costs and impacts but would offer no significant benefits. For the central portion of the corridor, Fairfax County has amended their Comprehensive Plan to allow increased densities within the vicinity of transit stations. Because any proposed land use density bonuses would move with the stations (as discussed in the May 2001 recommendations of the Dulles Corridor Land Use Task Force), relocating the stations nearer to or under the overpasses and providing access to all four quadrants of the interchange would not increase ridership potential above that for the stations at the locations where the Toll Road was realigned.

Placing the stations under the overpasses would also generate several safety concerns, including narrow shoulder widths and station security issues. These issues would necessitate rebuilding the DIAAH, the Toll Road, the highway overpasses, and the interchange ramps to accommodate the stations under the overpasses. The result would be substantial cost increases, a lengthier construction period, traffic delays, and extensive impacts on people living and working in the corridor, particularly in Reston.

Similarly, moving the stations closer to the overpasses, as proposed by stakeholders, would necessitate rebuilding the highway overpasses because the proposed design would undermine the pier footings supporting the bridges. It is also possible that shoulder width considerations for this configuration could require rebuilding the DIAAH, the Toll Road, and the interchange ramps.

Given these findings, such relocations of the Wiehle Avenue and Reston Parkway stations were eliminated from further consideration.

**Accommodation of Route 28 Light Rail Transit**

Accommodation of Route 28 light rail transit (LRT) was evaluated with currently available information about potential transit improvements in the Route 28 Corridor. Several studies have recommended future development of light rail transit in the Route 28 Corridor, including recent proposals by the area’s transportation management agency (TMA) that would bring the alignment very near the proposed Route 28 Station for the Dulles Corridor Rapid Transit Project. However, a Route 28 LRT system is not currently included in the Virginia Transportation Development Plan, indicating that, while transit improvements have been identified as desirable in the Route 28 Corridor, no Route 28 transit study is currently being conducted nor is one currently planned by the Commonwealth.

Because plans for a Route 28 LRT system have not been developed to a level that would make it appropriate or feasible to conduct detailed coordination efforts related to those improvements, accommodation of a Route 28 LRT system has been eliminated from further consideration.
**H.1.4.3 Ancillary Facilities**

Four proposed sites for a BRT Maintenance and Storage Facility and a Metrorail S&I Yard were carried forward for further evaluation in intermediate screening. They include three sites near the Route 606 interchange with the Dulles Greenway (Sites 6, 7, and 10) and one site at the south end of Dulles Airport property near the National Air and Space Museum Udvar-Hazy Center (Site 13). During intermediate screening, the project team determined that each site would have the potential for the following impacts:

- Steep slopes, floodplains, and wetlands restrict the suitability of Site 6.
- Locating a maintenance and storage facility on Site 10 would require extensive property acquisition, including a historic property, from the federal government and from private properties housing existing business operations.
- Site 13 is inconsistent with the approved Airport Layout Plan for Dulles Airport and, like Site 6, may have environmental resources that could be affected by a S&I Yard. Furthermore, locating a S&I Yard on Site 13 would result in significantly higher capital and operating costs due to the required length of the yard lead.
- Although Site 7 also contains floodplains and wetlands that could be affected by a maintenance and storage facility, the relatively large size of the site allows a configuration that would minimize these impacts. In addition, Site 7 has a more optimal end-of-the-line location than Site 13 and it is closer to the mainline tracks.

Based on these findings, Sites 6, 10, and 13 were eliminated from further consideration.

Initially, Site 7 was carried forward as the site for both the BRT Maintenance and Storage Facility and the Metrorail S&I Yard. Following the publication of the *Final Alternatives Analysis Report*, MWAA made a parcel of land on the northern part of the Dulles Airport property available for use as the BRT Maintenance and Storage Facility. This new site, Site 14, was screened using the same criteria applied to potential yard sites during initial and intermediate screening. It was determined that though the site has some floodplain and wetland restrictions, it is consistent with local zoning designations and the Airport Layout Plan. Moving the BRT Maintenance and Storage Facility from Site 7 to Site 14 would also allow the S&I Yard at Site 7 to be reconfigured to further minimize environmental impacts at that site. Therefore, Site 7 was eliminated from further consideration as the site for the BRT Maintenance and Storage Facility.

