TUALATIN TRANSPORTATION SYSTEM PLAN

City of Tualatin

Transportation System Plan Update

Appendixes

February 2013

CH2M HILL • DKS
Angelo Planning Group • JLA Public Involvement

Revised Tualatin Transportation System Plan Update
Volume II: Appendixes

Prepared for

City of Tualatin

February 2013

CH2MHILL®

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Alternatives Analysis

This Appendix provides an overview of the process used to develop Transportation System Plan recommendations and contains a comprehensive list of all the projects recommended. The first section of this Appendix lists all transportation improvement projects considered during the plan update process. Each project was evaluated based on the seven TSP goals and corresponding objectives adopted by the Transportation Task Force. Detailed project evaluations are included in the second section of this Appendix. Some projects were not recommended for inclusion and others were identified for further analysis as Refinement Areas. Analysis for each Refinement Area is included in the final section of this Appendix, with a variety of potential solutions offered for each problem.



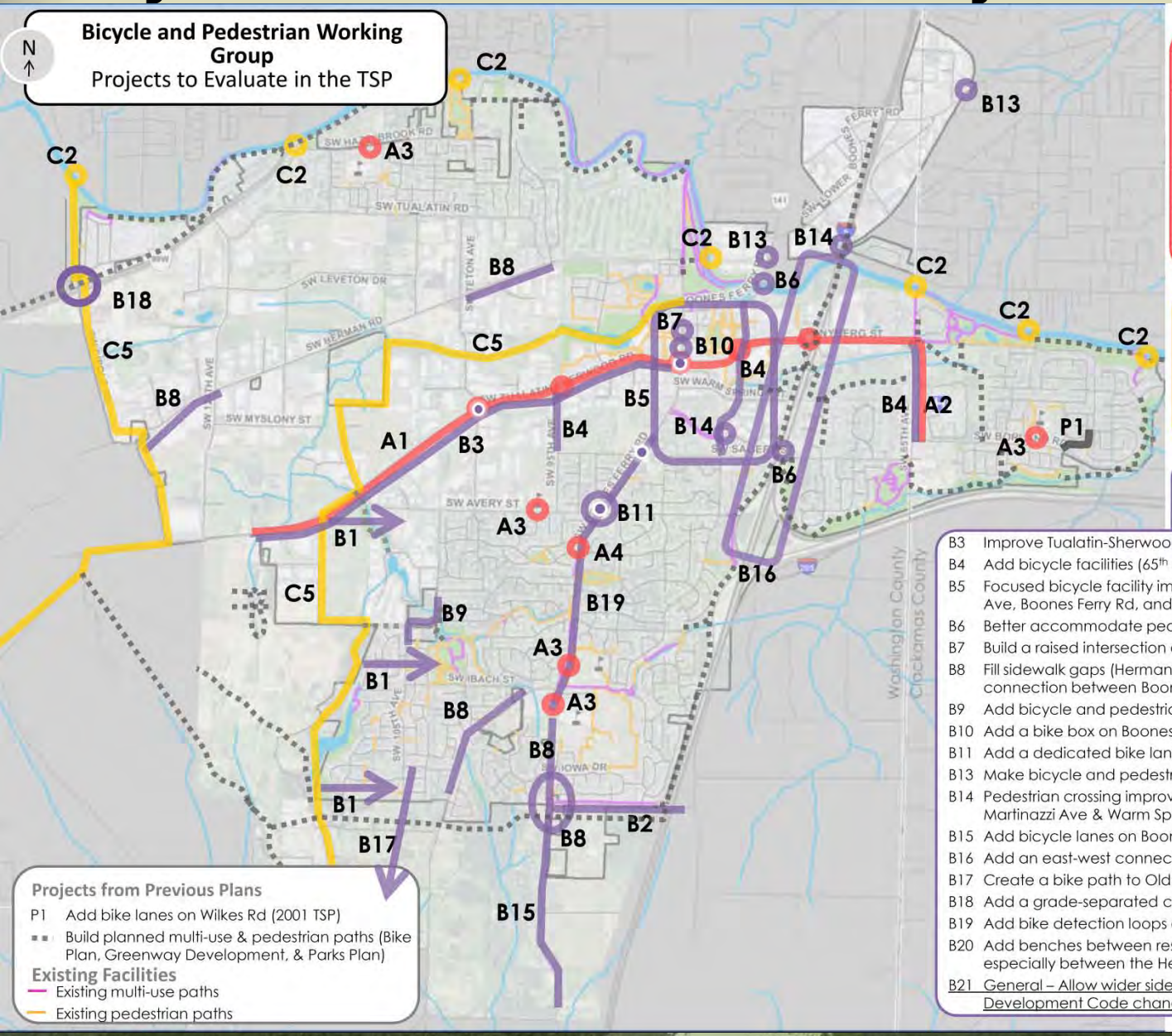


Screening Results

By Working Group
Topic Area

Bicycle/Pedestrian

Bicycle and Pedestrian – Projects to Evaluate



Safety-Focused Ideas

- A1 Add pedestrian-focused crossing improvements at key crossings of Tualatin-Sherwood Rd & Nyberg St
- A2 Separate walking/bike area with plantings or barriers on 65th Ave between Borland Rd and Nyberg Ln including adding bicycle/pedestrian facilities on the bridge at 65th Ave
- A3 Improve visibility and safety near schools at crosswalks
- A4 Improve visibility at crosswalk at Siletz Dr & Boones Ferry Rd
- A6 General - Add wayfinding signs for Safe Routes to School

Trail-Focused Ideas

- C2 Build bridges for pedestrian and bicycle access over the Tualatin River
- C4 Create a system of bicycle boulevards (Bikeways on lower –volume streets) connecting all major areas including residential areas (Not on map)
- C5 Tonquin Trail

Facility-Focused Ideas

- B1 Connect Tonquin trail with neighborhoods
- B2 Add sidewalks & bicycle lanes on Norwood Rd
- B3 Improve Tualatin-Sherwood Rd to make it more bicycle and pedestrian friendly
- B4 Add bicycle facilities (65th Ave near the hospital, 95th Ave and Martinazzi Ave)
- B5 Focused bicycle facility improvements in heart of downtown, including Martinazzi Ave, Boones Ferry Rd, and Tualatin-Sherwood Rd
- B6 Better accommodate pedestrians on the bridges
- B7 Build a raised intersection at Seneca and Nyberg (crossing Boones Ferry Rd)
- B8 Fill sidewalk gaps (Herman Rd, Grahams Ferry Rd, Boones Ferry Rd, and the connection between Boones Ferry Rd and Norwood Rd)
- B9 Add bicycle and pedestrian facilities on 105th Ave, Blake St, 108th Ave
- B10 Add a bike box on Boones Ferry Rd near the Sweek House
- B11 Add a dedicated bike lane through intersection at Avery St & Boones Ferry Rd
- B13 Make bicycle and pedestrian facility improvements at railroad crossings
- B14 Pedestrian crossing improvements (Tualatin View Apartments, Boones Ferry Rd; Martinazzi Ave & Warm Springs St)
- B15 Add bicycle lanes on Boones Ferry Rd to Day Rd
- B16 Add an east-west connection across I-5
- B17 Create a bike path to Old Town Sherwood as this area develops
- B18 Add a grade-separated crossing over 99W
- B19 Add bike detection loops at major intersections (indicated by ●)
- B20 Add benches between residential and commercial areas throughout the city, especially between the Heritage Center and Haggens (not on map)
- B21 General – Allow wider sidewalks for strolling and outdoor cafes. (Potential Tualatin Development Code change)

Projects from Previous Plans

- P1 Add bike lanes on Wilkes Rd (2001 TSP)
- Build planned multi-use & pedestrian paths (Bike Plan, Greenway Development, & Parks Plan)

Existing Facilities

- Existing multi-use paths
- Existing pedestrian paths

Bicycle and Pedestrian – Ideas Screened Out

ID	Project	Based on what screening question?	Action to be taken
A5	Improve lighting at Jurgens Rd and Hazelbrook Rd	1 (transportation related, addressing an identified need)	Forward to engineering
B1	Add a pedestrian overcrossing between the Community park and Tualatin Commons	1 (transportation related), 4 (cost)	Consider upon future development
C3	Add a pedestrian shortcut between Hazelbrook Rd and 99W	1 (addressing an identified need)	Consider if a future development occurs at this location





Bicycle/Pedestrian

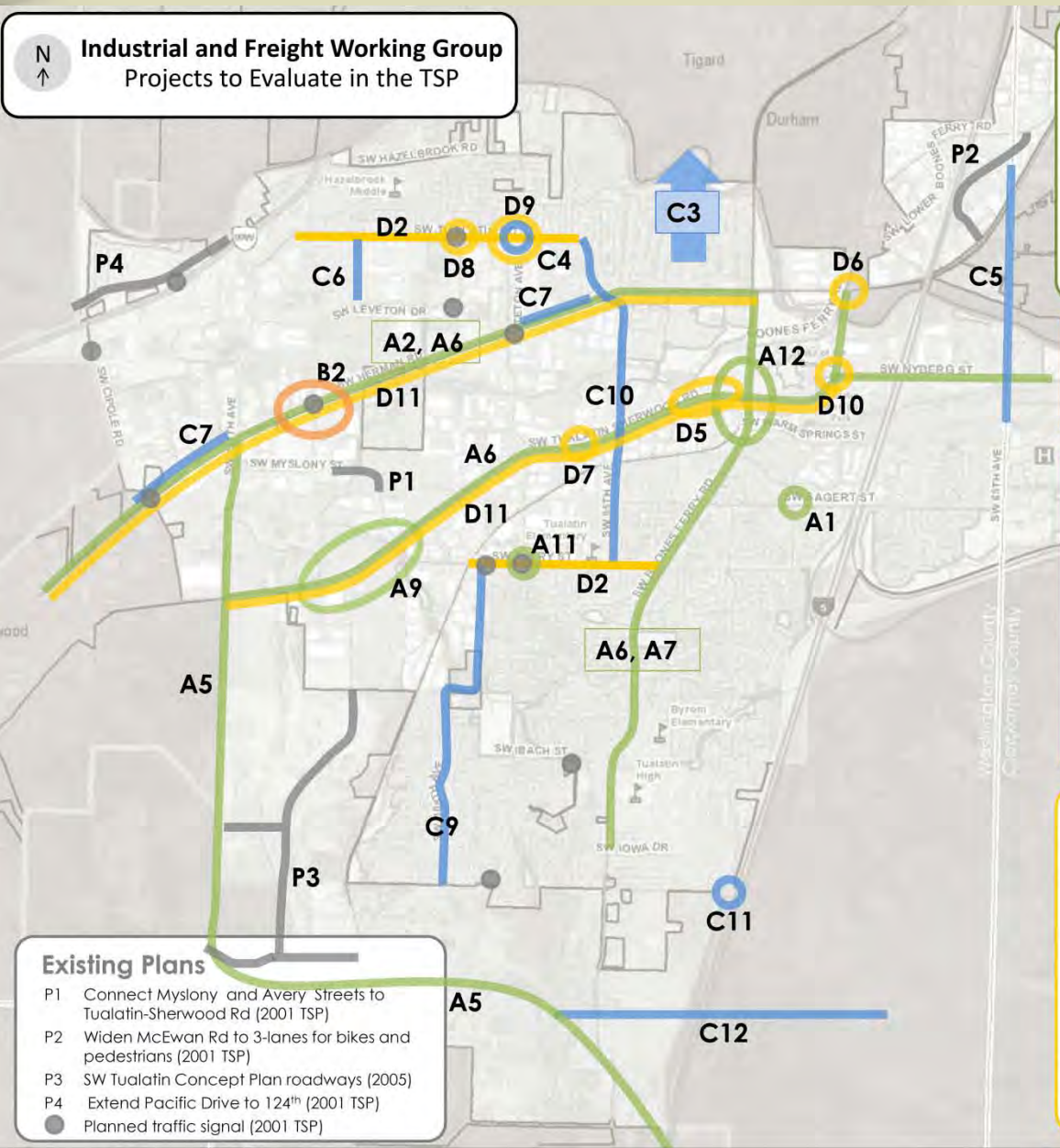
Discussion





Industrial and Freight

Industrial and Freight – Projects to Evaluate



Congestion-Focused Ideas

- A1 Add a signal or roundabout at Sagert St and Martinazzi Ave
- A2 Divert truck traffic from Tualatin Rd to Herman Rd
- A5 Extend 124th Ave and connect to I-5 south of Tualatin
- A6 Provide coordinated signal timing and access management along major arterials. ~~Restrict trucks to right lane.~~ Widen travel lanes.
- A7 ~~Widen Boones Ferry Rd. Remove right turn light at Tualatin-Sherwood Rd.~~ Remove right turn light in the northbound direction on Boones Ferry Rd.
- A9 Improvements to help mobility of through-traffic (Tualatin-Sherwood Rd)
- A11 Improve turn radius at Avery St and Teton Ave, look at congestion
- A12 Synchronize turn signals to/from Boones Ferry Rd to Tualatin-Sherwood Rd; coordinate with the train signal

Transit-Focused Ideas

- B1 *General* - Add Saturday, Sunday, late evening transit shuttle
- B2 Add rail station with easy offload and access for industry
- B3 *General* - Provide local loop bus

Connectivity-Focused Ideas

- C3 ~~North south connection to Hall Blvd~~ Look for ways to provide north-south connectivity over Tualatin River for vehicles
- C4 Add a left turn from Teton Ave to Tualatin Rd
- C5 Extend 65th Ave north
- C6 Improve 115th Ave
- C7 Improve cross-section on Herman Rd
- C9 Balance the needs of neighborhood with local truck movement along 108th/105th Aves. Consider removing trucks/adding truck info signs.
- C10 Extend 95th Ave north to Tualatin Rd
- C11 Add an interchange on I-5 at Norwood Rd
- C12 Create an east/west connection across I-5 (near Greenhill Rd)

Other Ideas

- D1 General – Coordinate freight receiving/shipping times
- D2 Add vision & sound walls; reduce cut-through traffic.
- D3 General – Improve safety and reduce congestion by education and incentivizing telecommuting
- D5 Add a lane on Tualatin-Sherwood Rd to Fred Meyer, better lane signage for I-5. Add traffic camera for red light violations.
- D6 Improve signs to direct traffic to correct street
- D7 Add traffic signal at 97th Ave and Tualatin-Sherwood Rd
- D8 Improve visibility, restrict left turns from 108th Ave onto Tualatin Rd
- D9 Add a signal at Tualatin Rd and Teton Ave/Jurgens Rd
- D10 Improve Tualatin-Sherwood Rd/Martinazzi Ave signal timing/add a red light camera
- D11 Encourage off-peak usage on Herman Rd and Tualatin-Sherwood Rd
- D12 General - Make "Truck Route" signs larger

Existing Plans

- P1 Connect Mysloy and Avery Streets to Tualatin-Sherwood Rd (2001 TSP)
- P2 Widen McEwan Rd to 3-lanes for bikes and pedestrians (2001 TSP)
- P3 SW Tualatin Concept Plan roadways (2005)
- P4 Extend Pacific Drive to 124th (2001 TSP)
- Planned traffic signal (2001 TSP)

Industrial and Freight – Ideas Screened Out

ID	Project Idea	Based on what screening question?	Action to be taken
A3	Provide an undercrossing for Nyberg through traffic under I-5 to avoid signal/conflicts. Create an urban interchange	2 (ability to implement), 4 (cost)	None
A4	Reconsider the connection between 99W and Tualatin-Sherwood Rd (note: in Sherwood)	2 (ability to implement)	Forward to City of Sherwood
A8	Close 90th Ave to 18-wheel trucks	1 (addressing a transportation problem)	Reassess during review of functional classification plan
A10	Create a loop road around central downtown, with a turn radius that works for trucks	1 (addressing a transportation problem), 4 (cost)	None
B3	General – Provide bus from Clackamas MAX stop to WES for employees	1 (addressing a transportation problem)	Forward to TriMet

Industrial and Freight – Ideas Screened Out (cont'd)

ID	Project Idea	Based on what screening question?	Action to be taken
C1	Add connection and entry to I-205	3 (technical feasibility)	None
C2	Provide direct connection between Herman Rd & Boones Ferry Rd. Consider a tunnel	2 (ability to implement), 4 (cost)	None
C1	Add interchange at Norwood Road	3 (technical feasibility)	None
D4	Move industrial area to the SW area, change to multi-family residential, or buffer existing neighborhood better from industrial area	1 (transportation-related)	Forward to Planning



