

Southwest Corridor Light Rail Project

Staff Preferred Alternative Report

1. RECOMMENDATION

This report presents project partner staff's recommended Preferred Alternative for the proposed Southwest Corridor light rail project. The Preferred Alternative must include the transit mode (light rail), route, stations and termini.

Summary of alignment chosen

This recommendation represents staff's commitment to identifying a cost-effective transit project that extends from downtown Portland to Bridgeport Village and meets the adopted project Purpose & Need. It is based on analysis documented in the *Southwest Corridor Light Rail Project Draft Environmental Impact Statement* (EIS) plus input from the public and agencies, and also takes into consideration the Federal Transit Administration's (FTA) rating criteria for large transit projects.

The recommended Preferred Alternative is shown on Figure 1 and includes the following alternatives and refinements described in the Draft EIS:

- Alternative A1, Barbur
- Alternative B2, I-5 Barbur Transit Center to 60th
 - Refinement 2, Taylors Ferry I-5 Overcrossing, which modifies Alternative B2*
 - Refinement 4, Barbur Undercrossing, which modifies Alternative B2
- Alternative C2, Ash to Railroad
 - Refinement 5, Elmhurst, which modifies Alternative C2
 - Refinement 6, Tigard Transit Center Station East of Hall, which modifies Alternative C2

*Staff recommends a preference for Refinement 2, but with Alternative B2 as studied in the DEIS remaining in consideration.

In addition, staff shall work together to evolve and finalize the work plan for further design and environmental review, keeping members of this or a subsequent steering committee informed on its progress and contents. If the design and environmental review finds a "fatal flaw" with any project component, staff will present the issue to TriMet's future project steering committee for guidance.

This Preferred Alternative would provide a number of benefits to the SW Corridor and the Portland region. These include:

- Providing a reliable, fast travel option between Bridgeport, Tigard, SW Portland and downtown Portland that will maintain its travel time even as the population grows by 70,000 in the corridor by 2035.
- Serving a projected 43,000 average weekday riders in 2035.
- Carrying 1 in 5 southbound commuters leaving downtown Portland in the PM peak in 2035.
- Connecting existing and future jobs and homes, along with Portland State University (PSU), Oregon Health & Science University (OHSU), National University of Natural Medicine (NUNM) and Portland Community College-Sylvania (PCC).
- Providing a new transit “backbone” for the local bus system in southeastern Washington County, including new transit centers and park and rides to enable people to easily switch between travel modes.
- Creating a new pedestrian connection to the jobs, medical services and educational opportunities on Marquam Hill at OHSU, the Veterans Administration and Shriners hospitals.
- Creating an improved bike and pedestrian link to PCC Sylvania campus and a quick shuttle connection between the campus and MAX.
- Building a shared transitway in South Portland to allow buses from Hillsdale to bypass congestion to more quickly reach downtown Portland, and vice versa.
- Building continuous sidewalks and bike lanes where light rail would be located within an existing roadway, such as on SW Barbur Boulevard and SW 70th Avenue.
- Creating the required transportation infrastructure to support local and regional plans such as the Tigard Triangle Strategic Plan, Barbur Concept Plan and 2040 Growth Concept. These plans aim to accommodate continued population and job growth without a proportionate increase in traffic congestion by supporting transit-oriented development.

Implications

The Preferred Alternative will be evaluated in the Final EIS, which will document the significant beneficial and adverse effects of the project, commit to mitigation strategies and document their effects, and respond to comments submitted on the Draft EIS. Appropriate review and analysis of the Preferred Alternative will also be undertaken under Sections 106, 4(f), 6(f) and 7, which address historic resources, parks and endangered species.

This recommendation would end further analysis of Alternatives A2-BH (Naito with Bridgehead Reconfiguration), A2-LA (Naito with Limited Access), Design Refinement 1, B1 (Barbur), B3 (I-5 26th to 60th), B4 (I-5 Custer to 60th), C1 (Ash to I-5), C3 (Clinton to I-5), C4 (Clinton to Railroad), C5 (Ash and I-5 Branched) and C6 (Wall and I-5 Branched), as well as Refinement 3 (I-5 Undercrossing). This recommendation would also end further work on aspects of Alternative B2: a new light rail bridge near the Portland/Tigard city boundary crossing over I-5 and Pacific Highway to enter the Tigard Triangle, and traveling adjacent to SW Atlanta Street to connect to SW 70th Avenue; and of Alternative C2: the east-west alignments along SW Baylor and SW Beveland Streets and SW Ash Avenue.

