

3.0 ALTERNATIVES CONSIDERED BASED ON PUBLIC COMMENT ON THE DRAFT EIS

This section provides an overview of new alternatives identified during the Draft EIS public comment period, and presents a summary of the evaluation for these options and recommendations regarding further analysis. More detailed analyses are presented in the technical memoranda presented in Appendix B.

3.1 DULLES PLAN B

Dulles Plan B is a proposal put forth by several citizens in the project area. This proposal was submitted during the public comment period following publication of the Draft EIS. In essence, the Dulles Plan B proposal represents a modified version of alternatives already studied in detail in the Draft EIS. The Dulles Plan B proposal contends that a combination of BRT and increased use of the high-occupancy lanes along the Dulles Toll Road could meet the projected demand for transit in the corridor at a much lower cost than Metrorail. The proposal also suggests 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 Plan B was not studied in the same level of detail as the Build Alternatives in the Draft EIS, the objections of the proponents were addressed point-by-point in the *Public Hearings Report* (October 2002) and in a detailed response appended to the *Public Hearings Report*. This detailed response is attached in Appendix B. The response addresses the range of alternatives proposed in Dulles Plan B, as well as several assertions made on the website regarding the costs, capacity, and abilities of BRT and Metrorail.

A brief summary of the primary findings of the Dulles Plan B evaluation follows.

Increased HOV Use. Increased use of the HOV lanes could have benefits for the Dulles Corridor, although such an increase would not dramatically increase the person-moving capacity of the corridor. As shown in Table 6.2-1 on Page 6-23 of the Draft EIS, projected use of the HOV lanes on the Dulles Toll Road is not expected to change from current usage, either under the Baseline or the Build Alternatives, while traffic in the general purpose lanes will increase, exceeding the capacity of these lanes. If travelers who currently use the general purpose lanes could be encouraged to rideshare, then demand for the general purpose lanes could be reduced by up to 1,400 vehicles.

Combined BRT and Increased HOV Use. 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, if all new HOV users are travelers that formerly drove alone.

Transportation systems must be designed to support the demand expected during the “peak of the peak,” even though this may result in under-utilization of capacity for the rest of the peak period. For Alignment T6 (the alignment with the highest ridership), this “peak of the peak” demand requires that the system have enough capacity to support 7,540 passengers in the peak direction, in the peak hour for operations in the corridor.

Increasing the size of the BRT vehicles to 80-foot, 80-seat bi-articulated buses would provide for a maximum person-moving capacity of 6,400 passengers in the peak hour in the peak direction (based on 80 buses an hour, which results in a bus running in the guideway every 45 seconds, on average).

Increasing the use of the HOV lane to its maximum capacity under “ideal usage” conditions, would increase the person-moving capacity of the corridor by 1,584 passengers in the peak hour in the peak direction. If it is assumed that all the new HOV users come from the general purpose lanes (rather than switching from BRT or other transit modes), then this increased HOV use, when combined with the BRT capacity, would provide enough capacity to meet peak Metrorail demand.

However, 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.

Moreover, capacity is not what truly limits the ability of BRT in the Dulles Corridor to serve the same level of demand as Metrorail. BRT would not have the same “drawing power” as Metrorail because of a combination of other factors:

- BRT forces travelers bound for Arlington County and the core to transfer at the Orange Line (or at Tysons West for BRT/Metrorail).
- BRT does not provide a direct connection to Tysons Corner. It requires travelers to transfer to another feeder system before reaching their final destination in Tysons Corner.

The combined effect of these factors is evidenced in both the overall ridership totals for BRT versus Metrorail (see Draft EIS Table 6.3-8), as well as in the projected line loads for the existing Orange Line under the BRT Alternative (see Draft EIS Table 6.3-10, which shows estimates of actual hourly loads, not equivalent hourly passenger flow for the peak half-hour). While under the Metrorail Alternative the maximum loads on the Orange Line Vienna service are less than those for the Baseline, under the BRT Alternative the maximum loads on the Vienna service are more than those for the Baseline. A major reason for this effect is that under the BRT Alternative, people traveling to Arlington County and the core would continue to drive directly to Metrorail at Vienna, Dunn Loring, and West Falls Church rather than board the BRT closer to home and then transfer to Metrorail.