**H.2 ALTERNATIVES CONSIDERED DURING CONTINUED DEVELOPMENT OF DRAFT EIS**

Following the publication of the *Final Alternatives Analysis Report*, the ongoing development and review of alternatives for the Draft EIS resulted in several design refinements of existing alternatives, as well as the identification of new alternatives. In order to provide an equivalent evaluation, these alternatives were assessed using the same criteria applied during initial and intermediate screening. The results of these analyses are documented in post-screening technical memoranda.

Many of the refinements identified during this period were carried forward for further evaluation, some in lieu of alternatives that were previously carried forward. Those alternatives that were eliminated from further consideration, and the reasons for their elimination, are discussed below.
H.2.1 ALIGNMENT T9

The T9 alignment carried forward from intermediate screening was an entirely elevated version of Alignment T1 with an optional station at the Tysons Central C location. The Tysons Central Station was configured as a side-platform station with narrow track centers, while the other three stations had center platforms with wide track centers.

As part of conceptual design development in support of the Draft EIS, the design of Alignment T9 was refined. For T9 Revised, all stations had side platforms and narrow track centers and the profile of the alignment was lowered along Route 123. In addition, a short tunnel segment was added in the vicinity of the Route 123/Route 7 interchange.

A screening evaluation of the revised alignment showed that, relative to the T9 alignment carried forward from the alternatives analysis phase, Alignment T9 (Revised) would likely offer cost savings, enhanced structural efficiencies, and several other benefits such as the reduction of visual impacts on surrounding communities. However, the revised alignment would also have a number of drawbacks including increased right-of-way requirements, and the increased potential for noise impacts in certain residential areas adjacent to the alignment. It was decided that Alignment T9 (Revised) should be carried forward in lieu of the original Alignment T9, because the trade-offs associated with the revised alignment could not be fully evaluated during screening due to the lack of detailed cost and environmental data. The original Alignment T9 was eliminated from further consideration so that a wider range of configurations could be examined in detail in the Draft EIS.

H.2.2 STATION CONVERTIBILITY CONCEPTS

The three Build Alternatives initially carried forward for evaluation in the Draft EIS were envisioned as three construction stages in a phased implementation program. The BRT Alternative would be constructed first; then Metrorail would be constructed from the Orange Line through Tysons Corner, connecting to BRT service between Tysons Corner and Loudoun County; and finally, Metrorail would be constructed between Tysons Corner and Loudoun County, replacing BRT service in the corridor. Although the three Build Alternatives were to be evaluated as stand-alone alternatives, it was initially proposed that the overall project move forward with the phased approach.

As work on the Draft EIS progressed, it was decided to evaluate the phased implementation program as a fourth Build Alternative, called the Phased Implementation Alternative. A key element of this alternative was the DAAH median stations, which were to be constructed during the BRT phase for BRT use, then later converted to rail stations for Metrorail use.

Seven concepts for converting the median BRT stations to Metrorail stations were explored. The range of concepts included center- and side-platform configurations and shared and exclusive guideway configurations. Several concepts involved constructing the full Metrorail platform prior to the beginning of BRT operations, with 260 feet of the platform temporarily configured as a low platform for BRT operations.

These potential station configuration concepts were assessed against three main evaluation criteria:

1) Minimize downtime during conversion, that is, the time during which joint-use guideway areas and other station elements would be unavailable for BRT use during Metrorail start up and testing.
2) Limit BRT station width to a maximum of 80 feet so as to avoid additional widening of the DIAAH or the DTR.
3) To the extent feasible, preserve MWAA’s ability to construct and operate future third lanes of the DIAAH independently of the Dulles Corridor Rapid Transit Project. In order to meet this criterion, overall station widths of 60 feet or less are necessary.

Based on the evaluation, three conversion concepts were eliminated from further consideration because they violated one or both station width criteria. Two other concepts were eliminated because they would require reduced BRT running speeds, would have the potential for damage to the third rail during BRT operations, and would limit rail testing and startup to non-revenue hours.