Further action recommended

In preparation for the Final EIS, staff will continue work to identify ways to avoid, minimize, or mitigate the adverse effects documented in the Draft EIS, including:

- The relocation of households and businesses along the alignment. TriMet will update designs to avoid or minimize property effects but when that is not possible then property owners, tenants and businesses will receive fair market financial compensation and relocation assistance.
- Increased traffic congestion and queuing at several locations throughout the corridor. Additional traffic analysis will be performed where necessary, including at highway ramp terminals, park and ride accesses, and at-grade light rail crossings of streets. Specific locations may include:
 - South Portland in the vicinity of the Bridgehead Reconfiguration
 - The Barbur/Bertha/I-5 off-ramp
 - The Crossroads area in the vicinity of Refinement 2
 - Downtown Tigard in the vicinity of Refinement 6
 - The SW Upper Boones Ferry at-grade crossing area, with consideration of a grade-separate crossing
 - The greater Bridgeport area
- Routing over wetlands and floodplains in Tigard, and the generation of additional storm water runoff. These effects must be mitigated to levels that meet federal and local requirements.
- Various effects on historic resources and public parks, largely in South Portland. These properties receive special federal protection and extra public engagement and analysis will be undertaken on these impacts.
- Tree removal along the route, particularly in Segment A.

Design work on the Preferred Alternative will also address detailed questions relating to station locations and designs, park and rides, station connections and other issues.

A preliminary work plan encompassing the upcoming environmental and design work is in **Appendix A**.

The SW Equitable Development Strategy will continue to explore policy options and investments to address the potential for existing and future displacement, including its current funding of pilot programs to promote housing and workforce development options in SW Corridor.

Preferred Alternative: Staff Recommendation

Alternative A1: Barbur
Alternative B2: I-5 Barbur TC to 60th
Alternative C2: Ash to Railroad

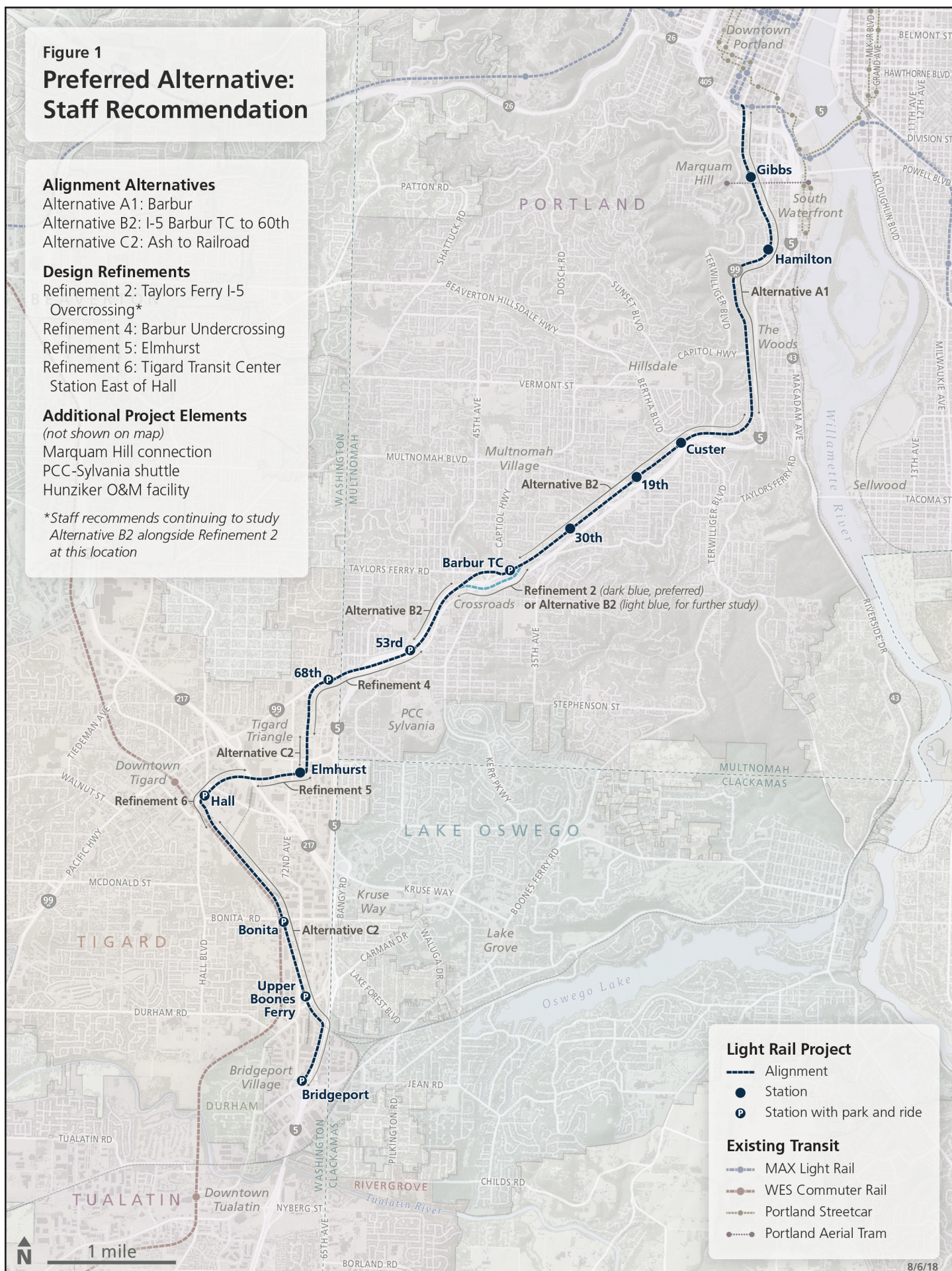
Refinement 2: Taylors Ferry I-5
Overcrossing*