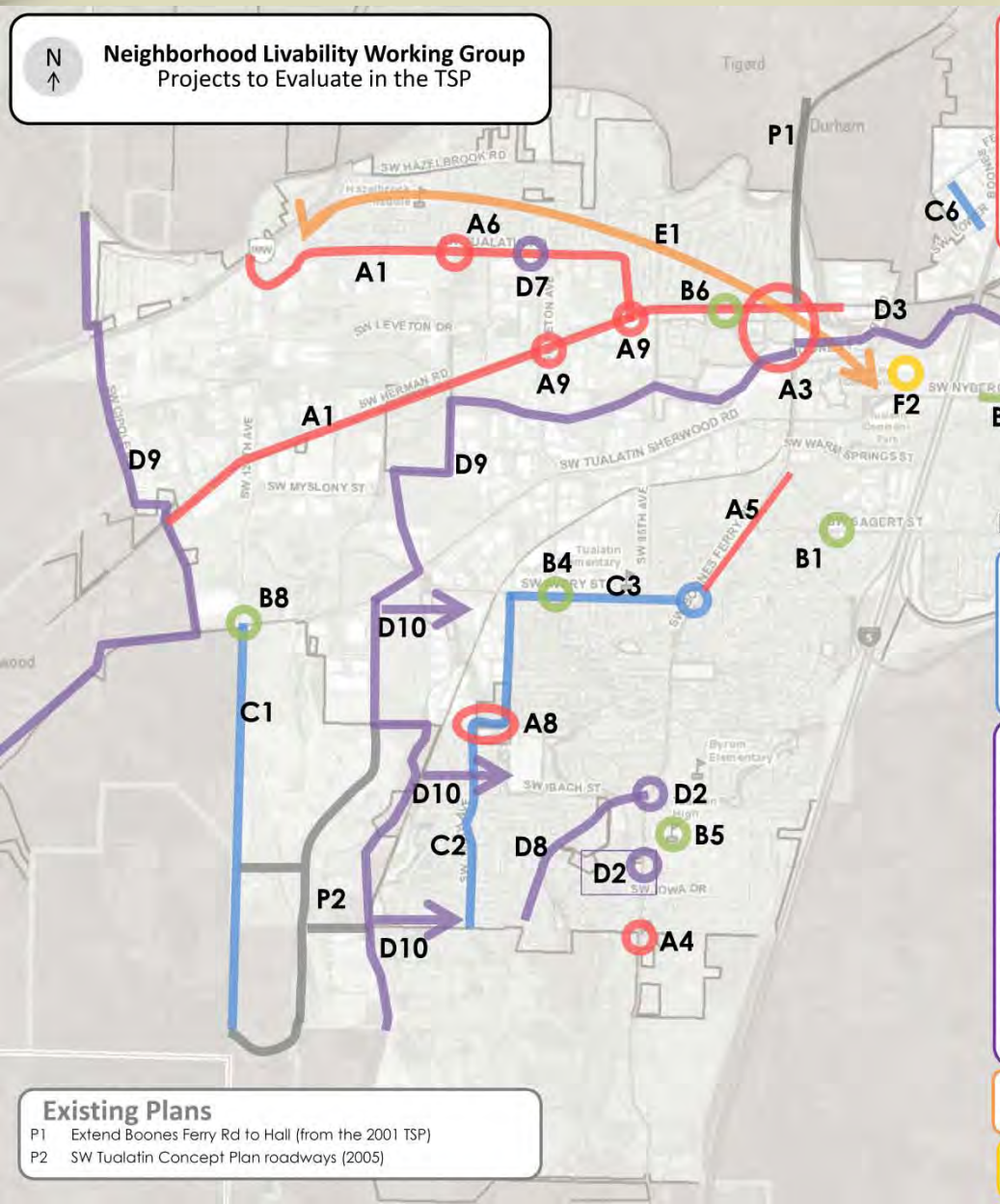


Industrial and Freight

Discussion

Neighborhood Livability

Neighborhoods – Projects to Evaluate



Safety-Focused Ideas

- A1 Discourage/restrict through & truck traffic along Tualatin Rd while encouraging a shift to Herman Rd & Leveton Rd. Make residential access along Tualatin Rd easier.
- A3 Reroute school buses away from Tualatin Community Park and two railroad crossings
- A4 Add a roundabout at Boones Ferry Rd &Norwood Rd
- A5 Explore ways to make Boones Ferry Rd more pedestrian-friendly, including the creation of one consistent speed limit, without widening
- A6 Improve intersection at 108th Ave and Tualatin Rd
- A8 Reduce speed, add sidewalks and bike lanes on Blake St curves. Possibly add trail through wooded area.
- A9 Eliminate free right turns

Congestion-Focused Ideas

- B1 Add a signal or roundabout at Sagert St and Martinazzi Ave
- B2 Add a dedicated right turn lane into Nyberg Woods Apartments
- B3 Realign Sagert St and Borland Rd intersection (roundabout or signal)
- B4 Improve intersection at Avery St and Teton Ave
- B5 Address congestion caused by high school
- B6 Adjust signal timing to reflect traffic needs
- B8 Add right turn lane from Tualatin-Sherwood Rd to northbound 124th Ave

Connectivity-Focused Ideas

- C1 Connect 124th Ave to Tonquin Rd
- C2 Balance neighborhood needs with trucks along 108th/105thAves. Consider disallowing trucks/truck info signs. Add traffic calming.
- C3 Balance the needs of neighborhood with local truck movement along Avery St; provide turn lane for traffic entering into school
- C6 Create a street between Boones Ferry Rd and Bridgeport Rd

Bicycle/Pedestrian-Focused Ideas

- D2 Consider pedestrian islands on Boones Ferry Rd, near Byrom Elementary and Tualatin High schools
- D3 Provide a mutli-use path along the river
- D4 Connect sidewalk on east side of 65th Ave
- D5 Repair gap in sidewalk on the south side of Borland Rd
- D6 Add multi-use path as part of Tualatin Trail
- D7 Provide focused pedestrian crossing improvements (may need signal)
- D8 Add bike facilities & continuous sidewalks; reduce speed limit
- D9 Build the Tonquin Trail
- D10 Provide neighborhood connections to Tonquin Trail
- D11 Connect to Tualatin Path
- D12 General – add benches around the city for pedestrians, especially between Heritage Center and Haggens
- D13 ~~General – Provide 3 loop walking paths that connect all Tualatin Neighborhoods.~~ Create a system of bicycle boulevards (bikeways on lower-volume streets) connecting all major areas including residential areas (Not on map)

Transit-Focused Ideas

- E1 Provide transit serving local resident needs in north Tualatin, between 99W and downtown Tualatin

Other Ideas

- F2 ~~Consider changing "no right on red" sign~~ Remove northbound right turn light in Boones Ferry Rd

Existing Plans

- P1 Extend Boones Ferry Rd to Hall (from the 2001 TSP)
- P2 SW Tualatin Concept Plan roadways (2005)

Neighborhood Livability – Ideas Screened Out

ID	Project	Based on what screening question?	Action to be taken
A2	Improve lighting on Hazelbrook Rd	1 (transportation-related)	Forward to Engineering
A7	Improve sight distance and reduce speeds at Boones Ferry Rd and Arapaho Rd	1 (does not address a transportation problem)	Forward to Engineering
A10	Require a stop before vehicles turn right onto Boones Ferry Rd between Mohawk St and Greenhill Lane	3 (technical feasibility)	None
B7	Add two right turns onto I-5 northbound from Nyberg St	2 (ability to implement)	Forward to ODOT
C4	Add I-5 Interchange with Norwood Rd	3 (technical feasibility)	None
C5	Limit Siletz to exit only at Boones Ferry Rd and 105th Ave to minimize cut-through traffic.	1 (not included in TSP analysis)	Revisit upon completion of Boones Ferry Road analysis and recommendations
D1	Consider a pedestrian overcrossing on Boones Ferry Rd	4 (cost)	Assess more effective, lower cost solutions to pedestrian safety

Neighborhood Livability – Ideas Screened Out (Cont.)

ID	Project	Based on what screening question?	Action to be taken
F1	Consider ways to lessen noise from 99W and I-5 on nearby residences	1 (transportation related)	Forward to Engineering
F3	Intersection of Ibach/Grahams Ferry is confusing; rename road or better signs; need better lighting	1 (transportation related, addressing a transportation problem)	Forward to Engineering
F4	General – Add gateway signs to announce CIOs	1 (transportation related)	Forward to CIOs
F5	Move industrial area to the SW area (no direct truck route), change to multifamily residential, or buffer existing neighborhood better from industrial area	1 (transportation related)	Forward to Planning
F6	Create small, neighborhood commercial for residents to walk to	1 (transportation related)	Forward to Planning





Neighborhood Livability

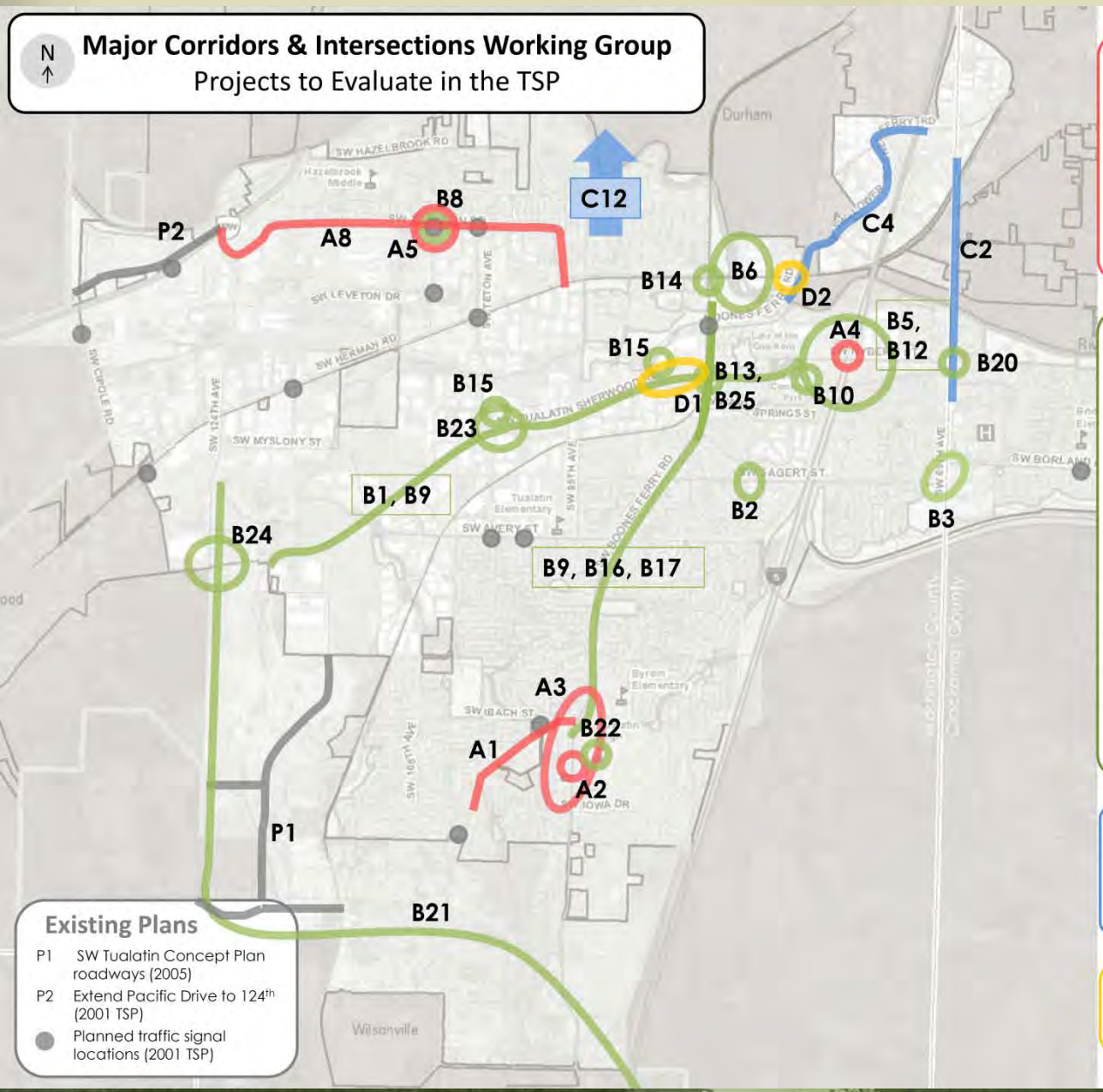
Discussion





Major Corridors and Intersections

Major Corridors – Projects to Evaluate



Safety-Focused Ideas

- A1 Reduce speeds, add guardrail and shoulders to this section of Grahams Ferry Rd
- A2 Add traffic signal at Tualatin High School
- A3 Consistent speed zones for both Tualatin High School & Byrom Elementary School
- A4 ~~Raise the southbound off-ramp to allow a better view of traffic on~~ Improve the sight distance at the I-5 Nyberg Rd interchange
- A5 Add traffic signal on Tualatin Rd at 108th Ave or on Teton Ave
- A6 *General* – consistent use of yellow turn signals on all traffic signals
- A8 Discourage through and truck traffic along Tualatin Rd while encouraging through and truck traffic along Herman Rd. Make residential access easier.

Congestion-Focused Ideas

- B1 Widen Tualatin-Sherwood Rd
- B2 Signal or roundabout at Sagert St and Martinazzi Ave
- B3 Realign Sagert St/Borland Rd intersection
- B5 Restrict right turn on red at Nyberg Interchange
- B6 Rethink access in vicinity of Tualatin Community Park
- B8 Prohibit left turns out of 108th Ave or remove trees in the southwest corner
- B9 Coordinate signal timing on Boones Ferry Rd and Tualatin-Sherwood Rd; widen Boones Ferry Rd
- B10 Redesign the intersection at the Fred Meyer (from Nyberg Rd)
- B12 Make two right turn lanes from I-5 north onto Nyberg Rd
- B13 Extend the northbound left turn lane and create a southbound right turn lane on Boones Ferry Rd at Tualatin-Sherwood Rd to reduce backup from WES train; add red light cameras
- B14 Reconfigure Boones Ferry Rd at Tualatin Rd
- B15 Add a 4-way stop by 90th Ave at Kaiser
- B16 Add bus pullouts on Boones Ferry Rd
- B17 Widen Boones Ferry Rd
- B20 Roundabout at Nyberg Rd/65th Ave; keep Nyberg Rd 2 lanes
- B21 Extend 124th Ave and connect to I-5 and Tonquin Rd
- B22 Address congestion caused by high school
- B23 Add a dedicated right turn lane on Teton Ave at Tualatin-Sherwood Rd
- B24 Add right turn lane on Tualatin-Sherwood Rd at 124th Ave

Connectivity-Focused Ideas

- C2 Extend 65th Ave north
- C4 Improve traffic flow on Lower Boones Ferry Rd near Bridgeport Village into downtown Tualatin
- C12 ~~Extend Boones Ferry Rd to Hall Blvd~~ Look for ways to provide north-south connectivity over Tualatin River for vehicles

Other Ideas

- D1 Add lane on Tualatin-Sherwood Rd to Fred Meyer, better lane signage for I-5. Install traffic camera for signal violations.
- D2 Better signs needed to direct traffic to correct street

Major Corridors – Ideas Screened Out

ID	Project	Based on what screening question?	Action to be taken
A7	Improve sight distance and reduce speeds at Boones Ferry Rd and Arapaho Rd	1 (does not address a transportation problem)	Forward to Engineering
B4	Consider a traffic loop in downtown (one way, right turn only)	1 (addressing a transportation problem), 4 (cost)	Look at other options to address downtown circulation
B7	Consider removing ramp signals at Nyberg interchange	1 (does not address a transportation problem), 2 (Ability to Implement)	Look at other options to address congestion at Nyberg interchange
B1	Consider redesigning the Nyberg interchange into a full cloverleaf	2 (ability to implement), 4 (cost)	Look at other options to address congestion at Nyberg interchange
B1	Add a southbound left turn and right turn lane to Nyberg interchange	1 (does not address a transportation problem), 4 (cost)	Look at other options to address congestion at Nyberg interchange
B1	Restrict trucks to right lane, widen travel lanes	2 (ability to implement)	None

Major Corridors – Ideas Screened Out (cont'd)

ID	Project	Based on what screening question?	Action to be taken
B25	Limit access and grade separate the intersection of Tualatin-Sherwood Rd and Boones Ferry Rd	1 (addressing a transportation problem), 4 (cost)	None
C3	Construct a new road between Tualatin High School and Byrom Elementary School	1 (does not address a transportation problem)	Look at other options to address school congestion
C5	Improve intersection at 99W and Tualatin Rd	1 (does not address a transportation problem)	None
C6	Extend Tualatin Rd to Lower Boones Ferry Rd	3 (technical feasibility)	None
C8	Add on/off ramps from I-5 to Norwood Rd	3 (technical feasibility)	None
C9	Widen Sagert St to 2 lanes each way with pedestrian median	1 (does not address a transportation problem)	None

Major Corridors – Ideas Screened Out (cont'd)

ID	Project	Based on what screening question?	Action to be taken
C10	Extend Helenius Road (Grahams Ferry Rd to Norwood Rd)	3 (technical feasibility)	None
C11	Create street grid in Bridgeport	1 (does not address a transportation problem), 2 (ability to implement)	None
D3	Tualatin-Sherwood Rd/Martinazzi Ave – Adjust signal timing, add a red light camera	2 (ability to implement)	Forward to Washington County – potential project already underway
D4	Adjust signal Timing	2 (ability to implement)	Forward to Washington County – potential project already underway