Private Transit. The other proposed “private” transit modes are either not feasible, or would not be as beneficial as suggested in Dulles Plan B.

Numerous issues are associated with incorporating just-in-time ridesharing zones near BRT stations. Access for the zones would have to be provided from either the DIAAH, the inner edge of the Dulles Toll Road, or the outer edge of the Toll Road. Each configuration has issues that would make the provision of access either impractical, infeasible, unsafe, and/or costly. Moreover, due to liability risks, neither the Project Team nor VDOT could develop facilities with the express purpose of encouraging just-in-time

ridesharing. While these agencies recognize the benefits that have been gained in the I-95/I-395 corridor through this informal ridesharing arrangement, the random pairing of drivers and passengers inherent in this form of commuting presents risks for which most public agencies are not prepared to assume responsibility.

Similarly, numerous physical, technological, and social issues may limit the ability to implement high-occupancy toll lanes in the Dulles Corridor. In addition, high-occupancy toll lanes may not have substantial mobility benefits in the corridor. If solo drivers were allowed to use the HOV lane for a fee, then it is very likely that a large percentage of the HOV lane users in the Dulles Corridor would be single-occupant vehicles, reducing the average vehicle occupancy in the HOV lane. Therefore, increased use of the HOV lane under a high-occupancy toll system would result in minimal increases in the lane's person-moving capacity, and could result in a reduction in the lane's person-moving capacity.

3.2 METRORAIL ALTERNATIVE

This section identifies and summarizes the analysis of three new Metrorail alignments that were suggested by citizens during the Draft EIS public comment period.

3.2.1 ALIGNMENT T12

Alignment T12 would be 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 branches would diverge at the eastern edge of Tysons Corner, in the vicinity of the Dulles Connector Road/Route 123 interchange, and would converge again at the western edge of Tysons Corner, in the vicinity of the Dulles Toll Road/Route 7 interchange. 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 express leg of the alignment would include one station in the median of the DIAAH near the Spring Hill Road interchange. The station would be in the same location as the median station proposed for the BRT 1 alignment evaluated in the Draft EIS, and would include a pedestrian bridge connection to the existing Tysons-West*Park Transit Station in Tysons Corner. It is assumed that the Spring Hill Road Station would remain in operation after the construction of the Tysons Corner segment to allow for the provision of direct express service to Dulles Airport and Loudoun County.

The local leg of Alignment T12 would follow one of the four Metrorail alignments evaluated in the Draft EIS. Although Alignment T6 is depicted in Figure 1 of the technical memo presented in Appendix B, any of the proposed Tysons Corner alignments (T1, T6, T9, or T4) could be combined with the express leg.

Overall, Alignment T12 did not perform well when measured against several evaluation criteria. The alignment 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 VDOT's expansion plans at the Capital Beltway/Dulles Toll Road/Connector Road interchange.

The evaluation indicates that, relative to the alternatives previously considered in the Draft EIS, Alignment T12 would have numerous deficiencies:

- The additional tracks for Alignment T12, as well as the two Metrorail “interchanges” (i.e., the points where the express leg and the local leg diverge and converge) and the additional station at Spring Hill Road would increase costs above those for Alignments T1, T6, T9, and T4. Although it would remain, the investment in a station at Spring Hill Road would be lost once the Tysons Corner “local” leg of the alignment was complete.
- The shifting of the roadways that would be required to ensure the express leg would be compatible with interchange plans at the Capital Beltway and the Dulles Connector Road would have substantial impacts.
- Given that the overall demand for service between select locations in the central and western portions of the corridor and the core is not significantly greater than the demand for service to and from Tysons Corner, there is little benefit to extending service to the remainder of the corridor before providing service through the core of Tysons Corner.
- An express service from the western end of the corridor to the region’s core would offer little time savings benefits, and would degrade the frequency of service to Tysons Corner. When combined with the potential increase in wait time that the split service would cause, Alignment T12 would likely reduce overall ridership on the Dulles Corridor line.
- Split service operations could result in train “bunching” where the Dulles Corridor line meets the Orange Line, or could decrease service frequency through the western end of the corridor.

Given that it would have greater costs and fewer benefits than alternatives previously considered in the Draft EIS, Alignment T12 was not recommended for further consideration during the Dulles Corridor Rapid Transit Project environmental review process.