Refinement 4: Barbur Undercrossing

Refinement 5: Elmhurst

Refinement 6: Tigard Transit Center
Station East of Hall

(not shown on map)
Marquam Hill connection
PCC-Sylvania shuttle
Hunziker O&M facility



2. PREFERRED ALTERNATIVE DESCRIPTION AND RATIONALE

For each of the three segments studied in the DEIS, staff describes the recommended Preferred Alternative route, stations and additional project elements; recaps the options removed from further consideration; and explains the rationale for its recommendation.

Segment A: Inner Portland

Description

In Segment A (Inner Portland), which extends from the southern end of the Portland Transit Mall to just north of the intersection of SW Barbur Boulevard and SW Brier Place, the recommended Preferred Alternative includes:

- Alternative A1, Barbur

The Preferred Alternative in Segment A is shown in Figure 2.

Green Line light rail trains would continue from Clackamas County, through downtown Portland and into the Southwest Corridor, with tracks diverging from existing MAX tracks just west of the current Lincoln Station, at SW Fourth Avenue and SW Lincoln Street. It would cross Interstate 405 (I-405) on a new structure east of and parallel to SW Fourth Avenue. The alignment would run along the east side of SW Barbur Boulevard for several blocks, then transition into the center of SW Barbur Boulevard at SW Hooker Street. The alignment would continue running in the center of SW Barbur Boulevard into the Woods area. In this section, the existing Newbury and Vermont viaducts would be replaced by two new bridges that would carry four auto lanes, light rail, and improved bike and pedestrian facilities.

Between this point and through the southern end of Segment A and into Segment B, light rail would continue to travel in the center of SW Barbur Boulevard.

Continuous bicycle and pedestrian facilities would be constructed along the light rail alignment through Segment A and into Segment B, between downtown Portland and the Barbur Transit Center.

Stations

The Preferred Alternative includes the following stations in Segment A:

- Gibbs Station
- Hamilton Station

No park and rides are proposed in Segment A.

Additional Project Elements

Staff recommends the continued consideration of these components of the proposed project:

- Marquam Hill connection to provide access between the Gibbs light rail station to the medical complex on Marquam Hill. This connector will allow pedestrians to reach the South Waterfront district via the Darlene Hooley pedestrian bridge. Multiple options for this connection are

included in the Draft EIS; staff recommends a public process later in 2018 for the selection of the preferred option to be studied in the Final EIS.

- A shared transitway extending over one mile from downtown Portland on SW Barbur Boulevard, with a stop at SW Gibbs, to improve the speed and reliability of buses traveling between downtown Portland and Hillsdale.

Staff also recommends the following additional action beyond the proposed light rail project:

- Development of a Ross Island Bridgehead Reconfiguration that includes changes to SW Naito Parkway in coordination with the light rail project, based on the roadway designs in Alternative A2-BH. This separate project would redirect regional traffic away from local neighborhood streets in the South Portland neighborhood, convert SW Naito Parkway to a surface boulevard with at-grade intersections, improve safety for pedestrians and bicyclists, and make nearly three acres of land available for development. It would provide benefits to the region and to a neighborhood that has been historically negatively impacted by transportation investments, and could potentially mitigate some traffic impacts caused by the light rail project.
- Study of the proposed Bridgehead Reconfiguration in the Final EIS for the light rail project.
- Identification of funding sources for non-project-related mitigation portions of the Bridgehead Reconfiguration independent of the light rail project. Cost estimates must be developed.

Options considered and removed from consideration

The following alternatives were considered for Segment A:

- Alternative A2-BH, Naito with Bridgehead Reconfiguration
- Alternative A2-LA, Naito with Limited Access

Both of these alternatives would have routed light rail on SW Naito Parkway instead of on SW Barbur Boulevard south of downtown Portland.

- Refinement 1, East side running in the Woods, which would have constructed a separate light rail structure to avoid the Vermont and Newbury viaducts

Additional alternatives were considered and narrowed by the Steering Committee in project phases completed prior to the initiation of the Draft EIS.

Rationale for selection

Compared to Alternatives A2-BH and A2-LA, Alternative A1 would:

- Provide faster light rail travel times
- Provide a shorter connection to Marquam Hill
- Result in fewer displacements of residents, businesses and employees and fewer impacts on potentially protected historic resources

Compared to Refinement 1, Alternative A1 would:

- Replace the Vermont and Newbury viaducts, wood structures built in 1934, that compromise the safety of bicyclists and pedestrians due to their narrow widths
- Provide a continuous route for light rail, bicyclists, and pedestrians that would not require an at-grade crossing of northbound SW Barbur Boulevard auto lanes
- Be the result of an agreement between ODOT and City of Portland in which ODOT would contribute funding toward the replacement of the viaducts. This funding could be considered separate from project costs

Figure 2
Preferred Alternative:
Staff Recommendation
Segment A: Inner Portland



Segment B: Outer Portland

Description

In Segment B, Outer Portland, which extends from SW Barbur Boulevard at SW Brier Place to the intersection of SW 68th Avenue and SW Atlanta Street, just west of the Portland/Tigard city boundary, the recommended Preferred Alternative includes:

- Alternative B2, I-5 Barbur Transit Center to 60th
- Refinement 2, Taylors Ferry I-5 Overcrossing
- Refinement 4, Barbur Undercrossing

The Preferred Alternative in Segment B is shown in Figure 3.