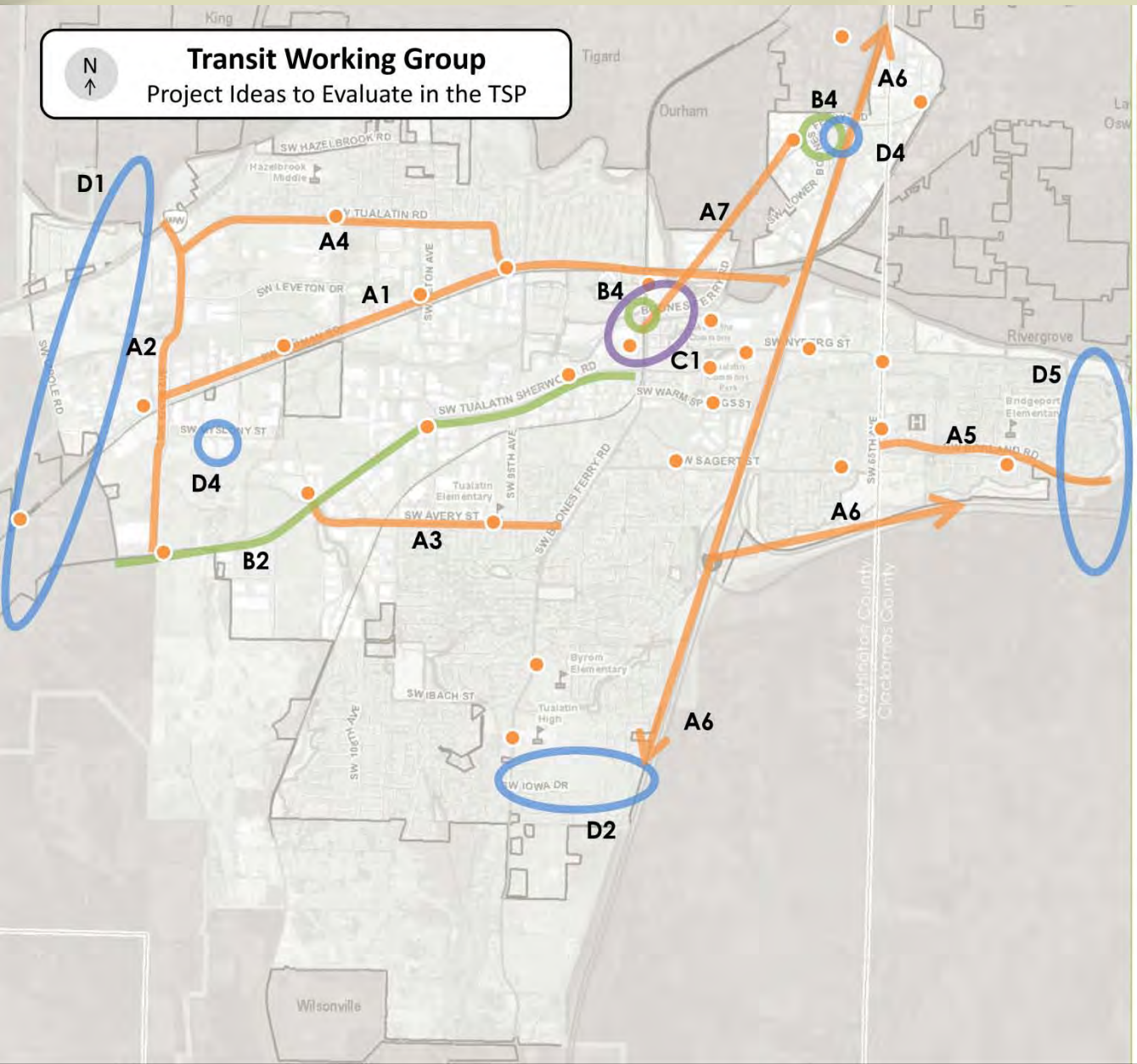


Major Corridors and Intersections

Discussion

Transit

Transit – Projects to Evaluate



Bus Service-Focused Ideas

- A1 Provide bus transit service on Herman Road
- A2 Provide bus transit service on 124th Street
- A3 Provide bus transit service on Avery Street
- A4 Provide bus transit service on Tualatin Road between downtown and 99W
- A5 Extend bus service to east Tualatin
- A6 Improve bus service between Tualatin and Salem
- A7 Provide a shuttle or trolley service between Bridgeport Village and Commons area, especially for weekend service
- A8 Provide a loop bus route around the city*
- A10 Expand existing on-call shuttle and charge fares*
- A12 General – need extended service hours for all transit*
- A13 General – use more energy efficient buses*
- A14 Coordinate bus schedules with WES schedule*
- A16 Add stops on higher-volume routes*

● Potential bus stop locations connecting major employers and activity centers

*not shown on map

Rail Service-Focused Ideas

- B2 Provide rail or high capacity bus transit service on Tualatin-Sherwood Road (towards Sherwood)
- B4 Build elevated pedestrian bridge to connect park-and-ride with shopping at Bridgeport Village
- B10 General – Add more spaces for bicycles on WES trains*

Land Use-Focused Ideas

- C1 Make the WES station a central focus of downtown and the main transit center. Improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections

Park-and-Ride-Focused Ideas

- D1 Look for potential park-and-ride locations in west Tualatin
- D2 Look for potential park-and-ride locations in south Tualatin
- D3 Add parking capacity at Tualatin Park-and-Ride (near Bridgeport Village)
- D4 Look for opportunities to reduce size of or relinquish underutilized park-and-ride lots
- D5 Add a park-and-ride location in east Tualatin

Transit – Ideas Screened Out

ID	Project	Screening Question	Moving forward into evaluation?
A9	Add bus line from Yamhill Transit District to WES	2 (Ability to Implement)	Forward to Yamhill Transit District and TriMet
A11	General –leave TriMet service area	3 (Technical Feasibility)	Assess ability to improve transit service in Tualatin first, and then reconsider the need for this idea
A15	Provide transit service to Lake Oswego	1 (Addressing a need)	None
B1	Eliminate freight rail trips during rush hours, to avoid interrupting bus and WES service	2 (Ability to implement)	Participate in future regional discussions around increasing WES frequency (B3)
B3	Increase WES frequency	2 (Ability to implement)	Participate in future regional discussions around increasing WES frequency
B5	Extend WES to Salem	2 (Ability to implement)	Participate in future regional discussions on this topic

Transit – Ideas Screened Out (Cont.)

ID	Project	Screening Question	Moving forward into evaluation?
B6	Oregon Passenger Rail between Portland and Eugene	2 (Ability to implement)	Participate in future regional discussions on this topic
B7	SW corridor High Capacity Transit	2 (Ability to implement)	Participate in ongoing regional discussions on this topic
B8	Add a WES Station in south Tualatin	1 (Addressing a need)	Reconsider upon future buildout of Basalt Creek area
B9	General – Add more spaces for bicycles on WES trains	2 (Ability to implement)	Forward to TriMet
B11	Follow the existing rail line with High Capacity Transit	2 (Ability to implement)	Forward to Metro for ongoing SW Corridor and other regional transit discussions



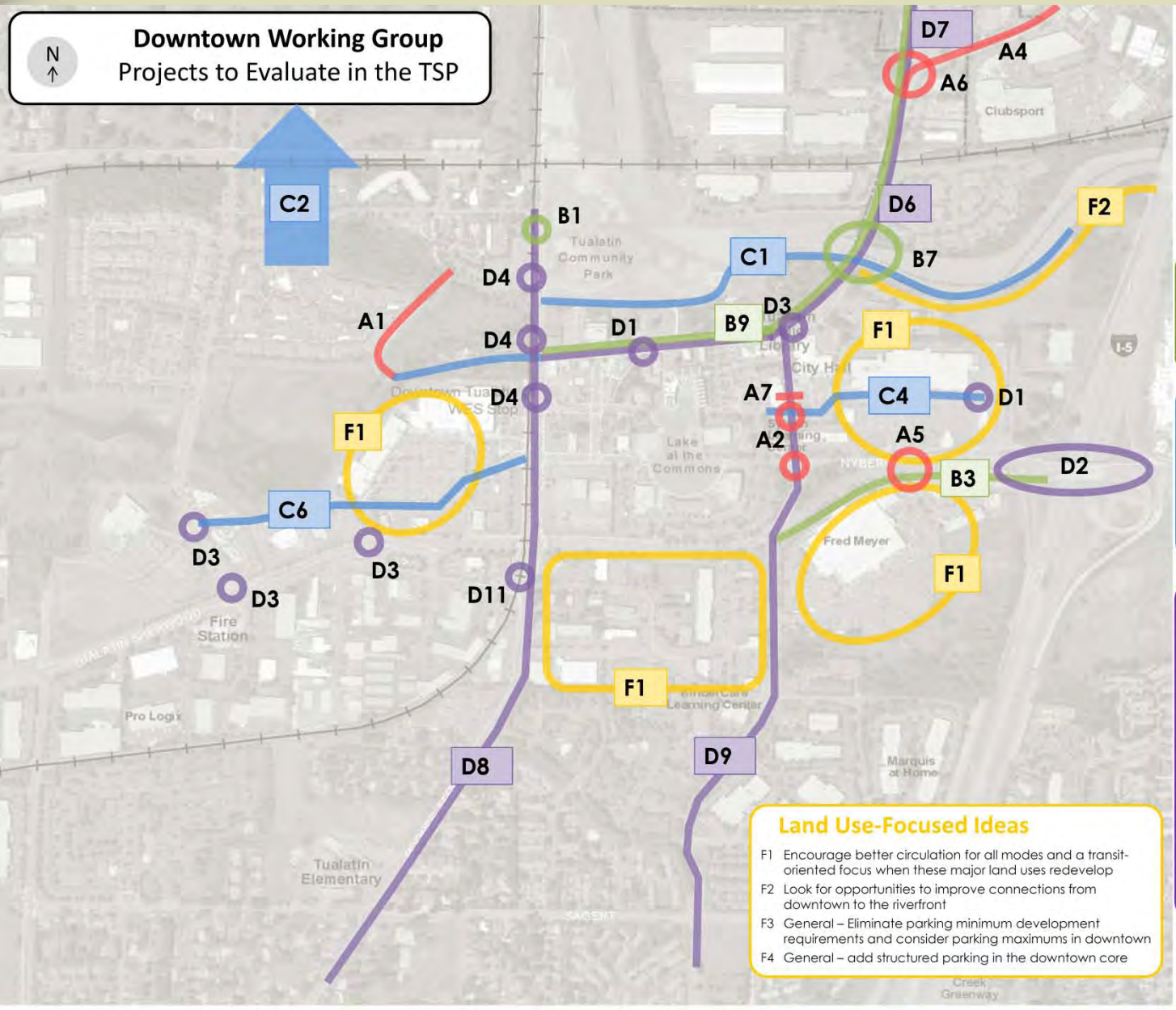


Transit

Discussion

Downtown

Downtown – Projects to Evaluate



Land Use-Focused Ideas

- F1 Encourage better circulation for all modes and a transit-oriented focus when these major land uses redevelop
- F2 Look for opportunities to improve connections from downtown to the riverfront
- F3 General – Eliminate parking minimum development requirements and consider parking maximums in downtown
- F4 General – add structured parking in the downtown core

Safety-Focused Ideas

- A1 Upgrade bridge surface and improve illumination along path near Hedges Creek
- A2 Consider raised intersections for pedestrians at Seneca St and Nyberg St
- A4 Reduce speeds near Bridgeport Village
- A5 Redesign Fred Meyer & Kmart intersection – upgrade the pedestrian connection
- A6 Add a roundabout at Lower Boones Ferry Rd and Boones Ferry Rd
- A7 Add a pedestrian island on Martinazzi Ave north of Seneca St

Congestion-Focused Ideas

- B1 Improve circulation into and out of the park
- B3 Add an eastbound lane on Tualatin-Sherwood Rd from Martinazzi Ave to I-5
- B7 Replace/widen bridge on Boones Ferry Rd
- B9 Widen Boones Ferry Rd to 5 lanes

Connectivity-Focused Ideas

- C1 Build a trail from Boones Ferry Rd to the downtown core along the river to the Tualatin River Greenway
- C2 Look for ways to provide north-south connectivity over Tualatin River for vehicles
- C4 Create a grid system near the Kmart, connect to Seneca St
- C5 General–improve street connectivity in downtown
- C6 Create a public road between Boones Ferry Rd and SW 90th Ave

Bicycle/Pedestrian-Focused Ideas

- D1 Redesign pedestrian crossing, consider flashing lights
- D2 Upgrade Nyberg interchange to improve the crossing experience for bicyclists
- D3 Optimize intersections to reduce conflicts between cars and pedestrians (Tualatin-Sherwood Rd & Martinazzi Ave and Boones Ferry Rd)
- D4 Add pedestrian crossings along Boones Ferry Rd
- D6 Improve sidewalks and bicycle lanes Boones Ferry Rd
- D7 Improve bicycle and pedestrian facilities near Bridgeport Village
- D8 Provide "Share the Road" signage and/or other visual cues to motorists to accommodate bicycles on Boones Ferry Rd
- D9 Add bicycle lane or "Share the Road" signs on Martinazzi Ave
- D10 General – coordinate traffic signal timing to accommodate pedestrians in downtown
- D11 Focused pedestrian crossings

Downtown – Ideas Screened Out

ID	Project	Based on what screening question?	Action to be taken
A3	Add a grade separated railroad crossing on Tualatin-Sherwood Rd	1 (addressing a transportation problem), 4 (cost)	None
B2	Provide secondary exit from park, and provide additional parking	3 (technical feasibility)	Look at other options to improve circulation at park
B4	Add a travel lane on I-5 northbound (between Tualatin and OR 217)	2 (ability to implement)	Forward to ODOT
B5	Create a one-way circulator loop roadway around downtown	1 (addressing a transportation problem), 4 (cost)	Look at other options to address downtown circulation
B6	Reduce ambient noise along Boones Ferry Rd in downtown	1 (transportation-related)	None

Downtown – Projects to Screen (Cont.)

ID	Project	Based on what screening question?	Action to be taken
B8	Add HOV lanes on Tualatin-Sherwood Rd	2 (ability to implement), 3 (technical feasibility)	None
C3	Connect Nyberg Rd through the Commons	1 (addressing a transportation need)	Look at other options to address downtown circulation
C7	Extend Lower Boones Ferry Rd across Tualatin River	3 (technical feasibility)	None
D5	Create a pedestrian skybridge that connects downtown retail businesses and the park	1 (transportation-related), 4 (cost)	Consider upon future development

Downtown

Discussion

I. Tualatin Transportation System Plan Recommendations

This section provides a brief overview of the process used to identify preliminary project recommendations for the Tualatin Transportation System Plan (TSP), as presented to the Transportation Task Force (TTF) at its June 21st meeting. Evaluation summaries for each project idea, with the preliminary recommendations, are included at the end of this memo. Maps identifying the location of each project idea are also included.

In May 2012, the TSP's technical team reviewed each of the projects identified as feasible against a set of evaluation criteria. The evaluation criteria are quantitative or qualitative measures that help the team identify how well the project idea is at meeting the TSP's goals and objectives (see Preliminary Evaluation Results memo dated May 25, 2012 for more information on this evaluation) These results were discussed at the May 24th TTF meeting, and with each of the six Working Groups at their third round of meetings, as follows:

- Downtown (June 4)
- Transit (June 5)
- Bicycle and Pedestrian (June 6)
- Industrial and Freight (June 13, mid-day)
- Neighborhood Livability (June 13, evening)
- Major Corridors and Intersections (June 14)

The attached evaluations have been refined to reflect modest changes made during these meetings.

In late May, the technical team conducted a preliminary assessment of whether each project idea should be moved forward into the TSP. All Working Group participants also had this discussion, and participants at Working Group meetings were asked to place dots next to project ideas they thought should or should not move forward, as follows:

- Green dots (participants were given five total) denoted the projects that would provide the greatest value to the community
- Red dots (participants were given five total) denoted projects that should not move forward into the TSP

Working Group participants did not need to use all dots provided. Photos of this dot exercise are on the project website at www.tualatintsp.org. Following the third round of meetings the technical team incorporated feedback from the Working Groups into the attached preliminary recommendations. The attached tables are organized to illustrate the following:

1. Projects that should be included in the TSP
2. Projects that should only be included as part of an urban upgrade, consistent with design standards for that roadway's functional classification
3. Projects that should not be included in the TSP
4. Projects that are topics for further refinement in the summer months

(Please note: Many project ideas were discussed at more than one Working Group meeting. The project team strives for consistency in wording, evaluation, and recommendations, but do allow these cross-cutting project ideas to be reported under each Working Group topic area.)

At its June 21st meeting, the TTF will review developments from this third round of Working Group meetings, and TTF members will be asked to accept or refine the preliminary recommendations before they are forwarded to the community as a whole for review over the summer months.

Six areas have been identified for further refinement over the summer months:

1. Tualatin-Sherwood Road options
2. Nyberg Interchange options
3. Boones Ferry Road options
4. North to South connectivity options
5. Herman Road and Tualatin Road options
6. Downtown connectivity options

For each of the six areas above, the traffic analysis and conceptual design teams will be evaluating up to three alternatives to be discussed with the Task Force during July and August and with the community over the summer months and at a larger meeting in September. Tradeoffs will be discussed related to traffic, connectivity, right of way, environmental, and cost.

II. Bicycle and Pedestrian Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A1	Add pedestrian crossing treatments at key locations on Tualatin-Sherwood and Nyberg	◒	●	●	◒	◒	●	◒	Yes
A2	Multi-use path on 65th Ave between Borland and Nyberg	●	◒	●	●	◒	●	◒	Yes
A3	Improve visibility and safety near schools at crosswalks	◒	●	◒	○	◒	◒	◒	Yes
A4	Improve visibility at crosswalk at Siletz Dr and Boones Ferry Rd	○	●	○	○	◒	◒	◒	Yes
A6	Provide wayfinding for Safe Routes to School	◒	◒	◒	◒	◒	○	◒	Yes
B1	Connect Tonquin trail with neighborhoods	●	◒	◒	●	●	●	◒	Yes
B8	Fill sidewalk gaps on Grahams Ferry, Boones Ferry, and Herman	●	●	●	N/A	●	◒	◒	Yes
B9	Add bicycle and pedestrian facilities on 15th Ave, Blake St, and 18th Ave	◒	●	◒	◒	●	◒	◒	Yes
B11	Add dedicated bike lane through Avery and Boones Ferry intersection	◒	◒	N/A	N/A	◒	◒	◒	Yes
B13	Improve bicycle and pedestrian treatments at railroad crossings	◒	●	N/A	N/A	●	◒	○	Yes
B16	Add I-5 multi-use crossing – connect to planned and existing multi-use paths	●	○	●	●	◒	◒	◒	Yes
B20	Add benches for walkers throughout the city	N/A	N/A	●	N/A	●	●	●	Yes
C4	Create a bicycle boulevard system connecting major areas	◒	●	◒	◒	●	●	◒	Yes
C5	Build the Tonquin Trail	●	●	●	●	●	●	●	Yes
B2	Add sidewalks and bicycle lanes on Norwood	◒	●	◒	◒	●	◒	◒	Only upon urban upgrade

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
B4	Add bicycle facilities near the hospital, 95th and Martinazzi	◒	●	●	◒	●	◒	◒	Only upon urban upgrade, or as part of A2
B6	Better accommodate pedestrians on the bridges	●	◒	◒	◒	●	●	○	Only upon urban upgrade
B15	Add bicycle lanes on Boones Ferry Rd to Day Rd	◒	●	●	N/A	●	●	◒	Only upon urban upgrade
B3	Improve Tualatin-Sherwood Rd for bicyclists and pedestrians	◒	◒	N/A	◒	●	●	○	No – Tonquin Trail
B7	Build a raised intersection at Seneca and Nyberg	○	○	◒	○	◒	◒	○	No
B10	Add bike box on Boones Ferry Rd near the Sweek House	○	◒	◒	○	◒	○	●	No
B17	Create a bike path to Old Town Sherwood as this area develops	●	●	◒	◒	◒	●	○	No
B18	Add a grade-separated crossing over 99W	◒	●	○	○	◒	○	○	No
B19	Add bike detection loops at major intersections	◒	N/A	◒	N/A	◒	◒	●	No
B5	Improve bicycle facility treatments in downtown core	◒	●	●	●	●	●	◒	Refinement topic area
B14	Improve pedestrian crossing along Boones Ferry Rd	◒	◒	●	●	◒	N/A	●	Refinement topic area
B21	Allow wider sidewalks for strolling and outdoor cafes	N/A	◒	●	●	◒	N/A	◒	Refinement topic area
C2	Build pedestrian and bicycle bridges over the Tualatin River	◒	●	●	◒	●	◒	○	Refinement topic area