H.2.3 SUPPLEMENTAL RAIL YARD STUDY

In November 2001, the Steering Committee for the Dulles Corridor Rapid Transit Project asked the DRPT and WMATA to consider alternative yard sites to Site 7. In response, the project team initiated a Supplemental Rail Yard Study to examine different end-of-line locations for a Metrorail S&I Yard. Sites were also assessed to determine the feasibility of collocating the BRT Maintenance and Storage Facility with the S&I Yard.

As shown in Figure H.2-1, seven supplemental yard sites were investigated during the study, all of which were located in Loudoun County. Four of the sites were located on Dulles Airport property. All sites were evaluated using the same screening process applied to the Initial NEPA Alternatives. For initial screening, the supplemental sites were assessed at a lower level of detail against the same social, environmental, economic, and transportation criteria used during the previous alternatives analysis. Five sites were eliminated based on environmental constraints, inconsistencies with land use plans, or operational constraints.

- Use of two of the sites would result in impacts on the Horsepen Run wetlands system—an important water resource in Loudoun County.
- For two other sites, the existing and planned land uses would be inconsistent with a BRT Maintenance and Storage Facility and/or an S&I Yard.
- A fifth site would be inconsistent with WMATA design and operational requirements.

Because only two sites remained following the initial screening, consensus was reached that intermediate screening was not necessary. Both remaining sites, Site 15 and Site 20, were carried forward for detailed evaluation in the Draft EIS.

H.3 ALTERNATIVES CONSIDERED IN RESPONSE TO PUBLIC COMMENTS

On June 28, 2002, the Draft EIS and the General Plans for the Dulles Corridor Rapid Transit Project were made available for public review and comment. The Draft EIS was also circulated to federal, state, and local agencies to solicit comments. Public hearings on the Draft EIS and General Plans were held on July 29, 30, and 31. The Project Team accepted written comments for a period of 62 days from June 28, 2002 to August 28, 2002.
During this public review and comment period, several new or modified alternatives were proposed for the project. Those alternatives that were eliminated from further consideration and the reasons they were not carried forward are discussed in the following sections.

**H.3.1 DULLES PLAN B**

Dulles Plan B was a proposal put forth by several citizens in the project area. In essence, the Dulles Plan B proposal represented a modified version of alternatives already studied in detail in the Draft EIS. The Dulles Plan B proposal contended that a combination of BRT and increased use of the high-occupancy lanes along the DTR could meet the projected demand for transit in the corridor at a much lower cost than Metrorail. The proposal also suggested the implementation of several forms of “private transit,” including just-in-time ridesharing (i.e., casual carpooling, slug lanes) and high-occupancy toll lanes.

The Project Team reviewed the range of alternatives proposed on the Dulles Plan B website, but did not recommend the alternative for further study. Although the team’s analysis confirmed that increased use of the HOV lanes could have benefits for the Dulles Corridor, such an increase would not dramatically increase the person-moving capacity of the corridor.

Moreover, although the proposed combination of BRT with increased vehicle capacity and increased use of the HOV lanes would provide enough capacity to support the projected demand for Metrorail, it would only do so if all new HOV users are travelers that formerly drove alone. It is very unlikely that incentives to increase HOV use would appeal only to people who previously used the general traffic lanes. It is much more likely that some of the new HOV users would be persons that would have otherwise used the transit system, reducing rather than enhancing demand for transit in the corridor.

Furthermore, capacity is not what truly limits the ability of the BRT Alternative in the Dulles Corridor to serve the same level of demand as Metrorail. BRT would not have the same “drawing power” as Metrorail due to a forced transfer at the Metrorail Orange Line and the lack of a direct connection to Tysons Corner.

The other proposed “private” transit modes were determined to be either infeasible in the Dulles Corridor, or not as beneficial as suggested in Dulles Plan B.

**H.3.2 ALIGNMENT T12**

Alignment T12 was a split-service alignment, with one branch extending along the DIAAH on the north side of Tysons Corner, and a second branch penetrating the core of Tysons Corner. The north branch of Alignment T12 (or the “express” leg) would be constructed first; allowing service to the remainder of the corridor to begin while construction of the south branch (or “local” leg) is completed. The local leg of the alignment would follow one of the four Metrorail Alignments evaluated in the Draft EIS.