Light rail would operate in the center of SW Barbur Boulevard from the northern end of Segment B until just north of the Barbur Transit Center. At this location, with Refinement 2, light rail would cross the southbound lane of SW Barbur Boulevard at a gated crossing to run north of and parallel to SW Taylors Ferry Road. It would cross SW Capitol Highway at grade before turning south on structure to cross over SW Taylors Ferry Road and I-5 to land between I-5 and SW Barbur Boulevard. If pending analysis of the benefits and impacts of Refinement 2 indicates it would not represent an improvement over Alternative B2, staff may recommend replacing Refinement 2 in the Preferred Alternative with Alternative B2 without the refinement. Without Refinement 2, light rail would cross the northbound lane of SW Barbur Boulevard at a gated crossing to run between Barbur Transit Center and I-5. It would cross over a new light rail structure crossing I-5, SW Capitol Highway, and SW Barbur Boulevard to land between SW Barbur Boulevard and I-5.

Where SW Barbur Boulevard crosses I-5 (the northern point of the Tigard Triangle), light rail would cross over I-5 on a new parallel structure that would then descend into the space between the I-5 off-ramp and southbound SW Barbur Boulevard/Pacific Highway. The alignment would then cross under Pacific Highway to transition to the southeast side of the roadway just west of SW 65th Avenue. The alignment would accommodate Highway 99W and I-5 planning envelopes and sight distance standards set by ODOT.

Continuous bicycle and pedestrian facilities would be constructed along Barbur Boulevard from Segment A to the Barbur Transit Center.

Staff recommends further environmental analysis of Refinement 2, with TriMet's future steering committee to determine whether the Final EIS studies Refinement 2, unrefined Alternative B2 or a design variation of either.

Stations and park and rides

The Preferred Alternative includes the following stations and park and rides in Segment B:

- Custer Station
- 19th Station
- 30th Station
- Barbur TC Station and park and ride with up to 825 spaces

- 53rd Station and park and ride with up to 950 spaces
- 68th Station and park and ride with up to 900 spaces (located in overlap of Segments B and C)

Additional Project Elements

Staff recommends the continued consideration of these components of the proposed project:

- 53rd Avenue pedestrian and bicycling improvements between the station and the PCC Sylvania campus
- PCC Sylvania bus shuttle, either between campus and the SW 53rd Avenue Station, or between Barbur Transit Center, PCC Sylvania, and the SW 68th Avenue Station

Options considered and removed from consideration

The following alternatives were considered for Segment B:

- Alternative B1, Barbur, in which the light rail alignment would remain on SW Barbur Boulevard throughout Segment B
- Alternative B3, I-5 26th to 60th, in which light rail would transition from SW Barbur Boulevard to adjacent to I-5 near SW 26th Avenue
- Alternative B4, I-5 Custer to 60th, in which light rail would transition from SW Barbur Boulevard to adjacent to I-5 near SW Custer Street
- Refinement 3, I-5 Undercrossing, in which light rail would cross SW Barbur Boulevard south of the 53rd Station and continue adjacent and east of I-5, until tunneling under I-5 to reach the Tigard Triangle parallel to SW Atlanta Street and connecting to SW 70th Avenue.

Additional alternatives were considered and narrowed by the Steering Committee in project phases completed prior to the initiation of the Draft EIS.

Rationale for selection

Compared to Alternatives B3 and B4, Alternative B2 would:

- Offer more accessible and visible station locations
- Include more streetscape and safety improvements to SW Barbur Boulevard
- Result in fewer residential displacements
- Better support the Barbur Concept Plan

Compared to Alternative B1, Alternative B2 would avoid the complex reconstruction of the existing bridge over I-5 at Crossroads. Staff believes Alternative B1 to be largely infeasible and undesirable for reasons not described in the DEIS, namely that the Barbur/Capitol bridge over I-5 would need to be reconstructed as the existing structure is not strong enough for light rail trains. The reconstructed bridge would likely:

- Be rebuilt to be higher to meet current clearance standards and thus create challenges with adjacent property accesses as the elevation of streets immediately adjacent to the structure

would also need to be raised. Bike and pedestrian connectivity and safety issues would not be resolved and may be exacerbated.

- Result in a multiple year closure of SW Capitol Highway (Highway 10) and SW Barbur Boulevard
- Require supports (the current structure is a free span), necessitating the widening of I-5 for a length in each direction, which could result in reconstruction of existing on and off ramps, and may trigger a federal requirement for a full interchange at current standards. These resultant effects would significantly increase the financial cost and adverse effects of the project.

