OPPORTUNITIES AND CONSTRAINTS

Implementation of the facilities outlined in the recent update to the Transportation System Plan will face some challenges in the study corridor, due to physical and, to some extent, policy constraints. However, improvements in the corridor present a significant opportunity to improve connections for various modes in the study area. This section outlines the opportunities and constraints that will need to be considered in the development of a conceptual design:

Urban / suburban tension: The corridor lies in an area in transition from a rural/suburban character to a more urban one. There is a tension between creating more urban-type facilities in the station areas, residential areas, and near schools on one hand and providing a high-capacity arterial for vehicles and freight on the other. This tension is also apparent in the different sources of roadway design guidance, including AASHTO’s Green Book, NACTO’s Urban Streets Design Guide, and Washington County’s Roadway Design & Construction Standards. However, this tension and transitioning character of the study corridor can provide an opportunity to build on the County’s growing multi-modal system and provide an example of designing facilities that need to fulfill multiple purposes.

Transportation System Plan designations and the design standards: The transportation system plan designates all three segments of the corridor as enhanced major street bikeways, requiring a buffered bike lane or cycle track on each. For segments 2 and 3, the TSP also designates the facilities as 4-5 lane arterials. In order to fulfill both of these items, the roadways would either require additional right-of-way beyond the 98 feet indicated in the Standards, or they would need to consider using narrower travel lane widths than those shown in the standards. However, the design standards currently offer flexibility in design with the design exception process, as described in the preceding section.

Narrow available right-of-way: One of the primary challenges in the 170th/Merlo corridor is related to the available right-of-way, which ranges throughout the corridor and the three segments as shown in Table 3 above and in Figure 11. None of the three segments has sufficient right-of-way to implement the designation of the transportation system plan, and obtaining additional right-of-way poses a challenge in terms of cost and property impacts. Minimizing the overall footprint of the roadway may also be desirable in the context of sensitive natural features and parkland. The corridor may have the potential to narrow the center median in areas where no turn lanes are needed to as low as four feet, a design exception that has been implemented in other areas in the County. However, as noted in the Washington County Bicycle Facility Toolkit, in order to implement the enhanced facilities as indicated in the TSP, one of three options will need to be selected:

- Increase the overall width of the right-of-way beyond the current cross sections in the Washington County Roadway Design & Construction Standards.
- Decrease automobile travel lane widths.
- Reduce the number of automobile travel lanes.
Figure 11. Areas with the minimum right-of-way in each segment

**Natural water features:** Segment 2 currently has a two-lane bridge crossing Beaverton Creek that runs through Tualatin Hills Nature Park, with a number of utility pipes also crossing alongside the bridge. In order to make any improvements to Segment 2, including widening or adding bicycle or pedestrian facilities, the bridge will need to be replaced and utilities relocated. Segment 1 also has a wetland area abutting the corridor near the MAX crossing that may complicate the addition of right-of-way at this pinch-point. Improving the bridge in Segment 2, however, will provide the opportunity to enhance the riparian corridor connection of Beaverton Creek between the Tualatin Hills Nature Park and the greenway to the west.
Utilities adjacent to the bridge (left) and Beaverton Creek bridge (right)

**Rail crossings:** The MAX line crosses the corridor in two places – on Segment 1 and Segment 3. On Segment 1, this crossing represents the narrowest point in the right-of-way for Segment 1, and currently has no bicycle facilities, though a midblock crossing with an RRFB was recently constructed to the south of the light rail tracks. However, the presence of the MAX line and the stations within the study area provide an immense opportunity to increase multi-modal movement in the study corridor. People traveling to and from the MAX stations can already do so via bike or on foot; with enhanced multi-modal facilities, even more will be encouraged to do so. In addition, bus service is ultimately planned to run on Segments 2 and 3, and this will expand transit service coverage in the neighborhood to further enable residents to make non-single-occupant-vehicle mode choices.

MAX Crossing on Merlo Road (left) MAX Crossing on 170th Avenue (right)
**Tualatin Hills Nature Park:** Currently the park has many old trees growing adjacent to the property line, with branches overhanging the side of the road (on Segment 2), creating an appealing aesthetic, which may make it difficult to widen the roadway to include the facilities designated in the Transportation System Plan. Also, the park is bounded by a tall fence, with two entrances on the western side of the park, and no marked crossing areas to access the park from neighborhoods to the west, decreasing its accessibility to the residents. However, a redesign of the walking and biking facilities along the study corridor has the potential to substantially enhance community access to the park, already an immense asset in the community.

**170th Avenue adjacent to Tualatin Hills Nature Park (left) Tualatin Hills Nature Park entrance (right)**

**On-street bicycle and pedestrian facility connections with regional trail network:** The study area is surrounded by Washington County’s existing and planned network of paved multi-use trails, including the Waterhouse Trail, Vine Maple Trail, Beaverton Creek Trail, and Westside Trail. The redesign of the study corridor presents an opportunity to provide added connectivity to these trails and enhance access to adjacent land uses through protected on-street bicycle and pedestrian facilities.

**170th Avenue/Merlo Road Intersection:** The 170th Ave/Merlo Road intersection represents a future challenge and an opportunity. Existing and forecast vehicular traffic patterns and plans indicate that the Segment 2 and Segment 3 portions of the study corridor will carry much of the north/south demand. In addition, pedestrian and bicyclist demand is likely to increase moving through the intersection in all directions, especially considering the increasing levels of development in the vicinity. The intersection of 170th Avenue/Merlo Road will need to be thoughtfully designed to provide enhanced safety and comfortable movement of all modes through the intersection. The area presents the opportunity to consider innovative bicycle crossing treatments, a roundabout, or other potential design ideas.

**Phased implementation:** Because of the difficulty and high costs of obtaining sufficient right-of-way to meet the TSP designations, there is an opportunity to phase implementation of improvements along the study corridor. An initial phase improvement could include three-lane cross sections throughout
the corridor with improvements to bicycle and pedestrian facilities. This type of facility could be accommodated within the existing right-of-way for the majority of the corridor (with some exceptions). A future phase could then complete the roadway widening to five lanes, requiring ROW acquisition along all of Segment 2 and 3. A phased implementation would distribute the costs of the project over time and would allow for pedestrian and bicycle access sooner rather than later.

**Stormwater/drainage/infrastructure:** The corridor improvements present an opportunity to collect and treat stormwater runoff where none exists today. Additionally, there is an opportunity to repair and upgrade existing damaged or undersized conveyance system. The narrow right of way poses a major challenge to finding opportunities to treat stormwater runoff using Low Impact Development Approach (LIDA) facilities. A phased approach to constructing the roadway would distribute the cost over time, and project phasing would be a consideration in designing a conveyance system and treatment facility for the ultimate build out condition. A phased system could be designed for future modification when the road is widened to its full cross-section.

**APPENDICES**

Appendix A: Large-scale figures of study corridor

Appendix B: *Washington County Bicycle Facility Design Toolkit* selected pages

Appendix C: White Paper to Support Bicycle Facility Design Toolkit on Lane Width Design Modifications

Appendix D: *Washington County Road Design and Construction Standards* selected exhibits
Appendix A  Large-scale figures of Corridor