Alignment T12 was eliminated from further consideration because it would have greater costs and impacts than the alternatives considered in the Draft EIS, would not effectively serve corridor activity centers, and would likely result in ridership reductions. In addition, the service associated with the alignment would be difficult to integrate with operations along the rest of the Metrorail system and with the Virginia Department of Transportation (VDOT) expansion plans at the Capital Beltway/DTR/Connector Road interchange.
**APPENDIX H: ALTERNATIVES PREVIOUSLY CONSIDERED**

**H.3.3 ALIGNMENT T13**

Alignment T13 was an entirely underground variation of Alignment T6, one of four Metrorail alignments evaluated in the Draft EIS. This alignment was eliminated from further consideration because it would have much greater costs than alternatives previously considered in the Draft EIS, with no additional transportation service benefits. Moreover, the primary benefits of the configuration—mitigation of the visual and noise effects associated with the alignments considered in the Draft EIS—could be achieved through much lower cost mechanisms.

**H.3.4 ALIGNMENT T14**

Alignment T14 was a variation of Alignment T4, one of the four Metrorail alignments evaluated in the Draft EIS. Unlike Alignment T4, which was an entirely aerial loop through Tysons Corner, Alignment T14 included two short underground segments, one along each leg of the loop.

Alignment T14 would reduce the visual impacts of Alignment T4, but would have greater costs, increased risks, no additional ridership benefits, and the same operational complexities. However, given that Alignment T14 presented one of the few viable approaches for mitigating some of the visual effects associated with Alignment T4, it was recommended for further analysis should Alignment T4 be carried forward as the LPA. When the WMATA Board of Directors and the Commonwealth Transportation Board selected Alignment T6 as the LPA, Alignment T14 was eliminated from further consideration.

**H.4 BUILD ALTERNATIVES CONSIDERED IN THE DRAFT EIS BUT NOT CARRIED FORWARD**

DRPT, in partnership with WMATA and FTA, prepared the Draft EIS to document the evaluation of alternative transit improvements for the Dulles Corridor. The relative merits and potential impacts of several alternatives were evaluated for the Draft EIS. The Build Alternatives included BRT, Metrorail, BRT/Metrorail, and Phased Implementation alternatives. Three BRT alignment options were evaluated, and in Tysons Corner four Metrorail alignments were considered. For the Metrorail and Phased Implementation alternatives, three potential sites for a new S&I yard were evaluated.

Following the public review and comment period, the WMATA Board, the Commonwealth Transportation Board, and local boards of supervisors selected the LPA for the Dulles Corridor Rapid Transit Project from those evaluated in the Draft EIS. Those alternatives that were eliminated from further consideration and the reasons they were not carried forward are summarized in the following sections.

**H.4.1 BASELINE AND BUILD ALTERNATIVES**

**H.4.1.1 BRT Alternative**

The BRT Alternative would have several advantages relative to the Metrorail Alternative, including improvements in corridor transit service at an earlier date, fewer impacts on the natural environment, fewer noise and visual impacts, lower traffic impacts in the vicinity of stations (though still higher than the Baseline), lower costs, and higher cost effectiveness. However, BRT would not provide the same degree of improvements in transportation service or increases in overall transit ridership as the Metrorail Alternative. In addition, the BRT Alternative would be less likely to support a focused development pattern, because the comprehensive plans for Fairfax and Loudoun counties include lower density...
bonuses for BRT stations along the DTR and Dulles Greenway than for Metrorail stations and no BRT facilities are located in the core of Tysons Corner.

A direct service connector to the core of Tysons Corner was considered for the Supplement to the Dulles Corridor Transportation Study (1999). It was determined that direct service would require a grade-separated guideway through Tysons Corner, increasing the cost, time to implement, and impacts of BRT. And because the BRT Alternative would still require a transfer at the Metrorail Orange Line, accessibility to regional activity centers and overall ridership for the alternative would be reduced.

Overall, because the BRT Alternative would not satisfy the long-term travel demand of the corridor, nor provide the same level of support for the desired pattern of development in the corridor, it was not selected as the LPA.