Downtown Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A1	Upgrade bridge surface and improve illumination along path in back of Haggens	▬	●	●	▬	●	▬	▬	Yes
A5	Redesign Fred Meyer to Kmart intersection (including pedestrian crossing)	●	●	▬	▬	▬	▬	▬	Yes
B1	Rethink access between Tualatin Road and Tualatin Community Park	●	▬	▬	●	●	●	▬	Yes
B3	Add eastbound lane on Tualatin-Sherwood from Martinazzi to I-5	●	▬	○	●	○	▬	▬	Yes
B7	Replace/widen Boones Ferry Road bridge over Tualatin River	●	●	▬	●	▬	●	▬	Yes
C1	Build trail along river from Boones Ferry to downtown, extend to greenway	●	▬	▬	▬	●	▬	▬	Yes
C4	Create grid system near Kmart upon redevelopment with connection to Seneca	●	▬	●	▬	●	▬	▬	Yes
D2	Upgrade Nyberg interchange for bicyclist safety	●	●	▬	○	▬	▬	○	Yes
D6	Improve sidewalks and bicycle lane at Boones Ferry to Lower Boones Ferry	●	●	▬	▬	●	▬	▬	Yes
D7	Bike and pedestrian treatments near Bridgeport Village	▬	▬	▬	▬	▬	○	▬	Yes
D8	Provide signage to accommodate bicycles on Boones Ferry	▬	▬	▬	▬	●	▬	▬	Yes
D9	Add bicycle lane on Martinazzi north of Warm Springs	▬	▬	▬	▬	●	▬	▬	Yes
F1	Encourage multimodal circulation and transit-oriented redevelopment	●	▬	●	▬	●	▬	▬	Yes
F2	Look for opportunities to open downtown's connection to the riverfront	●	▬	●	▬	●	▬	▬	Yes

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
F4	Add structured parking in the downtown core	◒	◒	◒	◒	N/A	N/A	◒	Yes
A2	Consider raised intersections on Martinazzi	○	◒	●	○	◒	●	◒	No
A4	Reduce speeds near Bridgeport Village	○	●	○	○	◒	N/A	○	No
A7	Add pedestrian island on Martinazzi Ave north of Seneca	○	◒	○	●	◒	◒	●	No
C6	Create road connections between Boones Ferry Rd and SW 90th Ave	◒	○	N/A	◒	○	◒	○	No
D4	Add pedestrian crossing at the WES stop (Seneca)	○	○	◒	○	◒	◒	○	No
D10	Coordinate traffic signal timing to accommodate pedestrians	○	N/A	●	○	○	◒	○	No
D11	Add focused pedestrian crossing over Boones Ferry Road at Tonka	○	◒	◒	○	◒	◒	○	No
F3	Eliminate parking minimum development requirements and consider parking maximums	N/A	◒	○	○	N/A	N/A	○	No
A6	Add roundabout at Boones Ferry and Lower Boones Ferry Road	◒	○	○	◒	◒	◒	○	Refinement topic area
B9	Widen Boones Ferry Rd	●	◒	◒	◒	○	◒	○	Refinement topic area
B10	Widen Tualatin-Sherwood Rd	◒	◒	○	●	○	●	○	Refinement topic area
C2	Provide north-south connectivity over Tualatin River for vehicles	●	◒	◒	●	◒	◒	○	Refinement topic area
C5	Improve downtown core street connectivity	●	◒	●	○	●	◒	○	Refinement topic area
D1	Redesign pedestrian crossings, consider flashing lights	○	●	◒	○	◒	◒	◒	Refinement topic area
D3	Optimize intersections to reduce conflicts along Boones Ferry and Tualatin Sherwood Roads	◒	●	◒	○	◒	◒	◒	Refinement topic area

Industrial and Freight Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A1	Add a signal or roundabout at Sagert/ Martinazzi	●	◒	◒	●	◒	○	◒	Yes
A5	Extend 124th Ave to the south	●	◒	◒	●	◒	●	◒	Yes
A6	Provide coordinated signal timing and access management along major arterials	●	●	◒	◒	N/A	N/A	◒	Yes
A11	Address congestion on Avery and Teton	●	●	N/A	◒	N/A	N/A	◒	Yes
A12	Synchronize turn signals to/from Boones Ferry to Tualatin-Sherwood; coordinate with the train signal	●	N/A	◒	◒	N/A	N/A	◒	Yes
B1	Expand shuttle for industrial and manufacturing workers during the day – consider charging fares	●	N/A	●	◒	◒	●	◒	Yes
B3	Provide a loop bus route serving local residents	●	N/A	●	◒	◒	●	○	Yes
C5	Extend 65th Ave north	●	◒	○	●	○	◒	○	Yes
C9	Consider removing trucks/adding truck info signs along 108th/105th Aves	○	N/A	●	○	●	○	◒	Yes
C12	Create an east/west connection across I-5 (near Greenhill Rd)	●	●	◒	◒	◒	◒	◒	Yes (with Basalt Creek)
D1	Coordinate freight receiving/ shipping times	●	●	●	◒	N/A	N/A	◒	Yes
D3	Provide incentives to telecommute	◒	◒	N/A	◒	◒	◒	◒	Yes
D5	Add eastbound lane on Tualatin-Sherwood from Martinazzi to I-5	●	◒	○	●	◒	N/A	◒	Yes
D11	Encourage off-peak usage on Herman Rd and Tualatin-Sherwood Rd	◒	N/A	N/A	◒	●	N/A	◒	Yes
D14	Add measures to reduce truck traffic on local and minor collectors	○	●	●	○	◒	●	◒	Yes
D22	Improve 65th Ave south across I-205; widen and address dip in the roadway	◒	◒	N/A	◒	N/A	N/A	◒	Yes

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
D23	Ensure that future roundabout designs can accommodate larger trucks	◒	●	N/A	◒	N/A	N/A	◒	Yes
C14	Widen Myslony St to standards - reduce on-street parking	◒	●	N/A	◒	N/A	◒	◒	Only with urban upgrade
C15	Upgrade Cipole Rd to standards with sidewalks and bike lanes	◒	◒	●	●	◒	◒	◒	Only with urban upgrade
C16	Improve Tonquin Rd between Oregon St and Waldo Way	◒	◒	N/A	◒	N/A	◒	◒	Only with urban upgrade
A7	Remove NB right turn light on Boones Ferry	◒	○	◒	◒	N/A	N/A	◒	No
C4	Add a left turn from Teton to Tualatin Rd	N/A	N/A	N/A	N/A	N/A	N/A	○	No
C6	Improve 115th Ave	●	◒	○	◒	◒	◒	◒	No
C8	Add signal to Tualatin and Boones Ferry intersection	●	●	N/A	◒	○	◒	○	No
C10	Extend 95th Ave north to Tualatin Rd	●	◒	○	◒	○	○	○	No
C13	Provide travel options by improving connectivity in the roadway system	◒	●	●	◒	◒	◒	◒	No
D2	Add vision and sound walls; reduce cut-through traffic	○	○	●	○	○	○	○	No
D6	Improve signs to direct traffic to correct street	◒	N/A	N/A	N/A	N/A	N/A	○	No
D10	Improve Tualatin-Sherwood and Martinazzi signal timing	◒	N/A	N/A	◒	N/A	N/A	◒	No
D12	Make “Truck Route” signs larger	N/A	N/A	◒	◒	N/A	N/A	◒	No
D16	Increase speed limit to 40 or 45 MPH on 124th Ave	◒	N/A	N/A	◒	N/A	N/A	◒	No
D20	Improve southbound left turns at 63rd and Lower Boones Ferry	◒	◒	N/A	◒	N/A	N/A	◒	No
B2	Add rail station with easy offload and access for industry in the west part of town	●	N/A	●	◒	●	●	◒	Needs Refinement
C17	Improve circulation east of the Bridgeport/ I-5 Interchange	◒	◒	◒	◒	◒	◒	◒	Needs Refinement

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A2	Discourage through and truck traffic along Tualatin Rd while encouraging through and truck traffic along Herman Rd	●	N/A	▬	▬	▬	▬	▬	Refinement Topic Area
A9	Improvements to help mobility of through-traffic on Tualatin-Sherwood Rd	●	▬	▬	●	○	●	▬	Refinement Topic Area
A13	Widen Boones Ferry Rd through downtown	●	▬	▬	▬	○	▬	○	Refinement Topic Area
C3	Provide north-south vehicle connectivity over Tualatin River	●	▬	▬	●	▬	▬	○	Refinement Topic Area
C7	Improve cross-section on Herman Rd	●	●	○	●	●	▬	▬	Refinement Topic Area
D7	Add traffic signal at 97th Ave and Tualatin-Sherwood Rd	▬	▬	▬	▬	▬	N/A	▬	Refinement Topic Area
D8	Improve visibility, add signal restrict left turns from 108th onto Tualatin	▬	▬	▬	○	▬	▬	▬	Refinement Topic Area
D9	Add a signal at Tualatin Rd and Teton Ave/Jurgens Rd	▬	N/A	▬	▬	▬	▬	▬	Refinement Topic Area
D13	Add traffic calming on Tualatin Road	○	○	●	○	▬	●	▬	Refinement Topic Area
D15	Improve turning radius from Herman Rd northbound onto 108th Ave	▬	▬	N/A	▬	N/A	N/A	▬	Refinement Topic Area
D17	Reconfigure the intersection of 115th and Tualatin-Sherwood	▬	▬	N/A	▬	N/A	N/A	▬	Refinement Topic Area
D18	Improve turning radius from Tualatin-Sherwood to Cipole	▬	▬	N/A	▬	N/A	N/A	▬	Refinement Topic Area
D19	Improve NB right and left turns onto Herman	▬	▬	N/A	●	N/A	N/A	▬	Refinement Topic Area
D21	Improve SB left turns from Jurgens and 106th onto Tualatin	▬	▬	N/A	▬	N/A	N/A	▬	Refinement Topic Area

Major Corridors and Intersections Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A1	Reduce speeds, add guardrail and shoulders to this section of Grahams Ferry Rd	◒	●	●	N/A	◒	◒	◒	Yes
A3	Consistent speed zones for Tualatin High School and Byrom Elementary School	N/A	●	N/A	N/A	N/A	N/A	●	Yes
A6	Consistent use of yellow turn signals at traffic signals	◒	●	N/A	◒	N/A	N/A	●	Yes
B2	Signal or roundabout at Sagert and Martinazzi	●	◒	◒	●	◒	○	◒	Yes
B6	Rethink access between Tualatin Road and Tualatin Community Park	◒	◒	●	N/A	◒	●	◒	Yes
B8	Prohibit left turns out of 108th Ave or remove trees in the southwest corner	○	◒	○	◒	◒	○	◒	Yes
B9	Coordinate signal timing on Boones Ferry Rd	●	●	N/A	●	N/A	◒	●	Yes
B10	Redesign Nyberg/Fred Meyer intersection and improve pedestrian crossing	◒	●	◒	●	◒	◒	◒	Yes
B16	Add bus pullouts on Boones Ferry Rd	●	◒	○	◒	○	●	◒	Yes
B21	Extend 124th Ave to south	●	◒	◒	●	◒	●	◒	Yes
B23	Add a dedicated right turn lane on Teton at Tualatin-Sherwood	●	◒	N/A	◒	◒	◒	●	Yes
C2	Extend 65th Ave to the north	●	◒	○	●	○	◒	○	Yes
C4	Improve traffic flow on Lower Boones Ferry Rd between Bridgeport Village and downtown	●	●	◒	●	◒	◒	◒	Yes
D1	Add eastbound lane on Tualatin-Sherwood from Martinazzi to I-5	●	●	○	●	○	◒	◒	Yes
A2	Add traffic signal at Tualatin High School	◒	◒	◒	N/A	◒	○	○	No
B3	Realign Sagert /Borland to one intersection	●	◒	○	○	○	○	○	No
B14	Reconfigure Boones Ferry at Tualatin Road	◒	◒	○	◒	○	◒	○	No

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
B15	Add a 4-way stop by 90th Ave at Kaiser	○	◒	◒	○	◒	◒	◒	No
B20	Roundabout or signal at Nyberg and 65th intersection	◒	N/A	○	○	○	○	○	No
B22	Address congestion caused by high school	◒	◒	◒	◒	◒	○	◒	No
C7	Revise connection between Tualatin and Boones Ferry near the railroad tracks	◒	◒	○	◒	○	◒	○	No
C9	Widen Sagert to 2-lanes each way	●	●	○	●	○	○	○	No
D2	Better signs needed to direct traffic to correct street	N/A	N/A	N/A	N/A	N/A	N/A	○	No
A4	Improve sight distance at I-5 and Nyberg Rd interchange	N/A	●	N/A	◒	◒	◒	◒	Refinement Topic Area
A5	Add traffic signal on Tualatin Rd at 108th	◒	◒	◒	◒	◒	◒	◒	Refinement Topic Area
A8	Discourage through and truck traffic along Tualatin Rd while encouraging through and truck traffic along Herman Rd	●	◒	●	◒	◒	◒	○	Refinement Topic Area
B1	Widen Tualatin-Sherwood Rd	●	◒	○	●	○	●	○	Refinement Topic Area
B5	Restrict right turn on red at Nyberg Interchange	○	●	N/A	○	◒	●	○	Refinement Topic Area
B12	Make two right turn lanes from I-5 north onto Nyberg Rd	●	◒	N/A	◒	○	●	◒	Refinement Topic Area
B13	Extend NB left turn and create a SB right turn lane on Boones Ferry at Tualatin-Sherwood to reduce backup from WES train	●	◒	◒	●	◒	◒	◒	Refinement Topic Area
B17	Widen Boones Ferry Rd at the south end of the City	●	◒	◒	◒	○	◒	○	Refinement Topic Area
B24	Add right turn lane on Tualatin-Sherwood at 124th	◒	◒	N/A	◒	◒	○	◒	Refinement Topic Area
C12	Look for ways to provide north-south connectivity over Tualatin River for vehicles	●	◒	◒	◒	◒	◒	○	Refinement Topic Area

Neighborhood Livability Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A3	Reroute school buses away from Tualatin Community Park and railroad crossings	◒	●	◒	N/A	◒	◒	◒	Yes
A8	Reduce speed, possibly add trail through wooded area	○	◒	●	○	◒	◒	◒	Yes
B1	Add signal or roundabout at Sagert and Martinazzi	●	◒	◒	●	◒	○	◒	Yes
B4	Improve intersection at Avery and Teton	●	●	N/A	◒	N/A	N/A	◒	Yes
C1	Extend 124th Ave to south	●	◒	◒	●	◒	●	◒	Yes
C2	Consider removing trucks/adding truck info signs along 108th/105th Aves	○	N/A	●	○	●	●	◒	Yes
C3	Balance needs of neighborhood with local truck movement along Avery St; provide turn lane for traffic entering into school	●	◒	◒	◒	◒	◒	◒	Yes
C7	Extend 65th Ave to the north	●	◒	○	●	○	◒	○	Yes
D3	Provide a multi-use path along the river	●	●	●	◒	●	●	◒	Yes
D4	Multi-use path on 65th Ave between Borland and Nyberg	●	◒	●	●	◒	●	◒	Yes
D5	Repair sidewalk gap on south side of Borland	●	●	●	N/A	●	◒	●	Yes
D6	Add multi-use path as part of Tualatin Trail	●	●	●	◒	●	◒	◒	Yes
D9	Build the Tonquin Trail	●	●	●	●	●	●	●	Yes
D10	Connect Tonquin trail with neighborhoods	●	◒	◒	●	●	●	◒	Yes
D11	Connect to Tualatin Path	●	◒	●	N/A	◒	◒	◒	Yes
D12	Add benches for walkers throughout city	N/A	N/A	●	N/A	●	●	●	Yes
D13	Create a bicycle boulevard system connecting major areas	◒	●	◒	◒	●	●	◒	Yes
E1	Provide transit serving local resident needs in north Tualatin, between 99W and downtown Tualatin	●	N/A	◒	◒	◒	◒	○	Yes

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
D8	Add bike facilities and continuous sidewalks along Graham's Ferry Road	●	●	◒	N/A	◒	◒	◒	Only with urban upgrade
B3	Realign Sagert /Borland to one intersection	●	◒	○	○	○	○	○	No
B5	Address congestion caused by high school	◒	◒	◒	◒	◒	○	◒	No
C6	Create a street between Boones Ferry Rd and Bridgeport Rd	●	◒	○	○	○	○	○	No
F2	Remove right turn light in the northbound direction on Tualatin Rd out of the Police Station	○	○	N/A	N/A	N/A	N/A	◒	No
A1	Discourage through and truck traffic along Tualatin Rd while encouraging through and truck traffic along Herman Rd	●	◒	●	◒	◒	◒	○	Refinement Topic Area
A4	Add a roundabout at Boones Ferry Rd and Norwood Rd.	◒	◒	○	○	○	◒	◒	Refinement Topic Area
A5	Make Boones Ferry Rd more pedestrian-friendly	◒	●	●	◒	●	○	◒	Refinement Topic Area
A6	Improve intersection at 108th and Tualatin	◒	◒	◒	◒	◒	◒	◒	Refinement Topic Area
A9	Eliminate free right turns – on Herman Rd at Teton Ave and Tualatin Rd	○	●	●	○	◒	◒	●	Refinement Topic Area
B2	Add a dedicated right turn lane into apartments near Nyberg Woods Shopping Center	◒	◒	◒	○	◒	◒	◒	Refinement Topic Area
B6	Adjust signal timing to give priority to Tualatin Road through traffic	●	◒	○	◒	○	○	◒	Refinement Topic Area
B8	Add right turn lane on Tualatin-Sherwood at 124th	◒	◒	N/A	◒	◒	○	◒	Refinement Topic Area
D2	Add pedestrian islands on Boones Ferry, near Byrom ES and Tualatin HS	○	◒	◒	○	◒	◒	◒	Refinement Topic Area
D7	Provide focused pedestrian crossing improvements along Tualatin Road	○	●	●	○	●	◒	◒	Refinement Topic Area