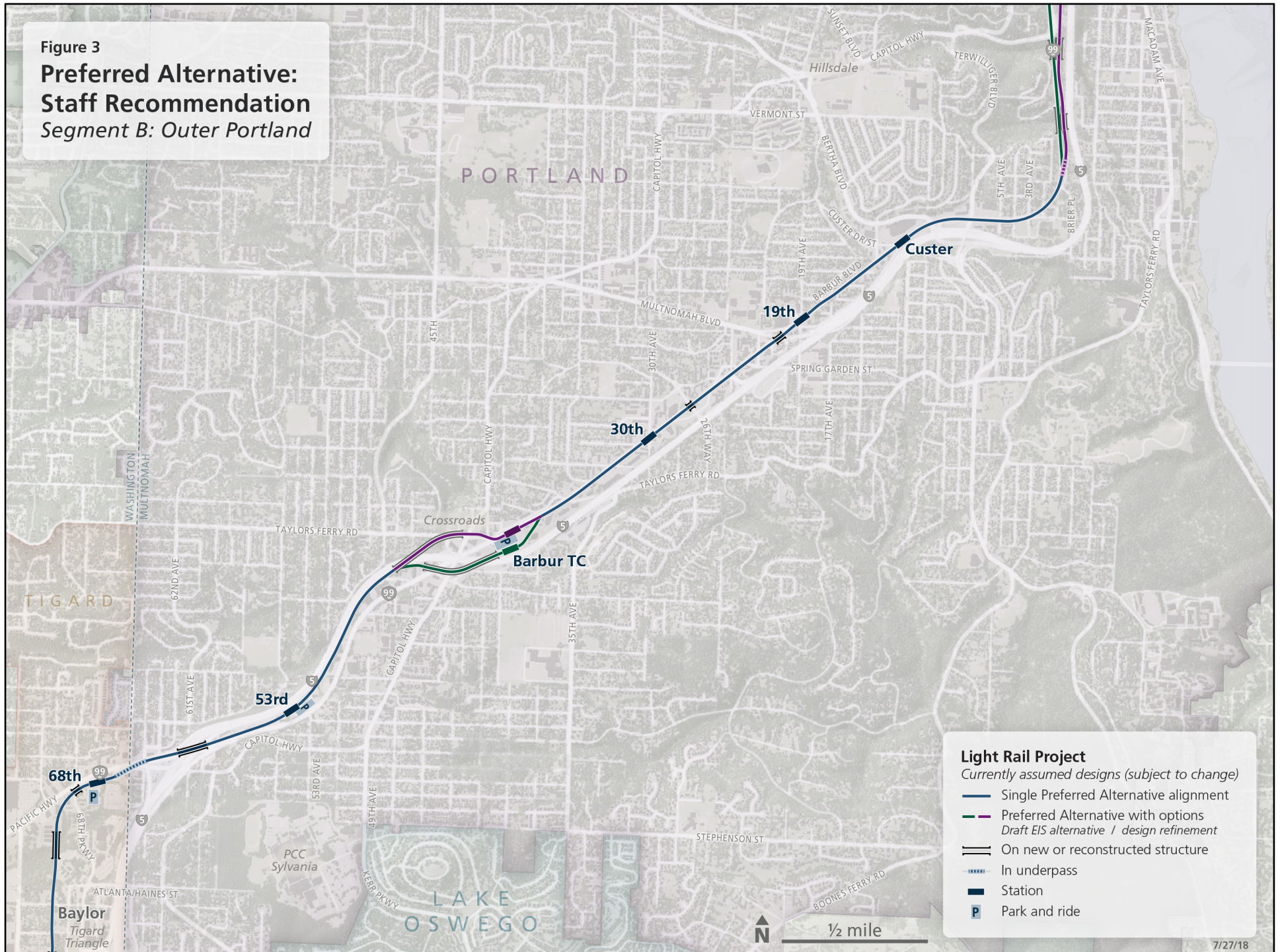
Refinement 2 would, in comparison to Alternative B2 as designed:

- Reduce construction impacts on I-5 by providing a shorter light rail bridge
- Reduce visual impacts because the bridge over I-5 would be lower as it would not cross over SW Barbur Boulevard or SW Capitol Highway
- Reduce costs

Refinement 4 would, in comparison to both Alternative B2 as designed and Refinement 3:

- Result in a faster travel time for transit passengers
- Lower capital costs
- Reduce visual impacts by providing a shorter light rail bridge
- Reduce construction-period traffic impacts on I-5
- Shift the Baylor Station and park and ride to SW 68th Avenue near OR-99W, improving station spacing and park and ride access, and increasing ridership

Figure 3
Preferred Alternative:
Staff Recommendation
Segment B: Outer Portland



Segment C: Tigard and Tualatin

Description

In Segment C, which extends from the intersection of SW 68th Place and Pacific Highway to Bridgeport Village in Tualatin, the recommended Preferred Alternative includes:

- Alternative C2, Ash to Railroad
- Refinement 5, Elmhurst
- Refinement 6, Tigard Transit Center Station East of Hall

The Preferred Alignment in Segment C is shown in Figure 4.