H.4.1.2 BRT/Metrorail Alternative
The BRT/Metrorail Alternative would have some of the advantages and disadvantages of both the BRT and Metrorail alternatives. In general, the BRT/Metrorail would provide better connectivity to Tysons Corner than the BRT Alternative, but would not provide as direct a connection as Metrorail because it would require a transfer to travel between Tysons Corner and the western portions of the corridor. Although BRT/Metrorail would provide improved support for focused development in Tysons Corner, it would not provide the same level of support in the central and western portions of the corridor. In addition, BRT/Metrorail generally would have longer travel times and lower ridership than Metrorail. Because the BRT/Metrorail Alternative would not perform as well as the Metrorail Alternative in terms of transportation and land use benefits, it was eliminated from further consideration.

H.4.1.3 Phased Implementation Alternative
The Phased Implementation Alternative would have all of the benefits and impacts of BRT and Metrorail combined, at a higher cost. Phased Implementation could be implemented sooner than Metrorail, but would have higher capital costs and no additional ridership or economic development benefits than the Metrorail Alternative. Moreover, during conversion from BRT to Metrorail, BRT service would be displaced from the median stations in the Mid-Corridor for 15 to 18 months; during this period, BRT service would be relocated to the park-and-ride facilities. Because Phased Implementation would have greater costs, but would not offer a substantial increase in benefits, it was eliminated from further consideration.

H.4.2 TYSONS CORNER ALIGNMENTS

H.4.2.1 Alignment T1
Alignment T1 would have similar impacts to Alignment T6, because the configurations of these alignments are similar. However, Alignment T1 was eliminated from further consideration because it would include fewer stations than Alignment T6 and provide less service within the core of Tysons Corner.

H.4.2.2 Alignment T9
Alignment T9 was eliminated from further consideration because it would have greater visual effects and less operational flexibility than Alignment T6, and would potentially conflict with improvements planned at the Route 123/Capital Beltway interchange. Although Alignment T9 would have the same ridership benefits as Alignment T6 because it includes the same number of stations in the same locations, it would
have greater visual effects than Alignment T6 because most of the alignment is aerial and the stations are larger in mass due to side-platform stations. Moreover, Alignment T9 would not have pocket tracks and thus would not allow for train turnback operations.

H.4.2.3 Alignment T4
Alignment T4 would include more stations in the core of Tysons Corner and have greater geographic coverage than the other Metrorail alignments. Therefore, the alignment would have greater potential to foster the high level of development planned in Tysons Corner. However, because the four core stations on Alignment T4 would be located on one-way lines, this alignment would not necessarily provide greater transportation benefits in Tysons Corner than Alignments T6 and T9. For Alignment T4, many travelers using the one-way stations would be required to transfer and double back to reach the station within walking distance of their destination. Alignment T4 would also have much greater visual impacts than the other alignments. Because it would attract less ridership than Alignment T6, and have much greater visual effects, Alignment T4 was eliminated from further consideration.

H.4.3 YARD SITES

H.4.3.1 Yard Site 7
Though S&I Yard Site 7 would be the least expensive to construct and operate and would have fewer effects on wetlands and streams, an S&I Yard at this site would be inconsistent with existing and future land use plans and moderately incompatible with existing zoning requirements. In addition, use of S&I Yard Site 7 would result in aircraft noise effects on transit workers and potential safety issues related to airport operations (though to a lesser extent than S&I Yard Site 15). Overall, because S&I Yard Site 7 would be least consistent with existing land use, future land use plans, and existing zoning requirements and have greater negative effects on economic development in Loudoun County, it was not considered to be a practical alternative S&I Yard site and was eliminated from further consideration.

H.4.3.2 Yard Site 20
S&I Yard Site 20 is located the farthest from the mainline, requiring more non-revenue lead track and additional operational expenses. In addition, S&I Yard Site 20 would be less consistent with existing land use and future land use plans than S&I Yard Site 15, and it would have greater stream and water quality effects. Overall, because S&I Yard Site 20 would be less consistent with existing land use and future land use plans and have greater negative effects on economic development in Loudoun County, it was not considered to be a practical alternative yard site and was eliminated from further consideration.