Transit Preliminary Project Recommendations

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A2	Provide bus transit service on 124th Street	●	N/A	●	◒	◒	●	◒	Yes
A3	Provide bus transit service on Avery Street	●	N/A	●	◒	◒	●	◒	Yes
A5	Extend bus service to east Tualatin	●	N/A	●	◒	◒	●	◒	Yes
A7	Explore a shuttle or trolley service between Bridgeport Village and Commons area, especially for weekend service	●	N/A	●	●	◒	●	◒	Yes
A8	Provide a loop bus route serving local residents	●	N/A	●	◒	◒	●	○	Yes
A10	Expand shuttle for industrial and manufacturing workers during the day – consider charging fares	●	N/A	●	◒	◒	●	◒	Yes
A12	General – need extended service for all transit	●	N/A	●	◒	◒	◒	○	Yes/ Focus on 96
B2	Provide high capacity transit service on Tualatin-Sherwood Road	●	N/A	◒	●	◒	●	◒	Yes (combine with South Corridor conversation)
C1	Make the WES station a central focus of downtown and the main transit center. Improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections	●	N/A	●	●	◒	●	◒	Yes
D1	Look for potential park-and-ride locations in west Tualatin	◒	N/A	●	◒	●	●	◒	Yes
D2	Look for potential park-and-ride locations in south Tualatin	◒	N/A	●	N/A	●	●	◒	Yes
D3	Add parking capacity at Tualatin Park-and-Ride - Potential structure	◒	N/A	◒	●	○	●	◒	Yes
A6	Provide express bus service between Tualatin and Salem	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No

ID	Project Idea	Access / Mobility	Safety	Vibrant Community	Economy	Health / Environment	Equity	Ability to be Implemented	Preliminary Recommendation
A13	General – use more energy efficient buses	N/A	N/A	N/A	N/A	N/A	N/A	○	No
A14	Coordinate bus schedules with WES schedule	N/A	N/A	N/A	N/A	N/A	N/A	○	No
A16	Add stops on higher volume routes	○	N/A	●	N/A	◒	◒	○	No
B1	Add more bicycle storage at the WES station	◒	N/A	N/A	N/A	N/A	N/A	○	No
B4	Build an elevated pedestrian bridge to connect the Tualatin park-and-ride with shopping	◒	N/A	○	N/A	N/A	○	○	No
D4	Look for opportunities to reduce size of or relinquish underutilized park-and-ride lots and transfer spaces to higher utilized areas	◒	N/A	●	◒	◒	●	◒	No
D5	Add a park-and-ride in east Tualatin	◒	N/A	●	N/A	●	●	◒	No
A1	Provide bus transit service on Herman Road	●	N/A	●	◒	◒	●	◒	Refinement Topic Area
A4	Provide bus transit service on Tualatin Road between downtown and 99W	●	N/A	●	◒	◒	●	◒	Refinement Topic Area

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Bike/Ped	A1	Downtown	Add pedestrian crossing treatments at key locations of Tualatin-Sherwood Rd and Nyberg St.	Pedestrian safety concerns on Nyberg St and Tualatin-Sherwood Rd										
Bike/Ped	A2	CIO-2	Multi-use path on 65th Ave between Borland and Nyberg	Gaps in the multi-use path network		Would improve access/mobility for all modes								
Bike/Ped	A3	CIO-1	Improve visibility and safety near schools at crosswalks	Pedestrian crossing safety concerns near schools.										
Bike/Ped	A4	Boones Ferry Road	Improve visibility at crosswalk at Siletz Dr and Boones Ferry Rd	Pedestrian crossing safety concerns at the intersection of Boones Ferry Rd and Siletz Dr				Increases vehicle delay						
Bike/Ped	A6	City-wide	Provide wayfinding signs for Safe Routes to School	Reduces confusion for students to use safest pedestrian and bike routes										
Bike/Ped	B1	CIO-5	Connect Tonquin trail with neighborhoods	Gaps in the multi-use path network										
Bike/Ped	B10	Boones Ferry Road	Add a bike box on Boones Ferry Rd near the Sweek House	Bicycle safety concerns at the intersection of Boones Ferry Road and Sweek Dr		Increases travel time for vehicles		Increases vehicle delay						
Bike/Ped	B11	Boones Ferry Road	Add a dedicated bike lane through Avery and Boones Ferry Rd	Bicycle facilities gap on Avery St										
Bike/Ped	B13	Bridgeport Village, Downtown	Improve bicycle and pedestrian treatments at railroad crossings	Rough railroad crossings that are difficult for pedestrians and bicyclists										
Bike/Ped	B14	Bridgeport Village/Downtown/CIO-4	Improve pedestrian crossings along Boones Ferry Rd	Lack of a marked pedestrian crossing on Boones Ferry Road at the Tualatin View Apartments, safety concern for pedestrians										
Bike/Ped	B15	Boones Ferry Road	Add bicycle lanes on Boones Ferry Rd to Day Rd	Bicycle facilities gap on Boones Ferry Rd										
Bike/Ped	B16	Interstate 5	Add I-5 multi-use crossing– connect to planned and existing multi-use paths.	Lack of safe pedestrian and bicycle crossing facilities over I-5										
Bike/Ped	B17	CIO-5	Create a bike path to Old Town Sherwood as this area develops	Bicycle and multi-use path gap between Tualatin and Sherwood										
Bike/Ped	B18	CIO-1	Add a grade-separated crossing over 99W	Pedestrian crossings safety concerns on 99W										
Bike/Ped	B19	Boones Ferry Road, Manufacturing	Add bike detection loops at major intersections	Improve mobility for bicyclists at major intersections										
Bike/Ped	B2	CIO-6	Add sidewalks and bicycle lanes on Norwood Rd	On street bicycle and pedestrian facilities gap on Norwood Rd										
Bike/Ped	B20	City-wide	Add benches for walkers throughout the city	Lack of facilities to accommodate aging and mobility-limited pedestrians	N/A									
Bike/Ped	B21	City-wide	Allow wider sidewalks for strolling and outdoor cafes	Narrow sidewalks and lack of a pedestrian-oriented streetscape downtown	N/A									
Bike/Ped	B3	Downtown	Improve Tualatin-Sherwood Rd for bicyclists and pedestrians	Pedestrian and bicycle safety and comfort concerns on Tualatin-Sherwood Rd										
Bike/Ped	B4	Manufacturing, Downtown, CIO-2	Add bicycle facilitiesnear the hospital, 95th Ave and Martinazzi	Bicycle facilities gaps on 65th Ave., 95th Ave., and Martinazzi Ave										

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Bike/Ped	B5	Downtown	Improve bicycle facility treatments in downtown core	Bicycle facility gaps in downtown										
Bike/Ped	B6	Downtown	Better accommodate pedestrians on the bridges	Narrow and sub-standard pedestrian and bicycle crossings over I-5 and the Tualatin River										
Bike/Ped	B7	Boones Ferry Road	Build a raised intersection at Seneca and Nyberg	Pedestrian safety crossing concerns on Boones Ferry Rd	Would significantly slow vehicle traffic									
Bike/Ped	B8	CIO-6	Fill sidewalk gaps on Grahams Ferry, Boones Ferry and Herman	Lack of pedestrian facilities										
Bike/Ped	B9	CIO-3, CIO-5	Add bicycle and pedestrian facilities on 105th Ave, Blake St, and 108th Ave	Pedestrian and bicycle facilities gap on 105th Ave., Blake St., and 108th Ave.										
Bike/Ped	C2	Downtown	Build pedestrian and bicycle bridges over the Tualatin River	Lack of pedestrian and bicycle crossings over the Tualatin River.										
Bike/Ped	C4	City-wide	Create a bicycle boulevard system conencting major areas	Lack of low volume, low speed signed bikeway alternatives to major corridors throughout the city										
Bike/Ped	C5	Manufacturing	Build the Tonquin Trail	Gaps in the multi-use path network										
Corridors/Intersections	A1	Grahams Ferry Road	Reduce speeds, add guardrail and shoulders to this section of Grahams Ferry Rd	Grahams Ferry Rd does not meet City standards	N/A									
Corridors/Intersections	A2	Boones Ferry Road	Add traffic signal at Tualatin High School	Traffic delay and congestion on Boones Ferry Rd	Will smooth traffic flow									
Corridors/Intersections	A3	Boones Ferry Road	Consistent speed zones for Tualatin High School and Byrom Elementary School	Traffic delay and congestion on Boones Ferry Rd	N/A									
Corridors/Intersections	A4	Interstate 5	Improve the sight distance at the I-5 and Nyberg St interchange	Safety concerns at a known high-crash location.	N/A									
Corridors/Intersections	A5	Tualatin Road	Add traffic signal on Tualatin Rd at 108th Ave	Congestion on Tualatin Rd, safety concerns for vehicles turning from 108th Ave										
Corridors/Intersections	A6	City-wide	Consistent use of yellow turn signals on all traffic signals	System-wide delay and driver confusion at intersections										
Corridors/Intersections	A8	Tualatin Road	Discourage through and truck traffic along Tualatin Rd while encouraging through and truck traffic along Herman Rd	Through and freight traffic cut-through on neighborhood streets. Congestion on Tualatin Rd										
Corridors/Intersections	B1	Downtown, Manufacturing	Widen Tualatin-Sherwood Rd	Congestion on Tualatin-Sherwood Rd										
Corridors/Intersections	B10	Interstate 5	Redesign Nyberg/Fred Meyer intersection and improve pedestrian crossings	Congestion and crossing safety concerns on Nyberg St										
Corridors/Intersections	B12	Interstate 5	Make two right turn lanes from I-5 north onto Nyberg St.	Congestion on the northbound I-5 off ramp to Nyberg St	Adds capacity at congested intersection									
Corridors/Intersections	B13	Downtown	Extend NB left turn and create a SB right turn lane on Boones Ferry at Tualatin-Sherwood to reduce backup from WES train	Congestion at Tualatin-Sherwood Rd and Boones Ferry Rd										
Corridors/Intersections	B14	Downtown	Reconfigure Boones Ferry Rd at Tualatin Rd	Congestion and an intersection with tight turns										

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Corridors/Intersections	B15	Manufacturing	Add a 4-way stop by 90th Ave at Kaiser	Congestion at the intersection of 90th Ave and Kaiser	◔	◔		◔	◔		◒			
					Project may result in further congestion									
Corridors/Intersections	B16	Boones Ferry Road	Add bus pullouts on Boones Ferry Rd	Congestion on Boones Ferry Rd from buses	●	●		◒	◒		◒		●	
						Reduces traffic delay								
Corridors/Intersections	B17	Boones Ferry Road	Widen Boones Ferry Rd at the south end of the city	Boones Ferry Rd does not meet roadway standards	●	●	●		●	●	●			◒
Corridors/Intersections	B2	CIO-4	Signal or roundabout at Sagert St and Martinazzi Ave.	Intersection safety and congestion concerns for all modes at Sagert St and Martinazzi Ave	●	●	◒			◒	●		◒	◒
						Improves traffic flow								
Corridors/Intersections	B20	CIO-2	Roundabout or signal at Nyberg St and 65th intersection	Congestion on Nyberg St at 65th Ave	◒	◒	◒							
Corridors/Intersections	B21	Manufacturing	Extend 124th Ave to south	Lack of north-south connectivity between Boones Ferry Rd and 99W	●	◒	◒			◒	◒		●	●
													Increases connectivity	
Corridors/Intersections	B22	Boones Ferry Road	Address congestion caused by high school	Traffic delay and congestion on Boones Ferry Rd	◒		◒	◒	◒		◒		◒	
Corridors/Intersections	B23	Manufacturing	Add a dedicated right turn lane on Teton Ave at Tualatin-Sherwood Rd.	Congestion and delay on Teton Ave at Tualatin-Sherwood Rd	●	◒	●	●	◒					
								Will help address congestion at intersection						
Corridors/Intersections	B24	Manufacturing	Add right turn lane on Tualatin-Sherwood Rd at 124th Ave	Anticipated congestion on Tualatin-Sherwood Rd as the area develops	◒	◒	◒	◒	◒					
Corridors/Intersections	B3	CIO-2	Realign Sagert/Borland to one intersection	Safety concerns at Sagert St and Borland Rd	●	●	◒	●	◒					
Corridors/Intersections	B5	Interstate 5	Restrict right turn on red at Nyberg Interchange	Safety concerns at a known high-crash location.	◔	◔		◔	◔					
					Would increase delay at interchange									
Corridors/Intersections	B6	Downtown	Rethink access between Tualatin Road and Tualatin Community Park	Delay and difficulty of turning into and out of Tualatin Community Park	◒								◒	
Corridors/Intersections	B8	CIO-1	Prohibit left turns out of 108th Ave or remove trees in the southwest corner	Congestion on Tualatin Rd, safety concerns for vehicles turning from 108th Ave	◔	◔							◒	
					Will reduce turning movements; increase travel time for vehicles									
Corridors/Intersections	B9	Boones Ferry Road	Coordinate signal timing on Boones Ferry Rd	Congestion on Boones Ferry Rd	●	◒	◒	●	●		◒		●	◒
Corridors/Intersections	C12	Downtown	Look for ways to provide north-south connectivity over Tualatin River for vehicles	Boones Ferry Rd across the Tualatin River is currently congested. Limited connectivity over the river.	●	●	●	●	●	●	●		●	●
					Will significantly reduce congestion			Will expand capacity						
Corridors/Intersections	C2	CIO-2	Extend 65th Ave to the north	Congestion on the current Boones Ferry Rd connection across the Tualatin River, lack of north-south roadway connectivity	●	●	●	◒	◒	●	●	●	●	●
Corridors/Intersections	C4	Bridgeport Village	Improve traffic flow on Lower Boones Ferry Rd between Bridgeport Village and downtown	Congestion near Bridgeport Village	●	◒	●	◒	◒		◒		●	
Corridors/Intersections	C7	Downtown	Revise connection between Tualatin Rd and Boones Ferry Rd near the railroad tracks	Confusion and sharp curves connecting Tualatin Road and Boones Ferry Road	◒						◒			
Corridors/Intersections	C9	CIO-2, CIO-4	Widen Sagert St to 2-lanes each way	Sagert Street is not built to city standards	●	◒	●	◒	◒	●	◒			
Corridors/Intersections	D1	Downtown	Add eastbound lane on Tualatin-Sherwood from Martinzaai to I-5	Congestion on Tualatin-Sherwood Rd	●		◒		●					
								Adds capacity on T-S Road						

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Corridors/Intersections	D2	Downtown	Better signs needed to direct traffic to correct street	Congestion and driver confusion on Boones Ferry Rd	N/A									
Downtown	A1	CIO-1	Upgrade bridge surface and improve illumination along path in back of Haggens	Pedestrian and bicycle safety and comfort concerns on the boardwalk	◒	◒				◒	◒	◒	●	◒
Downtown	A2	Downtown	Consider raised intersections on Martinazzi	Pedestrian crossing safety concerns on Martinazzi Ave.	◑	◑		◑			◒	◒	◒	◒
Downtown	A4	Bridgeport Village	Reduce speeds near Bridgeport Village	Speeding and congestion concerns near Bridgeport Village	◑	◑					◒		◒	
Downtown	A5	Downtown	Redesign Fred Meyer to Kmart intersection (include pedestrian crossing)	Safety concerns on Tualatin-Sherwood Rd near Fred Meyer	◒	◒	◒		◒	●	◒		●	
Downtown	A5-1	Downtown	Upgrade the pedestrian connection at Fred Meyer/Kmart intersection	Pedestrian crossing safety concerns on Tualatin-Sherwood Rd near Fred Meyer										
Downtown	A6	Downtown	Add roundabout at Boones Ferry Road and Lower Boones Ferry Road	Congestion at the intersection of Boones Ferry and Lower Boones Ferry Roads	◒	◒	◒				●		◒	
Downtown	A7	Downtown	Add a pedestrian island on Martinazzi Ave north of Seneca St	Pedestrian crossing safety concerns downtown	◑	◑	◑	◑	◑	◒	◒	◒	◒	◒
Downtown	B1	Downtown	Rethink access between Tualatin Road and Tualatin Community Park	Delay and difficulty of turning into and out of Tualatin Community Park	●					Project would enhance accesibility of park to all modes	●			
Downtown	B10	Downtown	Widen Tualatin-Sherwood Rd	Congestion on Tualatin-Sherwood Rd in downtown	◒	◒	●				◒		◒	◒
Downtown	B3	Downtown	Add an eastbound lane on Tualatin-Sherwood Rd from Martinazzi to I-5	Congestion on Tualatin-Sherwood Rd	●	●	●			◒	●		●	
Downtown	B7	Downtown	Replace/widen Boones Ferry Road bridge over Tualatin River	Congestion and lack of bicycle and pedestrian facilities on Boones Ferry Rd over the Tualatin River .	◒	◒	◒				●		●	◒
Downtown	B9	Boones Ferry Road	Widen Boones Ferry Rd	Congestion on Boones Ferry Rd	◒	◒	●				●		◒	◒
Downtown	C1	Downtown	Build trail along river from Boones Ferry to downtown, extend to greenway	Gaps in the multi-use path network	◒	◒	◒			●	●	◒	●	◒
Downtown	C2	Downtown	Provide north-south connectivity over Tualatin River for vehicles	Boones Ferry Rd across the Tualatin River is currently congested. Limited connectivity over the river.	●	●	●	◒	◒	●	●	●	●	●
Downtown	C4	Downtown	Create grid system near Kmart upon redevelopment with connection to Seneca	Lack of connectivity and vehicle cut-through in downtown parking lots	●	◒	◒			●	◒		●	
Downtown	C5	Downtown	Improve downtown core street connectivity	Lack of connectivity downtown	●	◒	●	◒	◒	◒	◒		●	●
Downtown	C6	Manufacturing	Create road connections between Boones Ferry Rd and SW 90th Ave.	Lack of public road connection between Boones Ferry Road and SW 90th Ave	◒	◒	◒			◒			●	◒
Downtown	D1	Downtown	Redesign pedestrian crossing, consider flashing lights	Pedestrian delay waiting at signals downtown, pedestrian crossing concerns	◑		◑	◑		◒	◒	◒	◒	
Downtown	D10	Downtown	General – coordinate traffic signal timing to accommodate pedestrians in downtown.	Pedestrian delay waiting at signals downtown	◑	◒		◑			◒			◑