This combination of Alternative C2 and refinements represents a Through-Routed alignment direct to Bridgeport Village, and ends consideration of a Branched alignment with separate branches to downtown Tigard and to Bridgeport Village. For more details, see Chapter 2 of the Draft EIS.

From the southeast side of SW Barbur Boulevard near SW 68th Avenue, a new curved light rail bridge would connect to the Tigard Triangle, via a light rail-only bridge over 68th Avenue, with a north-south alignment bridge over Red Rock Creek connecting to SW 70th Avenue at SW Atlanta Street. Between SW Atlanta Street and SW Elmhurst Street, light rail would operate along the SW 70th Avenue right-of-way, which would include bicycle and pedestrian facilities, and cross over SW Dartmouth Street on structure.

The alignment would turn west from SW 70th Avenue onto SW Elmhurst Street, with a station between SW 70th Avenue and SW 72nd Avenue. The alignment would continue west to cross SW 72nd Avenue at grade, before elevating to cross over Highway 217 on a light rail-only bridge toward downtown Tigard. Upon reaching the ground west of Highway 217, the alignment would turn southwest and cross SW Hunziker Street at grade in the vicinity of SW Knoll Drive and travel along the east side of SW Hall Boulevard to reach a station, which would include a bus transfer area and new park and ride.

From this new transit center east of Hall, light rail would turn to the southeast and travel adjacent to the freight rail and WES Commuter Rail tracks. Light rail would be on a structure between just south of SW Tech Center Drive and just south of SW Bonita Road to avoid a freight rail spur track and SW Bonita Road, resulting in an elevated station at SW Bonita Road. The alignment would continue adjacent to the railroad at grade and cross SW 72nd Avenue and SW Upper Boones Ferry Road with at-grade gated intersections. The route would approach I-5 about 0.25 mile south of SW Upper Boones Ferry Road before turning south to pass over the railroad on structure toward the terminus at SW Lower Boones Ferry Road near Bridgeport Village.

Continuous bicycle and pedestrian facilities would be constructed along the light rail alignment where it is on SW 70th Avenue south of Red Rock Creek, and potentially in other locations as well.

The alignment would accommodate Highway 99W and I-5 planning envelopes and sight distance standards set by ODOT.

Stations and park and rides

The Preferred Alternative includes the following stations and park and rides in Segment C:

- 68th Station and park and ride with up to 900 spaces (located in overlap of Segments B and C)
- Elmhurst Station
- Hall Station and park and ride with up to 300 spaces
- Bonita Station and park and ride with up to 100 spaces
- Upper Boones Ferry Station and park and ride with up to 50 spaces
- Bridgeport Station and park and ride with up to 950 spaces

Additional Project Elements

- An operations and maintenance facility to the southeast of the Hall station, between SW Hunziker Street and the WES/freight tracks

Options considered and removed from consideration

The following alternatives were considered for Segment C:

- Alternative C1, Ash to I-5, in which light rail would diverge from the railroad right of way near SW Landmark Lane south of downtown Tigard to reach I-5 and operate adjacent to I-5 to Bridgeport Village
- Alternative C3, Clinton to I-5, in which light rail would utilize a bridge extending from SW Clinton Street in the Tigard Triangle to downtown Tigard
- Alternative C4, Clinton to Railroad, in which light rail would be routed as Alternative C1 south of downtown Tigard and as Alternative C3 between the Tigard Triangle and downtown Tigard
- Alternative C5, Ash and I-5 Branched, in which light rail service would branch in the southern Tigard Triangle, with some trains using SW Ash Avenue to terminate in downtown Tigard, and some trains continuing along an adjacent to I-5 alignment to terminate at Bridgeport
- Alternative C6, Wall and I-5 Branched, in which light rail service would branch in the southern Tigard Triangle, with some trains using SW Wall Street to terminate in downtown Tigard, and some trains continuing along an adjacent to I-5 alignment to terminate at Bridgeport

Additional alternatives were considered and narrowed by the Steering Committee in project phases completed prior to the initiation of the Draft EIS.

Rationale for selection

Compared to Alternatives C5 and C6, which would branch service in the Tigard Triangle and have one terminus in downtown Tigard and one terminus in Bridgeport Village, C2 would:

- Provide better Tigard-Tualatin connectivity and better transit service in Downtown Tigard
- Have lower operating costs, resulting in more cost-effective light rail operations and allowing more local bus service in the corridor

Compared to C3 and C4, which would use an alignment on SW Clinton Street, C2 would:

- Provide an additional light rail station in the Tigard Triangle
- Result in higher ridership

- Better support the Tigard Strategic Plan
- Avoid a critical traffic impact at SW Hall Boulevard near Highway 99W

Compared to C1 and C3, which would operate a through route along I-5, C2 would:

- Provide faster service with faster travel times
- Result in fewer impacts to businesses and employees

Refinement 5 would:

- Avoid impacts to businesses on SW Beveland Street
- Result in faster travel times and increased ridership

Refinement 6 would:

- Avoid residential displacements along SW Hall Boulevard and SW Ash Avenue
- Reduce traffic impacts by avoiding two at-grade auto crossings of SW Hall Boulevard

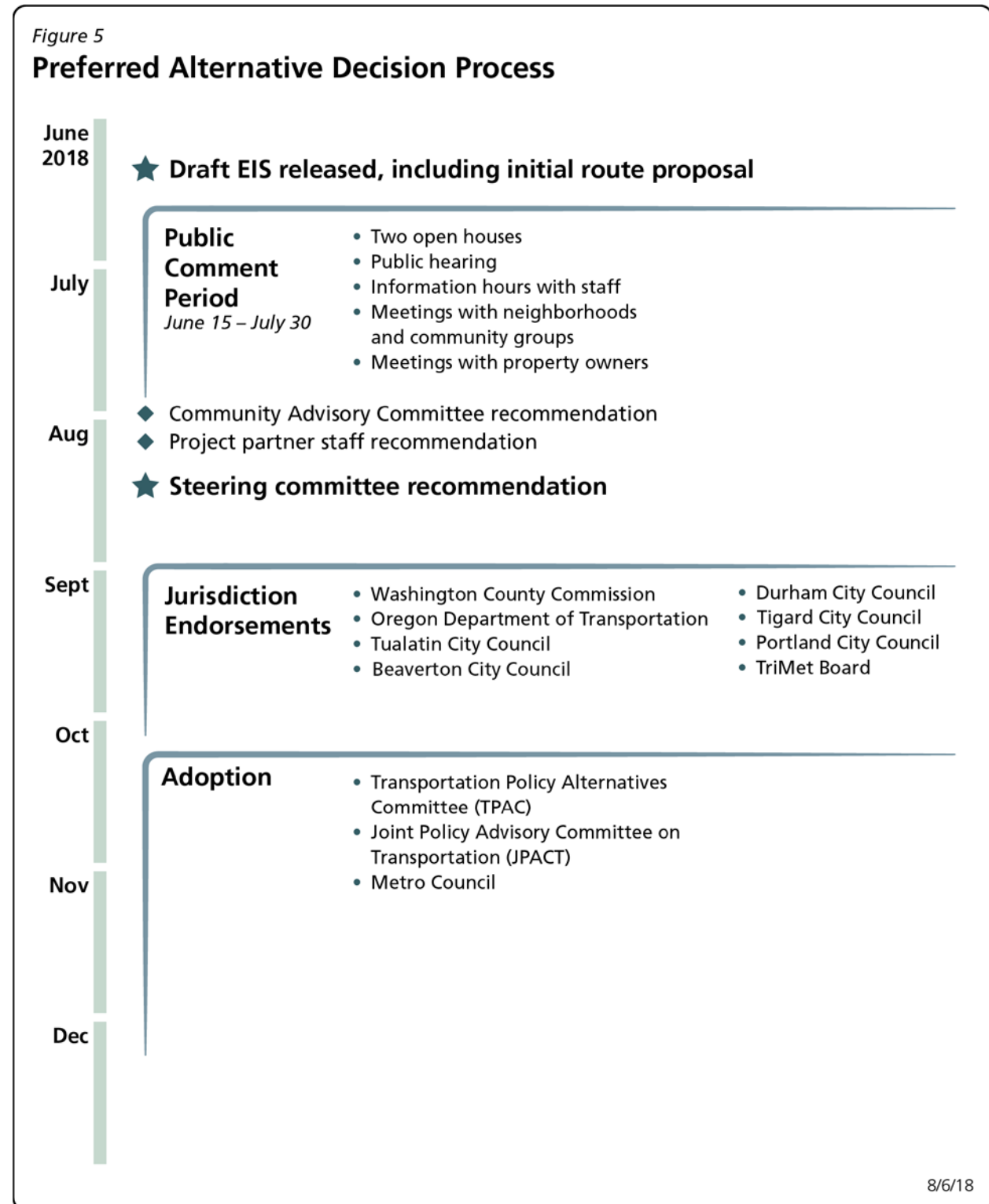
Figure 4

Preferred Alternative: Staff Recommendation Segment C: Tigard and Tualatin



3. PREFERRED ALTERNATIVE SELECTION PROCESS

The anticipated process for adoption of the Preferred Alternative into the Regional Transportation Plan is shown in Figure 5.



Appendix A – Preliminary Work Plan Development

The following text is an initial set of interests that does not yet represent a finalized, consensus agreement. Factors from public comments and federal environmental permitting needs must also be taken into account before the workplan is finalized.