3.2.2 ALIGNMENT T13

Alignment T13 would be located within the Tysons Corner section of the proposed Dulles Corridor Rapid Transit Project. It is a variation of the Tysons Corner alignments evaluated in the Draft EIS.

Alignment T13 would be an entirely underground variation of Alignment T6, one of four Metrorail alignments evaluated in the Draft EIS. Alignment T13 would transition to a tunnel in the median of the Dulles Connector Road, west of Magarity Road. The alignment would then continue underground through Tysons Corner, resurfacing west of Tysons Corner in the median of the Dulles Airport Access Road near the Route 7/Dulles Toll Road interchange. Alignment T13 would include four underground stations at the same locations as the four stations proposed for Alignment T6.

As shown in the screening evaluation in Appendix B, Alignment T13 did not perform well relative to several evaluation criteria. Overall, because Alignment T13 would be completely underground through Tysons Corner, draft cost estimates prepared by the Project Team indicate that it would cost \$3.5 billion, which is approximately \$422 million higher than the cost for Alignment T6. Alignment T13 would also have a greater potential for cost escalation than other alignments evaluated in the Draft EIS because underground construction poses risks that cannot be completely identified prior to construction. Most of the significant risks relate to unknown subsurface conditions such as soil conditions, utilities, hazardous materials, and archaeological resources. Additionally, because Alignment T13 would have the same number stations as Alignments T6 and T9, in approximately the same locations, it would be expected to have the same ridership as the alignment options.

The primary reason for locating an alignment underground is to avoid impacts related to visual quality, noise and vibration, and conflicts with existing infrastructure. Although Alignment T13 would mitigate the

visual and noise effects associated with Alignments T1, T6, and T9, these effects could be mitigated through much lower cost mechanisms.

Given that it would have greater costs than alternatives previously considered in the Draft EIS, with no additional transportation service benefits, Alignment T13 was not recommended for further consideration during the Dulles Corridor Rapid Transit Project environmental review process.

3.2.3 ALIGNMENT T14

Alignment T14 is located within the Tysons Corner section of the Dulles Corridor Rapid Transit Project. It is a variation of the Tysons Corner Alignment T4 evaluated in the Draft EIS.

Unlike Alignment T4, which is an entirely aerial loop through Tysons Corner, Alignment T14 would include two short underground segments, one along each leg of the loop. The northern leg of Alignment T14 would transition to a tunnel along Westpark Drive, between Park Run Drive and International Drive, and would then continue underground to a point between Greensboro Drive and Route 7. The southern leg of the alignment would include a tunnel extending from the Tysons Central 123 Station to just east of the Route 7/123 interchange. The alignment would include six stations at the same locations as those proposed for Alignment T4; however, for Alignment T14, the Tysons Central B station would be underground.

As shown in the screening evaluation provided in Appendix B, Alignment T14 would reduce the visual impacts of alternatives previously considered in the Draft EIS, but would have greater costs, increased risks, no additional ridership benefits, and the same operational complexities. Draft cost estimates prepared by the Project Team indicate that Alignment T14 would cost \$3.174 billion, or \$94.1 million more than Alignment T4, and approximately \$73 million more than Alignment T6 (the most expensive Metrorail alignment option). Alignment T14 would also have greater potential for cost escalation than Alignment T4 because underground construction would pose risks that cannot be completely identified prior to actual construction.

As noted, Alignment T14 would have the same operational complexities as Alignment T4. Alignment T14 would reduce the ability to maintain service during an emergency or disruption along the Metrorail line. As discussed in the Draft EIS, in the event of an emergency or operational problem in Tysons Corner, it would be more difficult to maintain Metrorail service with Alignment T4 than for other alignments because of Alignment T4's divergent, single-track configuration. For this alignment, a disruption along one of the single tracks in the core of Tysons Corner would shut down service to two stations. Patrons would need to be bused to and from nearby stations to maintain service.

Given that Alignment T14 would present one of the few viable approaches for mitigating some of the visual effects associated with Alignment T4, it was recommended for further consideration during the Dulles Corridor Rapid Transit Project environmental review process should Alignment T4 be carried forward as the Locally Preferred Alternative.

(Note: In December 2002, the WMATA Board of Directors and the Commonwealth Transportation Board selected Alignment T6 as the Locally Preferred Alternative; therefore, Alignment T14 was not evaluated further.)