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Downtown	D11	Boones Ferry Road	Add focused pedestrian crossing over Boones Ferry Road at Tonka Road	Safety concerns at pedestrian crossings on Boones Ferry Rd	◑		◑	◑		◒	◒	◒		◒
					A signalized crossing already exists nearby			Will cause delay for most road users						
Downtown	D2	Interstate 5	Upgrade Nyberg interchange for bicyclist safety	Bicycle safety concerns at this high crash location over I-5	●	◒					◒	◒	●	●
Downtown	D3	Downtown, Manufacturing	Optimize intersection to reduce conflicts along Boones Ferry and Tualatin-Sherwood Roads	Pedestrian crossings safety concerns on Boones Ferry and Tualatin-Sherwood Roads	◒	◒				◒	◒		●	
Downtown	D4	Boones Ferry Road	Add pedestrian crossing at the WES stop (Seneca)	Pedestrian crossing safety concerns in downtown	◑	◑	◒	◑		◒	◒		◒	
					Railroad constraints, lack of sidewalks complicate this crossing									
Downtown	D6	Boones Ferry Road	Improve sidewalks and bicycle lane at Boones Ferry to Lower Boones Ferry	Pedestrian and bicycle safety concerns on Boones Ferry Rd	●	◒				●	◒	◒	●	◒
Downtown	D7	Bridgeport Village	Bike and pedestrian treatments near Bridgeport Village	Pedestrian and bicycle safety concerns near Bridgeport Village	◒	◒	◒			●	●	◒	◒	◒
Downtown	D8	Boones Ferry Road	Provide signage to accommodate bicycles on Boones Ferry Rd	Bicycle safety and comfort concerns on Boones Ferry Rd	◒						◒	◒	●	◒
Downtown	D9	Downtown	Add bicycle lane on Martinazzi north of Warm Springs	Bicycle safety and comfort concerns downtown	◒	◒					◒	◒	●	◒
Downtown	F1	Downtown	Encourage multimodal circulation and transit-oriented redevelopment	Lack of connectivity and transit-oriented development downtown	●						●		◒	◒
Downtown	F2	Downtown	Look for opportunities to open downtown's connection to the riverfront	Lack of connection between downtown and the river	●	◒				●	◒	◒	●	◒
Downtown	F3	Downtown	General – Eliminate parking minimum development requirements and consider parking maximums in downtown.	Large surface parking lots downtown detract from the "small town" feel, make it difficult for pedestrians	N/A									
Downtown	F4	Downtown	Add structured parking in the downtown core	Traffic congestion and limited parking availability downtown	N/A									
Industrial/Freight	A1	CIO-4	Add a signal or roundabout at Sagert/ Martinazzi	Intersection safety and congestion concerns for all modes at Sagert St and Martinazzi Ave	●	◒	●			◒	●		◒	◒
Industrial/Freight	A11	Manufacturing	Address congestion on Avery and Teton	Delay and congestion at Avery St and Teton Ave	●	●	◒							
Industrial/Freight	A12	Boones Ferry Road	Synchronize turn signals to/from Boones Ferry Rd to Tualatin-Sherwood Rd; coordinate with the train signal	Congestion and delay on Boones Ferry Rd at the Tualatin-Sherwood Road intersection	●	●	◒	◒			◒		●	
Industrial/Freight	A13	Boones Ferry Road	Widen Boones Ferry Rd through downtown	Congestion on Boones Ferry Rd	●	●	◒				●		◒	◒
Industrial/Freight	A2	Manufacturing	Divert truck traffic from Tualatin Road to Herman Road	Through and freight traffic cut-through on neighborhood streets. Congestion on Tualatin Rd	●	●	◒	◒	●					
Industrial/Freight	A5	Manufacturing	Extend 124th Ave to the south	Lack of north-south connectivity between Boones Ferry Rd and 99W	◒	●	◒			◒	◒		●	◒
													Increases north-south connectivity	
Industrial/Freight	A6	Manufacturing	Provide coordinated signal timing and access management along major arterials	Congestion and delay on major arterials city-wide	●	●	◒	●					●	◑
Industrial/Freight	A7	Boones Ferry Road	Remove right turn light in the northbound direction on Boones Ferry Road	Congestion concerns on Boones Ferry Rd at the intersection with Tualatin-Sherwood Rd	◒	◒		◒	●					

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Industrial/Freight	A9	Manufacturing	Improvements to help mobility of through-traffic on Tualatin-Sherwood Rd	Congestion on Tualatin-Sherwood Rd	◒	●		◒	◒					
Industrial/Freight	B1	City-wide	Expand shuttle for industrial and manufacturing workers during the day - consider charging fares	Lack of local transit connections between regional transit lines and employment areas, lack of transit service on evenings and weekends	●	◒	◒			●	●	◒		
Industrial/Freight	B2	Manufacturing	Add rail station with easy offload and access for industry in the west part of town	Freight traffic congestion	●		●	●	●	●				
Industrial/Freight	B3	City-wide	Provide a loop bus route serving local residents	Lack of local transit connections between regional transit lines and employment areas	●	◒	◒			●	●	◒	●	●
Industrial/Freight	C1	Manufacturing	Extend 95th Ave north to Tualatin Rd	Lack of north-south connectivity between Tualatin and Herman Roads	●	●	●	◒	◒	●	●	●	●	●
Industrial/Freight	C12	Interstate 5	Create an east/west connection across I-5 (near Greenhill Rd)	Lack of east-west connectivity across I-5 south of Tualatin-Sherwood Rd	●	◒	●	●	●		●	○	◒	
Industrial/Freight	C13	City-wide	Provide travel options by improving connectivity in the roadway system	System-wide congestion, lack of connectivity	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒
Industrial/Freight	C14	Manufacturing	Widen Myslony St to standards - reduce on-street parking	Myslony St is not built to city standards	◒	◒	◒				◒		◒	
Industrial/Freight	C15	Manufacturing	Upgrade Cipole Rd to standards with sidewalks and bike lanes	Lack of bicycle and pedestrian facilities on Cipole Rd	◒	◒	◒			◒	◒	◒	◒	◒
Industrial/Freight	C16	Manufacturing	Improve Tonquin Rd between Oregon St and Waldo Way	Lack of east-west connectivity south of Tualatin-Sherwood Rd	◒	◒	◒				◒		◒	
Industrial/Freight	C17	Bridgeport Village	Improve circulation east of the Bridgeport/I-5 Interchange	Congestion near Bridgeport Village	◒	◒	◒				◒		◒	◒
Industrial/Freight	C3	Downtown	Provide north-south vehicle connectivity over Tualatin River	Boones Ferry Rd across the Tualatin River is currently congested. Limited connectivity over the river.	●	●	●	●	●	●	●		●	●
Industrial/Freight	C4	Tualatin Road	Add left turn lane from Teton to Tualatin Rd	Congestion and delay on Teton Ave at Tualatin-Sherwood Road	N/A									
Industrial/Freight	C5	CIO-2	Extend 65th Ave north	Congestion on the current Boones Ferry Rd connection across the Tualatin River, lack of north-south roadway connectivity	●	●	●	◒	◒	●	●	●	●	●
Industrial/Freight	C6	Manufacturing	Improve 115th Ave	115th Ave is not fully built to city standards	●	●		◒	◒	◒	●	◒	◒	●
Industrial/Freight	C7	Manufacturing	Improve cross-section on Herman Rd	Congestion on Herman Road - Herman is not fully built to standard	●	●	●	◒	◒	◒	●	◒	◒	◒
Industrial/Freight	C8	Downtown	Add signal to Tualatin and Boones Ferry intersection	Difficult intersection geometry, sight distance concerns, and railroad conflict concerns	●	◒	◒	◒	◒	●	●		◒	●
Industrial/Freight	C9	CIO-3, CIO-5	Consider removing trucks/adding truck ino signs along 108th/105th Aves	Freight and high speed traffic on local and minor streets instead of on freight routes	○						○		◒	◒
Industrial/Freight	D1	City-wide	General – Coordinate freight receiving/shipping times	Rush hour traffic concerns	N/A Should be addressed in plan outside of TSP									
Industrial/Freight	D10	Downtown	Improve Tualatin-Sherwood Rd and Martinazzi Ave signal timing	Congestion and safety concerns on Tualatin-Sherwood Rd	◒	◒	◒		◒		◒		●	

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Industrial/Freight	D11	Manufacturing	Encourage off-peak usage on Herman Rd and Tualatin-Sherwood Rd	Rush hour congestion on Tualatin-Sherwood and Herman roads	◒	◒	◒	◒	◒					
Industrial/Freight	D12	City-wide	General - Make "Truck Route" signs larger	Freight traffic on local and minor streets instead of on freight routes	N/A									
Industrial/Freight	D13	Tualatin Road	Add traffic calming on Tualatin Road	Traffic safety and speed concerns on Tualatin Rd	◑	◑								
Industrial/Freight	D14	City-wide	Add measures to reduce truck traffic on local and minor collectors	Freight and high speed traffic on local and minor streets instead of on freight routes	◑	◑								
Industrial/Freight	D15	Manufacturing	Improve turning radius from Herman Rd northbound onto 108th Ave	Difficult intersection angle for trucks	◒	◒	◒				◒		◒	
Industrial/Freight	D16	Manufacturing	Increase speed limit to 40 or 45 MPH on 124th Ave	Concern with slow travel along 124th Avenue	◒	◒					◒		◒	
Industrial/Freight	D17	Manufacturing	Reconfigure the intersection of 115th Ave and Tualatin-Sherwood Rd	Congestion and delay on Tualatin-Sherwood Rd and 115th Avenue	◒	◒	◒				◒		◒	
Industrial/Freight	D18	Manufacturing	Improve turning radius from Tualatin-Sherwood Rd to Cipole Rd	Difficult intersection angle for trucks	◒	◒	◒				◒		◒	
Industrial/Freight	D19	Manufacturing	Improve northbound right and left turns onto Herman Rd	Difficult intersection angle for trucks - conflicts with the railroad	◒	◒	◒				◒		◒	
Industrial/Freight	D2	Tualatin Road	Add vision and sound walls; reduce cut-through traffic.	Truck traffic impacts on surrounding neighborhoods	◑	◑		◑				◑		◑
Industrial/Freight	D20	Bridgeport Village	Improve southbound left turns at 63rd Ave and Lower Boones Ferry Rd	Difficult intersection angle for trucks	◒	◒	◒				◒		◒	
Industrial/Freight	D21	CIO-1	Improve southbound left turns from Jurgens and 106th Aves onto Tualatin Rd	Congestion on Tualatin Road, safety concerns for vehicles making left turns	◒	◒	◒				◒		◒	
Industrial/Freight	D22	CIO-2	Improve 65th Ave south across I-205; widen and address dip in the roadway	65th Ave is not built to city standards	◒	◒	◒				◒		◒	
Industrial/Freight	D23	City-wide	Ensure that future roundabout designs can accommodate larger trucks	Future freight traffic mobility	◒	◒	◒	◒			◒		◒	◒
Industrial/Freight	D3	City-wide	Provide incentives to telecommute	System-wide rush hour traffic congestion concerns	◒	◒	◒	◒	◒			◒		
Industrial/Freight	D5	Downtown	Add eastbound lane on Tualatin-Sherwood from Martinzaai to I-5	Congestion on Tualatin-Sherwood Rd near I-5	●	◒	●							
Industrial/Freight	D6	Downtown	Improve signs to direct traffic to correct street	Confusion around which lane connects to which roadway - safety concerns	◒							◒		
Industrial/Freight	D7	Manufacturing	Add traffic signal at 97th Ave and Tualatin-Sherwood Rd	Congestion and intersection delay on Tualatin-Sherwood Rd and 97th Ave	◒	◒	◒			◒	◒		●	◒
Industrial/Freight	D8	Tualatin Road	Improve visibility, add signal, restrict left turns from 108th Ave onto Tualatin Rd.	Congestion on Tualatin Rd, safety concerns for vehicles turning from 108th Ave	◒								◒	
Industrial/Freight	D9	Tualatin Road	Add a signal at Tualatin Rd and Teton Ave/Jurgens Rd	Delay and safety concerns at intersection of Tualatin Rd and Teton Ave/Jurgens Road and Tualatin Road	◒	◒	◒			◒	◒		●	◒

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NH Livability	A1	CIO-1	Discourage/restrict through and truck traffic along Tualatin Rd while encouraging a through and truck traffic along Herman Rd.	Through and freight traffic cut-through on neighborhood streets. Congestion on Tualatin Rd	●						●		●	
NH Livability	A3	Downtown	Reroute school buses away from Tualatin Community Park and railroad crossings	Congestion on Tualatin Road caused by buses stopping at each railroad crossing	◒	◒	◒	◒						
NH Livability	A4	Boones Ferry Road	Add a roundabout at Boones Ferry Rd and Norwood Rd.	Congestion and safety concerns at Boones Ferry Rd and Norwood Rd	◒	◒	◒	◒	◒					
NH Livability	A5	Boones Ferry Road	Make Boones Ferry Rd more pedestrian-friendly	Pedestrian facility gaps on Boones Ferry Rd	◒	◒	◒			●	●	◒	◒	◒
NH Livability	A6	Tualatin Road	Improve intersection at 108th Ave and Tualatin Rd	Congestion on Tualatin Rd, safety concerns for vehicles turning from 108th Ave	◒	◒		◒						
NH Livability	A8	CIO-3	Reduce speed, possibly add trail through wooded area.	Safety concerns and lack of pedestrian and bicycle facilities on 105th Ave., Blake St., and 108th Ave.	❍	❍		❍				◒	◒	◒
NH Livability	A9	Manufacturing	Eliminate free right turns – on Herman Rd at Teton Ave and Tualatin Rd	Intersection safety for all users	❍	❍		❍	❍					
NH Livability	B1	CIO-4	Add a signal or roundabout at Sagert St and Martinazzi Ave	Intersection safety and congestion concerns for all modes at Sagert St and Martinazzi Ave	●	●	◒			◒	●		◒	◒
NH Livability	B2	CIO-2	Add a dedicated right turn lane into apartments near Nyberg Woods Shopping Center	Congestion and crossing safety concerns on Nyberg St	◒									◒
NH Livability	B3	CIO-2	Realign Sagert St and Borland Rd to one intersection	Intersection safety concerns for all modes at Sagert St and Borland Rd	●	●	●	◒	◒					
NH Livability	B4	Manufacturing	Improve intersection at Avery St and Teton Ave	Intersection delay and difficult angle for trucks at Avery St and Teton Ave	●	◒	●							
NH Livability	B5	Boones Ferry Road	Address congestion caused by high school	Traffic delay and congestion on Boones Ferry Rd	◒		◒	◒	◒		◒		◒	
NH Livability	B6	Tualatin Road	Adjust signal timing to reflect traffic needs – give priority to Tualatin Road through traffic.	Congestion on Tualatin Rd	●		●	◒						
NH Livability	B8	Manufacturing	Add right turn lane from Tualatin-Sherwood Rd at 124th Ave	Congestion on Tualatin-Sherwood Rd	◒	◒	◒	◒	◒					
NH Livability	C1	Manufacturing	Extend 124th Ave south	Lack of north-south connectivity between Boones Ferry Rd and 99W	●	●	●	●						
NH Livability	C2	CIO-3, CIO-5	Consider removing trucks/adding truck ino signs along 108th/105th Aves	Freight traffic on local and minor streets instead of on freight routes	❍						❍		◒	◒
NH Livability	C3	CIO-3	Balance the needs of neighborhood with local truck movement along Avery St; provide turn lane for traffic entering into school	Freight traffic and congestion on Avery	●								●	
NH Livability	C6	Bridgeport Village	Create a street between Boones Ferry Rd and Bridgeport Rd	Congestion and lack of connectivity near Bridgeport Village	●	●	●	◒	●	◒	◒		◒	◒
NH Livability	C7	CIO-2	Extend 65th Avenue north	Congestion on the current Boones Ferry Rd connection across the Tualatin River, lack of north-south roadway connectivity	●	●	●	◒	◒	●	●	●	●	●
NH Livability	D10	CIO-3, CIO-5	Connect Tonquin trail with neighborhoods	Gaps in the multi-use path network	●	◒	◒			●	●	◒	●	●