Segment A – Issues to be addressed

Staff recommends the following design and planning efforts as the project proceeds:

- Work with FTA to determine which portions of the viaducts replacement are eligible for federal funding recognizing that some elements may become betterments to the transit project
- Develop construction sequencing that minimizes traffic impacts related to replacement of the viaducts and associated SW Capitol Highway (Highway 10) overpass
- Define bicycle and pedestrian improvements at the tie-in of light rail to existing infrastructure at SW 4th Avenue and SW Lincoln Street.
- Optimize designs for the light rail alignment tie-in to existing light rail tracks at SW 4th Avenue and SW Lincoln Street to ensure reliable light rail operations.
- Maximize speeds of buses and trains operating together on the shared transitway in South Portland.
- Initiate a planning process to select and refine a Marquam Hill connection design.
- Continue traffic analysis with focus on, but not limited to, the South Portland area.

Segment B – Issues to be addressed

- Initiate a planning process to select and refine the bus shuttle route connecting light rail to the PCC Sylvania campus.
- Initiate discussion among project partners about the best locations and sizes of park and rides.
- Continue traffic analysis with focus on, but not limited to, the Crossroads area in the vicinity of Refinement 2.

Segment C – Issues to be addressed

- Continue cooperative design work between TriMet and the City of Tigard on the layouts and configurations of the Hall station and its related elements (bus stops, pedestrian connections, park and ride).
- Work to define MOS options that support Tigard's downtown vision, are cost effective, extendable to Tualatin and are operationally efficient.
- TriMet and City of Tigard will work on an agreement regarding the design, development opportunities, benefits and adverse effects of the downtown station.
- Initiate discussion among project partners about the best locations and sizes of park and rides.
- Explore ways to avoid or minimize impacts to businesses at the Bridgeport station and park and ride location.

- Continue traffic analysis with focus on, but not limited to areas near freeway ramps, at-grade rail crossings of roadways, and the Bridgeport terminus.
- Prioritize and identify funding for sidewalk and bike facilities or a multi-use path on the light rail bridge over Highway 217.

General planning and design

- Maintain the goal of creating a fast, cost effective project that reaches Bridgeport Village and includes a robust public engagement process to incorporate community values
- Continue to strive to minimize property impacts
- Continue collaboration of TriMet, Metro, Cities of Portland, Tigard and Tualatin and Washington County to pursue opportunities for regulated affordable housing in conjunction with the light rail project.
- Optimize the supporting transit network to ensure connectivity and broad transfer access to light rail
- Continue collaboration of project partners with FTA and other local and federal agencies participating in the environmental review process to define the work program of the Final EIS, particularly on issues such as traffic, ecosystems, water resources and indirect effects.

Design – bicycle and pedestrian

Prioritize and identify funding for sidewalks, bicycle facilities, or multi-use paths adjacent to the alignment or connecting to stations and consider including as betterments, including:

- The station access improvements included in the Draft EIS
- Over I-5 in the Crossroads area if not incorporated in light rail bridge design
- Over Red Rock Creek
- Over Highway 217

Design – stations and park and rides

Initiate a station and park and ride planning process to optimize the number of stations, park and rides, and their locations, and to optimize park and ride capacities and accesses. Further refine station access improvement projects based on the station locations.

- All park and rides: Evaluate sizing to balance transit performance with safety, traffic impacts, costs, and property impacts.
- All stations and park and rides: Identify opportunities to integrate new technologies for shared vehicles, autonomous vehicles, traffic signal coordination and more into station access and design.
- Barbur Transit Center: Optimize layout for transit operations and redevelopment potential
- Tigard Transit Center (Hall Station): Ensure designs create safe pedestrian and bicycling access between the station and downtown Tigard and to the WES Commuter Rail station, and foster the station area's redevelopment as a mixed use area supporting housing and jobs. Design the

operating and maintenance facility east of the Hall station in a manner that facilitates redevelopment in the vicinity.

- Bridgeport station: Emphasize the station's importance as the terminus in connecting to areas beyond the light rail line. With this potential as a mobility hub, ensure that all connecting modes—autos, buses, bicycles and pedestrians—have convenient access. Explore ways to avoid or minimize impacts to the Village Inn.

Traffic analysis

Consider expanding the scope of traffic analysis, while maintaining current methodologies. Staff needs to assess the following suggested analyses to distinguish those that may impact major alignment decisions and should be initiated in the short term to inform the Final EIS, versus those that will inform elements of the final design and can be performed later. The suggested analyses are:

- Assess traffic diversion and traffic circulation changes in the South Portland area, including SW Naito Parkway, SW Barbur Boulevard, I-405, US-26, local streets, and Ross Island Bridge ramps to identify required mitigations if the Ross Island Bridgehead Reconfiguration is not constructed in coordination with the light rail project, and to identify impacts and mitigations if it is.
- Assess traffic queuing resulting from light rail crossing of SW Upper Boones Ferry road crossing, and whether queuing would spill back to the I-5 ramps at SW Carmen Drive, and to the SW Durham Road crossing of WES Commuter Rail tracks. Identify mitigations, including consideration of grade separation.
- Study traffic and safety impacts in the greater Bridgeport area, including Nyberg Road, Tualatin-Sherwood Road, and Lower Boones Ferry Road resulting from access to the proposed park and ride terminus.
- Perform additional analysis where necessary at other highway ramp terminals, park and ride accesses, and at-grade light rail crossings of streets.