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NH Livability	D11	CIO-2	Connect to Tualatin Path	Lack of connections to multi-use path network	●	●				●	◒	◒	◒	◒
NH Livability	D12	City-wide	Add benches for walkers throughout the city	Lack of facilities to accommodate aging and mobility-limited pedestrians	N/A									
NH Livability	D13	City-wide	Create a bike boulevard system connecting major areas	Lack of low volume, low speed signed bikeway alternatives to major corridors throughout the city	◒	◒					◒	◒	●	◒
NH Livability	D2	Boones Ferry Road	Add pedestrian islands on Boones Ferry, near Byrom ES and Tualatin HS	Pedestrian crossing safety concerns on Boones Ferry Rd	◑			◑			◒		◒	
NH Livability	D3	Downtown	Provide a mutli-use path along the river	Gaps in the multi-use path network	●	◒	●			●	●	◒	◒	◒
NH Livability	D4	CIO-2	Multi-use path on 65th Ave between Borland and Nyberg	Sidewalk gaps on 65th Ave	●	●	◒			◒	●	◒	●	●
NH Livability	D5	CIO-2	Repair gap in sidewalk on the south side of Borland Rd	Sidewalk gaps on Borland Rd	●					●		◒	◒	
NH Livability	D6	CIO-2	Add multi-use path as part of Tualatin Trail	Gaps in the multi-use path network	●	◒				●	●	◒	●	◒
NH Livability	D7	Tualatin Road	Provide focused pedestrian crossing improvements along Tualatin Rd	Pedestrian crossing safety concerns on Tualatin Road	◑			◑					◒	◒
NH Livability	D8	Grahams Ferry Road	Add bike facilities and continuous sidewalks along Graham's Ferry Road	Lack of pedestrian facilities on Grahams Ferry Rd	●	●				●	◒	◒	◒	◒
NH Livability	D9	Manufacturing	Build the Tonquin Trail	Gaps in the multi-use path network	●	◒	◒	◒		●	●	◒	●	●
NH Livability	E1	CIO-1	Provide transit serving local resident needs in north Tualatin, between 99W and downtown Tualatin	Lack of east-west transit service in north Tualatin	●	◒	●			◒	●	◒	●	●
NH Livability	F2	Tualatin Road	Remove right turn light in the northbound direction on Tualatin Rd out of the Police Station	Congestion at the intersection of Tualatin Rd and the Police Station	◑	◑		◒						
Transit	A1	Manufacturing	Provide bus transit service on Herman Road	Lack of east-west transit service	●	◒	●			◒	●	◒	●	●
Transit	A10	Manufacturing	Expand shuttle for industrial and manufacturing workers during the day - consider charging fares	Lack of local transit connections between regional transit lines and employment areas	●	◒	◒			●	●	◒		
Transit	A12	City-wide	General – need extended service for all transit	Limited transit service on the weekends and evenings	●	◒	●				●	◒	●	
Transit	A13		General – use more energy efficient buses	Air quality concerns	N/A									
Transit	A14	Downtown	Coordinate bus schedules with WES schedule	Long transfer times between buses and WES	N/A	◒								
Transit	A16	City-wide	Add stops on higher volume routes	Long distances between stops, few stops near residential areas	◑	◑		◑		◒				◒
Transit	A2	Manufacturing	Provide bus transit service on 124th Avenue	Lack of transit service in west Tualatin	●	◒	●			◒	●	◒	●	●

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Transit	A3	Manufacturing, CIO-3, CIO-4	Provide bus transit service on Avery Street	Lack of east-west transit service	●	◒	●			◒	●	◒	●	●
Transit	A4	Tualatin Road	Provide bus transit service on Tualatin Road between downtown and 99W	Lack of east-west transit service in north Tualatin	●	◒	●			◒	●	◒	●	●
Transit	A5	CIO-2	Extend bus service to east Tualatin	Lack of transit service in eastern Tualatin	●	◒	●			◒	●	◒	●	●
Transit	A6	Interstate 5	Provide express bus service between Tualatin and Salem	Limited transit service to Salem	N/A									
Transit	A7	Bridgeport Village	Provide a shuttle or trolley service between Bridgeport Village and Commons area, especially for weekend service	Lack of transit connections between Bridgeport Village and the Commons, limited transit on the weekends	●	◒				●	●	◒	●	●
Transit	A8	City-wide	Provide a loop bus route serving local residents	Lack of local transit connections between regional transit lines and employment areas	●	◒	◒			●	●	◒	●	●
Transit	B1	Downtown	Add more bicycle storage at the WES station	Lack of bicycle parking at WES station	◒						◒	◒	◒	
Transit	B2	Downtown	Provide rail or high capacity bus transit service on Tualatin-Sherwood Road	Lack of east-west high capacity transit in Tualatin	●	●	◒			●	●	◒	●	●
Transit	B4	Bridgeport Village	Build an elevated pedestrian bridge to connect the Tualatin park-and-ride with shopping	Pedestrian crossing safety concerns near Bridgeport	◒						◒	◒	●	
Transit	C1	Downtown	Make the WES station a central focus of downtown and the main transit center. Improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections	Lack of land use support for WES, lack of a "sense of place" near downtown	●								●	
Transit	D1	CIO-1, Manufacturing	Look for potential park-and-ride locations in west Tualatin	Lack of park-and-ride lots in west Tualatin	◒	◒					◒	◒	●	◒
Transit	D2	CIO-6	Look for potential park-and-ride locations in south Tualatin	Lack of park-and-ride lots in south Tualatin	◒	◒					◒	◒	●	◒
Transit	D3	Bridgeport Village	Add parking capacity at Tualatin Park-and-Ride - Potential structure	Heavy use and capacity concerns at the Bridgeport park-and- ride facility	◒	◒					◒	◒	●	◒
Transit	D4	Manufacturing, Bridgeport Village	Look for opportunities to reduce size of or relinquish underutilized park-and-ride lots and transfer spaces to higher utilized areas	Underutilized park-and-ride lots in Tualatin	◒	◒					◒	◒	●	◒
Transit	D5	CIO-2	Add a park-and-ride in east Tualatin	Lack of park-and-ride lots east of I-5	◒	◒					◒	◒	●	◒

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A1	●		●				◒	●	◒	●			●
	There are three pedestrian crash locations on Tualatin Sherwood Road and Nyberg Road												
A2	◒	●	◒				◒	●	●	●			●
	Separated path eliminates unsafe intersection geometry concerns												
A3	●		●				◒	◒		◒	◒		◒
	There are two bicycle crashes near Byrom and Tualatin HS												
A4	●	●	◒	◒			●	○				○	◒
	Significant improvement in pedestrian crossing safety												
A6	◒			◒				◒			◒		◒
B1	◒			◒			◒	◒					◒
B10	○		○					◒		◒			
B11	◒		◒					N/A					
B13	●	●		◒			◒	N/A					◒
	Addresses multiple crossing locations												
B14	◒		●	◒			◒	●	◒	◒			●
B15	●		●	◒				●	◒	●			
	Lack of bicycle facilites on Boones Ferry is significant safety hazard												
B16	○			◒			○	●	◒	●			
								Creates new ped/bike connection					
B17	●	●		◒				◒	◒	◒			◒
	Creates low-stress alternative to on-road routes												
B18	●	●		◒			◒	○	◒		○		
	Grade-separated crossing eliminates unsafe intersection geometry										Allows for greater vehicle speeds		
B19	N/A							◒	◒	◒			
B2	◒	●		◒			◒	◒	◒	●			◒
B20	N/A						◒	●					●
B21	◒						◒	●					●
													Significantly improves pedestrian environment
B3	◒	◒	●	◒			◒	●					●
	There are a large number of bicycle and pedestrian crashes reported on T-S Road							Would increase multi-modal access on major arterial					
B4	●		◒	◒	●			●	◒	●			

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B5										Improves cycling environment downtown			
B6													
B7													
B8													
B9													
C2										Enhances multi-modal access across river			
C4													
C5			Creates safe bike routes on low-traffic roads										
A1													
A2													
A3								N/A					
A4								N/A					
A5													
A6			Ensures signal consistency					N/A					
A8													
B1													
B10													
B12								N/A					
B13													
B14													

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B15	◒			◒				◒				◒	
B16	◒		◒					◑				◑	
B17	◒		◒	◒	◒	●		◒	◒				
B2	◒	◒		◒	◒	◒	◒	◒					◒
B20	N/A A signal already exists at this intersection							◑					◑
B21	◒			◒	◒	●	◒	◒	◒				
B22	◒		◒					◒			◒	◒	◒
B23	◒		◒	◒	◒	◒		N/A					
B24	◒		◒	◒		◒		N/A					
B3	◒			◒	◒	◒	◒	◑					◑
B5	●		● Will improve safety at high-crash location.					N/A					
B6	◒	◒	◒	◒				●					● Improves connection between downtown and the park
B8	◒	◒	◒	◒			◒	◑			◒		◑
B9	●					●		N/A					
C12	◒		◒	◒	◒	●		◒	◒	◒			
C2	◒		◒	◒	◒	●	◒	◑	◒			◑	
C4	●		◒			●		◒				◒	
C7	◒			◒	◒			◑		◑			◒
C9	●		●	◒		◒		◑					
D1	●		◒			●		◑					◑

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D2	N/A							N/A					
A1	●			◒			●	●					●
							Lighting enhances path safety						
A2	◒		●			◑	◒	●		◒			●
A4	●		●					◑		◑			◒
A5	◒	●	◒	◒			●	◒	◒				
A5-1													
A6	◑				◑		◒	◑	◒			◑	
				Increases response time for emergency vehicles									
A7	◒	◑	●	◒			◒	◑		◒		◑	◒
B1	◒			◒	◒			◒	◒				◒
B10	◒		◒			◒	◒	◑	◒				◑
B3	●		◒	◒	◑		●	◑					◑
B7	◒	●		◒			●	◒	◒				◒
B9	●					◒	◒	◒	◒				◒
C1	◑			◒			◒	◒					◒
C2	◒			◒	◒		◒	◒	●				◑
C4	◒	◒		◒			◒	●	◒				
C5	◒			◒	◒	◒	◒	●		◒	◒		●
													Wil increase walkability of downtown
C6	◑	◑	◑	◒	◒	◒	◒	N/A					
D1	●		◒	◒			●	◒		◒			◒
D10	N/A							●					●

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D11	◒		◒	◒			◒	◒		◒			◒
D2	●	●	◒					◒	◒	◒			
D3	●		◒			●	◒	◒	◒				
D4	❍			◒		❍	◒	◒	◒	◒			◒
D6	●		●	◒			◒	◒		◒			◒
D7	◒		◒	◒			◒	◒	◒	◒			◒
D8	◒		◒					◒	◒	◒	◒		●
D9	◒		◒	◒				◒	◒	◒			◒
F1	◒			◒	◒	◒	◒	●	◒	●			◒
F2	❍			❍	◒		◒	●					●
F3	◒						◒	❍					❍
F4	❍			◒				❍					◒
A1	◒	◒		◒	◒	◒	◒	N/A					
A11	●	●		◒				N/A					
A12	N/A							◒				◒	
A13	●					◒	◒	◒	◒				◒
A2	N/A							●				◒	
A5	●			◒	◒	●	◒	❍	◒				
A6	●			◒		●		◒				●	❍
A7	❍		❍					◒				◒	

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A9	◒		◒					●				◒	
B1	N/A							●	●				◒
B2	N/A							●				◒	●
B3	N/A							●	●				●
C1	◒			◒	◒	◒	◒	❍					❍
C12	◒			◒	◒	●		❍		●	❍	●	❍
C13	●	◒		◒	◒	◒	◒	❍		❍			●
C14	●	●		◒		◒		N/A					
C15	◒	●		◒			0	●	◒	●			
C16	◒	◒				◒		N/A					
C17	◒					◒		◒				◒	
C3	●	●	●	●	●	●	●	●	◒	◒			
C4	N/A							N/A					
C5	●		◒	◒	◒	●	◒	◒	◒			❍	
C6	●			◒	◒	●	◒	❍				❍	
C7	●	●	◒	◒			●	❍		◒			❍
C8	●	◒	●	◒		◒	●	N/A					
C9	N/A							●			●	●	◒
D1	N/A							N/A					
D10	N/A							N/A					

Project ID	Safety Average Score	Number of geometric deficiencies addressed	Number of high crash locations addressed	Does the potential option improve an existing facility to meet design standards? Does a new facility meet adopted policies and standards?	Does the potential option increase the number of alternate routes/connections for emergency vehicles?	Emergency vehicle response time	Qualitative assessment of security issues (eyes on the street, lighting, etc)	Vibrant Community Average Score	Access to transit within a reasonable distance for residential and employment centers, streets that include pedestrian and bike facilities	Number of streets that include pedestrian and bike facilities	Maintain slow speeds and low traffic volumes on neighborhood streets	Minimize cut-through traffic	Provides opportunities to support the small town feel (consider the scale of the potential option, traffic impacts, types of traffic, etc)
D11	N/A							N/A					
D12	N/A							◒				◒	◒
D13	◔	◔						●			●	●	◒
D14	◔					◔		●			●	●	◒
D15	◒	◒				◒		N/A					
D16	N/A							N/A					
D17	◒	◒	◒			◒		N/A					
D18	◒	◒	◒			◒		N/A					
D19	◒	◒				◒		N/A					
D2	◔						◔	●			●	●	◒
D20	◒	◒				◒		N/A					
D21	◒	◒				◒		N/A					
D22	◒	◒				◒		N/A					
D23	●	●		◒	◒	◒		N/A					
D3	◒		●			◒		N/A					
D5	●		◒	◔	◒	◒		◔					◔
D6	N/A							N/A					
D7	◒		◒					◒	◒	◒			
D8	◒	◒	◒	◒			◒	◒			◒		
D9	N/A							◒	◒	◒			

Project ID	Safety Average Score	Number of geometric deficiencies addressed	Number of high crash locations addressed	Does the potential option improve an existing facility to meet design standards? Does a new facility meet adopted policies and standards?	Does the potential option increase the number of alternate routes/connections for emergency vehicles?	Emergency vehicle response time	Qualitative assessment of security issues (eyes on the street, lighting, etc)	Vibrant Community Average Score	Access to transit within a reasonable distance for residential and employment centers, streets that include pedestrian and bike facilities	Number of streets that include pedestrian and bike facilities	Maintain slow speeds and low traffic volumes on neighborhood streets	Minimize cut-through traffic	Provides opportunities to support the small town feel (consider the scale of the potential option, traffic impacts, types of traffic, etc)
A1	◒					◒		●			●	●	
A3	●					●		◒					◒
A4	◒			◒			◒	❍					❍ Roundabouts can be difficult for active modes to navigate
A5	●	●	●				◒	●		●			◒
A6	◒	◒						◒					◒
A8	●	●	◒	◒			◒	●		●			◒
A9	●	●		◒			◒	●			●	◒	
B1	◒	◒		◒	◒	◒	◒	◒					◒
B2	◒			◒			◒	◒			◒		
B3	◒			◒	◒	◒	◒	❍					❍
B4	●	●		◒				N/A					
B5	◒				◒			◒			◒	◒	◒
B6	◒	◒						❍					❍
B8	◒		◒	◒		◒		N/A					
C1	◒			◒	◒			◒				◒	
C2	N/A							●			●	●	◒
C3	◒			◒				◒			◒	◒	
C6	◒			◒			◒	❍					❍
C7	◒		◒	◒	◒	◒	●	❍	◒			❍	
D10	◒			◒			◒	◒					◒

Project ID	**Safety Average Score**	Number of geometric deficiencies addressed	Number of high crash locations addressed	Does the potential option improve an existing facility to meet design standards? Does a new facility meet adopted policies and standards?	Does the potential option increase the number of alternate routes/connections for emergency vehicles?	Emergency vehicle response time	Qualitative assessment of security issues (eyes on the street, lighting, etc)	**Vibrant Community Average Score**	Access to transit within a reasonable distance for residential and employment centers, streets that include pedestrian and bike facilities	Number of streets that include pedestrian and bike facilities	Maintain slow speeds and low traffic volumes on neighborhood streets	Minimize cut-through traffic	Provides opportunities to support the small town feel (consider the scale of the potential option, traffic impacts, types of traffic, etc)
D11	◒			◒				●		●			◒
D12	N/A							●					●
D13	●		●					◒	◒	●	◒	◒	◒
D2	◒			◒			◒	◒					◒
D3	●	●		◒				●		●			◒
D4	◒	◒		◒			◒	●	●	●			●
D5	●	●		◒			◒	●		●			◒
D6	●	●		◒			◒	●		●			◒
D7	●	●		◒			◒	●					●
D8	●	●		◒			◒	◒		◒			◒
D9	●	●		◒			◒	●					●
E1	N/A							◒	◒				
F2	❍		❍					N/A					
A1	N/A							●	●				
A10	N/A							●	●				◒
A12	N/A							●	●				
A13	N/A							N/A					
A14	N/A							N/A					
A16	N/A							●	●				◒
A2	N/A							●	●				

Project ID	Safety Average Score	Number of geometric deficiencies addressed	Number of high crash locations addressed	Does the potential option improve an existing facility to meet design standards? Does a new facility meet adopted policies and standards?	Does the potential option increase the number of alternate routes/connections for emergency vehicles?	Emergency vehicle response time	Qualitative assessment of security issues (eyes on the street, lighting, etc)	Vibrant Community Average Score	Access to transit within a reasonable distance for residential and employment centers, streets that include pedestrian and bike facilities	Number of streets that include pedestrian and bike facilities	Maintain slow speeds and low traffic volumes on neighborhood streets	Minimize cut-through traffic	Provides opportunities to support the small town feel (consider the scale of the potential option, traffic impacts, types of traffic, etc)
A3	N/A							●	●				
A4	N/A							●	●				
A5	N/A							●	●				
A6	N/A							N/A					
A7	N/A							●	●				●
A8	N/A							●	●				●
B1	N/A							N/A					
B2	N/A							◒	●				○
B4	N/A							○					○
C1	N/A							●					●
D1	N/A							●	●				◒
D2	N/A							●	●				◒
D3	N/A							◒	●				○
D4	N/A							●	●				◒
D5	N/A							●	●				◒

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
A1															
						Could reduce freight mobility									
A2															
									Could impact wetlands if a new bridge is required over the slough on 65th Ave.						
A3															
A4															
A6															
B1															
B10															
						May reduce freight mobility									
B11	N/A														
B13	N/A														
									Addresses critical crossings on multiple ped/bike routes						
B14															
B15	N/A														
B16															
									Significantly improves bike/ped connectivity across I-5						
B17															
B18															
B19	N/A														
B2															
						Provides active transportation options for residents on Norwood Rd									
B20	N/A														
									Enhances the pedestrian env. city wide						
B21															
B3															
B4															

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
B5	●	●	●	●	◒	●			●	◒	◒	●	●		
B6	●	●	●	◒	●	◒	○	○	◒		●	●	◒		◒
						May reduce freight mobility			Potential for some environmental impacts, depending on project design						
B7	○	◒	◒	◒	○	◒	○	○	◒		◒			◒	◒
						May reduce traffic mobility									
B8	N/A								●	●	●	●	◒		◒
B9	○		◒	◒	○	◒			◒		●	●	◒	◒	○
				Increases multi-modal options for residents											
C2	◒	◒			◒	◒			●		●	●	◒	●	◒
									Addresses lack of bike/ped facilities across the river						
C4	◒	◒	◒	◒	◒	◒			●	●	●	◒	◒		
C5	●	●	●	●	◒	●			●		●	●	◒	●	●
A1	N/A								◒					◒	◒
A2	N/A								◒	◒	◒	◒			
A3	N/A								N/A						
A4	◒	◒	◒	◒	◒	◒	◒	●	◒				◒		
A5	◒					◒			◒	◒	◒	◒			
A6	◒		◒			◒	◒	◒	N/A						
A8	◒				◒	◒			◒	◒	◒				
B1	●	●	●	●	◒	◒	●	●	○		◒		◒		○
B10	●	●	●	●	◒	●	●	●	◒						◒
B12	◒		◒			◒	◒	◒	○			○			
B13	●	◒	◒		◒	◒	●	●	◒				◒	◒	◒
B14	◒	◒	◒	◒	○				○					◒	◒

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
B15	◑						◑		◒				◑	◒	●
B16	◒		◒		◒	◒	◒	◒	◑			◑			
B17	◒	◒	◒	◒	◑		◒	●	◑				◒	◑	◑
B2	●	●	◒	◒	●	◒	●	◒	◒			◒		◒	◒
B20	◑	◒	◒	◑	◑	◑	◒	◒	◑		◒	◑	◒		
B21	●	●	●	●	◒	◒	●	●	◑	◒	◒	◒	◒		
B22	◒				◒	◒			◒				◒		
B23	◒	◒	◒	◒	◒	●	◒		◒				◒	◒	
B24	◒		◒	◒	◒	◒	●	◒	◒				◒		
B3	◑	◒	◒	◒	◑	◑	◒		◑		◒		◒	◑	◑
B5	◑				◑	◒	◑	◑	◒			◒			
B6	N/A								◒					◒	
B8	◒	◒			●		◑		◒					◒	◒
B9	●	◒	●		◑	◒	●	●	N/A						
C12	◒	◒	◒	●	◑	◒	●	●	◑		◒	●			◑
C2	●	●	●	●			◒		◑		◒	◒		◑	◑
									Improves north-south connectivity						
C4	●	●	●		◒	●	◒	◒	◒				◒		
						Will positively impact businesses at Bridgeport Village									
C7	◒	◒			◒				◑			◒		◒	◑
															Could impact the Tualatin River
C9	●	◒	◒	◒		◒	●	●	◑	◒			◒		◑
D1	●	◒	●	◒	◒	◒	●	●	◑				◒		◑

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
D2	N/A								N/A						
A1	◒	◒	◒		◒	●			●		●		◒	●	●
A2	○	◒	◒		◒	◒	○	○	◒			◒	◒		
A4	○			◒			○	○	◒			◒	◒		
A5	●	◒	◒	◒	◒	●	◒	●	◒						◒
A5-1															
A6	◒	◒	◒		◒	●	◒	◒	◒						◒
A7	●	●	◒		○	○	○	◒	◒				◒		
B1	●	◒			●				●			◒	◒	●	●
B10	●	●	●	●		◒	●	●	○			◒		◒	○
B3	●	●	●	●	○	●	●	●	○			◒		○	◒
B7	●	●	●		◒	◒	◒	●	◒			●		◒	○
B9	◒	◒	◒	◒	○	◒	◒	●	○					◒	○
C1	◒	●	◒	◒	◒	◒			◒		◒	●	◒	●	◒
C2	●	●	●	●	○	◒		●	○			◒	◒	◒	○
C4	◒	◒			◒	●	○	○	●		●	●		◒	◒
C5	○	◒	◒	◒	○		○	◒	●		●	◒			◒
C6	◒	◒	◒	◒	◒	◒			○				◒		○
D1	○	◒	◒	◒		◒	○	○	◒		◒	◒			◒
D10	○	◒	◒	◒		◒	○	○	○			○			

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
D11	◔	◒			◒	◒	◔	◔	◒				◒		◒
D2	◔		◒	◒	◒	◒	◔	◔	◒		◒	◒	◒		
D3	◔	◒	◒	◒			◔	◔	◒		◒	◒			◒
D4	◔	◒	◒	◒		◒	◔	◔	◒		◒		◒		◒
D6	◒	◒	◒	◒	◒	◒			●		●	●	◒		◒
D7	◒		◒	◒	◒	◒			◒				◒		◒
D8	◒				◒	◒			●	●	●	◒	◒		
D9	◒	◒	◒	◒	◒	◒			●	●	●	●	●		
F1	◒	◒	◒	◒	◒	◒			●		●		◒		◒
F2	◒	◒	◒	◒	◒	◒			●		◒	●	◒	●	◒
F3	◔	◔							N/A						
F4	◒	◒				◒			N/A						
A1	◒	◒	◒	◒	●	●	●	◒	◒			◒		◒	◒
A11	◒	◒	◒		◒	◒	●		N/A						
A12	◒	◒	◒		◒	◒	◒	◒	N/A						
A13	◒	◒	◒	◒	◔	◒	◒	●	◒					◒	◔
A2	◒		◒			◒			◒				◒		
A5	●	●	●	●	◒	◒	●	●	◒	◒	◒	◒	◒		
A6	◒	◒	◒		◔		●	●	N/A						
A7	◒				◒				N/A						

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
A9	◒	●	●				◒	◒	N/A						
B1	●	◒	◒	◒					◒				◒		
B2	◒	◑	◑	◑	●	●	●		●				●	◒	◒
B3	●	◒	◒	◒					●		◒		◒		
C1	◒	◒	●	◒	◑		●		◑					◑	◑
									Significant impacts to nearby wetlands						
C12	◒						◒		◑	◒	●	◒	◒	◑	◑
C13	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒		
C14	◒		◒			◒	◒		N/A						
C15	●		◒	●	◒	●	◒	◒	◒			◒	◒		
C16	◒		◒		◒	◒	◒	◒	N/A						
C17	◒		◒		◒	●	◒	◒	◒				◒		
C3	●	◒	●	●	◑	◒	●	●	●		◒	◒	◒		
C4	N/A								N/A						
C5	●	●	●	●			◒		◒		◒	◒	◒	◑	◑
C6	◒	◒	◒	◒		◒	◒		◒	◒	◒	◒			◒
C7	●	◒	●	●	◒	●	●		●		●	●		◒	◒
C8	◒	◒	◒	◒	◒	◒	◒		◑		◒			◑	◑
C9	◑	◑	◑	◑	◑		◑		●				◑	●	●
D1	◒				◒		◒	◒	N/A						
D10	◒	◒				◒	◒	◒	N/A						

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
D11	◒	◒			◒	◒	◒	◒	●				●		
D12	◒						◒	◒	N/A						
D13	◑				◑	◒	◑		◒		◒	◒			◒
D14	◑				◑	◒	◑		◒	◒	◒	◒			
D15	◒		◒		◒	◒	◒		N/A						
D16	◒		◒			◒	◒	◒	N/A						
D17	◒		◒		◒	◒	◒	◒	N/A						
D18	◒		◒		◒	◒	●	◒	N/A						
D19	◒		◒		◒	◒	●		N/A						
D2	◑				◑	◑	◑	◑	◑				◑		◑ Project may have significant visual impacts
D20	◒		◒		◒	◒	◒		N/A						
D21	◒		◒		◒	◒			N/A						
D22	◒		◒		◒	◒	◒	◒	N/A						
D23	◒		◒		◒	◒	●	◒	N/A						
D3	◒		◒				◒	◒	◒				◒		
D5	●	●	◒	◒	◒	◒	●	●	◑				◒		
D6	◒								N/A						
D7	◒					◒			◒	◒		◒			
D8	◑						◑		◒					◒	◒
D9	◒					◒			◒	◒	◒	◒			

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
A1	◑			◒	◒	◒	◑		◒	◒	◒				
A3	N/A								◒				◒		
A4	◑				◑		◒	◒	◑	◒	◒			◑	
A5	◒	◒		●	◑	◑			●	●	●	●	◒		◒
A6	◒					◒	◒		◒						
A8	◑				◑	◑			◒		●	●	◒	◑	◑
A9	◑				◑	◒	◑		◒				◒		
B1	●	◒	●	●	◒	◒	●	◒	◒			●		◒	◒
B2	◑	◒	◑			◒			◒					◒	
B3	◑	◒	◒	◒	◑	◑	◒		◑		◒		◒	◑	◑
B4	◒	◒	◒		◒	●	◒		N/A						
B5	◒				◒	◒			◒				◒		
B6	◒					◒			◒				◒		
B8	◒		◒	◒	◒	◒	●	◒	◒				◒		
C1	●		●	●			●	●	◑				◒		
C2	◑	◑	◑	◑	◑		◑		●				◑	●	●
C3	◒	◒	◒	◒	◒	◒	◒		◒	◒	◒		◒	◒	●
C6	◑				◑	◒	◒		◑				◒		◑
C7	●	●	●	●			◒		◑		◒	◒			◑
D10	●	●	●	●	◒	◒			●	◒	●	◒	◒	●	◒

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
D11	N/A								◒		◒		◒	◒	◒
D12	N/A								●				◒	●	◒
D13	◒	◒	◒	◒	◒	◒			●	●	●	◒	◒		
D2	○						○		◒	◒	◒		◒		
D3	◒	◒	●	◒	◒	◒			●		◒	●	◒	●	◒
D4	●	◒	●	●	●	●			◒		●	●	◒	◒	○
									Could have negative impacts on wetlands						
D5	N/A								●	◒	●	●	◒		◒
D6	◒	◒	◒	◒	◒	◒			●		●	●	◒	◒	◒
D7	○					◒	○	○	●		●		◒		◒
D8	N/A								◒	◒	●	◒	◒	◒	◒
D9	●	●	●	●	◒	●			●		●	●	◒	●	●
E1	◒	◒	◒	◒					◒		◒		◒		◒
F2	N/A								N/A						
A1	◒	◒	◒	◒					◒	◒		◒			◒
A10	◒	◒	◒	◒					◒			◒			
A12	◒	◒	◒						◒	◒		◒			
A13	N/A								N/A						
A14	N/A								N/A						
A16	N/A								◒			◒			
A2	◒	◒	◒	◒					◒	◒		◒			◒

Project ID	Economy Average Score	Availability and quality of transportation access to the City Center	Availability and quality of transportation access to employment centers	Number of transportation options to major employers/employment centers	Minimize and/or avoid negative impacts on residential and business areas	Maximize and/or create positive impacts on residential and business areas	Ability for freight traffic to move efficiently and quickly to destinations both in and outside of Tualatin	Improved traffic conditions and access through Tualatin to regional destinations	Health/Environment Average Score	Number of bike lanes and pedestrian facilities within 1 mile of schools	Number and frequency of active transportation choices near residential areas	Number of network gaps addressed in bicycle an pedestrian system	Qualitative assessment of air quality impacts (linked to location and congestion)	Preserves or enhances natural areas, opens spaces, trails, and parks	Avoid/minimize negative impacts on the natural environment
A3	◒	◒	◒	◒					◒		◒		◒		◒
A4	◒	◒	◒	◒					◒		◒		◒		◒
A5	◒	◒	◒	◒					◒		◒		◒		◒
A6	N/A								N/A						
A7	●	●		●					◒				◒		
A8	◒	◒	◒	◒					◒		●		◒		
B1	N/A								N/A						
B2	●	●	●	◒					◒		◒		◒		
B4	N/A								N/A						
C1	●	●							◒				◒		
D1	◒		◒	◒					●		●		◒		
D2	N/A								●		●		◒		
D3	●		●	●					❍				◒		❍
D4	◒		◒	◒					◒		◒		◒		
D5	N/A								●		●		◒		

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
A1	●	●	◒	◒	●	◒	◒	◒	◒	◒	◒	◒	Yes
A2	●	●		◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
A3	●	◒		◒	●	◒	◒	◒	◒	◒	◒	◒	Yes
A4	◒	◒		◒	●	◒	◒	◒	◒	◒	◒	◒	Yes
A6	❍	❍		◒	●	◒	◒	◒	◒	◒	◒	◒	Yes
		Benefits primarily those immediately adjacent to schools											
B1	●	●	◒	❍	◒	◒	◒	◒	◒	◒	◒	❍	Yes
				Would require railroad crossing permits, etc.									
B10	◒	❍		◒	●						◒		No
				Project would be inexpensive to implement									
B11	◒	◒		◒		◒	◒	◒	◒		◒		Yes
B13	◒	◒		❍	❍	◒	◒	◒	◒	❍	◒	◒	Yes
				Requires coordination with railroad									
B14	N/A			●	●	◒	◒	◒	◒	◒	●	◒	Refinement topic area
				Relatively inexpensive to implement									
B15	●	●	◒	◒	◒	◒	◒	◒	◒		◒		Only upon urban upgrade
B16	◒	◒		❍	◒	◒	◒	◒	◒	◒	◒	❍	Yes
B17	●	●		◒	❍	◒	◒	◒	◒	❍	◒	❍	No - Tonquin Trail
										No strong advocate identified currently		Would require new right-of-way	
B18	❍	❍	◒	❍	❍	◒	◒	◒	❍	❍	❍	❍	No
				Project is very expensive									
B19	◒	◒		◒	◒	◒	◒	◒	◒		●		No
B2	◒	◒		◒	●	◒	◒	◒	◒	◒	◒	◒	Only upon urban upgrade
B20	◒	◒		N/A									Yes - as a policy item
B21	N/A			◒		◒	◒	◒	◒	◒		◒	Refinement topic area
B3	●	●		❍	◒	❍	❍	❍	◒	◒	◒	◒	No - Tonquin Trail
		Increases multi-modal access on major through route		Project is redundant with Tonquin Trail development goals									
B4	◒	◒	◒	◒	◒	◒	◒	◒	◒		◒		Only upon urban upgrade, or as part of A2

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
B5	●	◒	●	◒	◒	◒	◒	◒	◒		◒		Refinement topic area
B6	●	◒		○ Project could be very expensive.	○	◒	◒	◒	◒	◒	◒	○	Only upon urban upgrade
B7	◒	◒		○	○	◒	◒		◒	◒	○	◒	No
B8	◒	◒		◒	●	◒	◒	◒	◒	◒	◒	◒	yes
B9	●	◒		○	◒	◒	◒	◒	◒	◒	◒	○	Yes
C2	◒	◒		○ Project could be very expensive	○	◒	◒	◒	◒	◒	◒	○	Refinement topic area
C4	● Increases access to bicycling city-wide	●	◒	◒	◒	◒	◒	◒	◒		◒	◒	Yes
C5	●	●		●	●	◒	◒	◒	◒	◒	●	○	Yes
A1	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
A2	●	●		○ Unclear if intersection meets signal warrant.	○	◒			◒	◒ Requires new traffic light infrastructure.		○	No
A3	N/A			●	◒	◒			◒		◒		Yes
A4	◒	◒		◒	○	◒	◒	◒	◒	◒	◒	◒	Refinement topic area
A5	◒	◒	◒	◒	○				◒	◒	◒		Refinement topic area
A6	N/A			●	◒	◒			◒		◒	◒	Yes
A8	◒	◒		○		○	○	○	○	○		◒	Refinement topic area
B1	●	●	◒	○	○	◒	◒	◒	◒	◒		○	Refinement topic area
B10	◒	◒		◒	◒	◒	◒	○	◒	◒	◒	◒	Yes
B12	●	●		◒	○	◒		◒				◒	More analysis needed
B13	◒	◒		◒	◒	◒	◒	◒	◒	◒		○	Refinement topic area
B14	◒	◒		○ Project area recently upgraded by city		○	◒	◒	◒	◒		◒	No

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
B15	◒	◒		◒	◒	◒	◒	◒	◒	○	◒	◒	No
B16	●		●	◒	○	◒	◒			◒	◒	◒	Yes
B17	◒	◒	◒	○		◒	◒	◒	○	○	◒	○	Refinement topic area
B2	○	○		◒	○	◒	◒	◒	◒	◒	◒	◒	Yes
B20	○	○		○	○	◒	◒	◒	◒	○		○	No
				Project is potentially costly due to presence of new wastewater infrastructure.									
B21	●	●		◒	◒	◒	◒	◒	◒	◒	◒	○	Yes
B22	○	○		◒	◒	◒	◒	◒	◒		◒	◒	No
B23	◒	◒		●	◒	◒	◒	◒	◒	◒	◒	◒	Yes
B24	○	○		◒	◒	◒	◒	◒	◒	◒	◒	○	Refinement topic area
B3	○	○		○		◒	◒	◒	○	○		○	No
B5	◒	◒		○	◒			○					Refinement topic area
B6	●	●		◒	◒	◒	◒	◒	○	○		○	Yes
B8	○	○		◒	◒	◒	◒	◒	◒	○		◒	Yes
B9	◒	◒		●	○	◒	◒		◒			○	Yes
C12	◒	◒	◒	○	○		◒	◒	○	○	●	○	Refinement topic area
C2	◒	◒	◒	◒		○	○	○	○	○	◒	○	Yes
							Community support uncertain						
C4	◒	◒		◒	◒	◒	◒	◒	◒	○	◒	◒	Yes
C7	◒	◒		○	○	◒	◒	◒	◒	◒	◒	○	No
C9	○	○		○	○	◒	◒			◒		◒	No
				Project is likely to be costly									
D1	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	○	Yes

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
D2	N/A			◔	◒				◔	◔			No
A1	◒	◒		◒	●	◒	◒	◒	◒	◒	◒	◒	Yes
A2	●	●		◒	◒	◒	◒	◒	◒	◒	◒	◒	No
A4	N/A			◔	◔						◒		No
				Need approvals/justification for lowering speeds									
A5	◒	◒		◒	◒	◒	◒	◔	◒	◒	◒	◒	Yes
A5-1													Yes
A6	◒	◒		◔	◔	◒	◒	◒	◒	◒	●	◔	Refinement topic area
A7	◒	◒		◔	●	◒	◒	◒	◒	◔	●	◒	No
B1	●	●		◒	◒	◒	◒	◒	◒	◒	●	◒	Yes
				Project is potentially expensive									
B10	●	●		◔		◔	◔	◔	◔	◔		◒	Refinement topic area
B3	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒		Yes
B7	●	●		◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
B9	◒	◒		◔	◔	◔	◔	◔	◔	◔	◔		Refinement topic area
C1	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒		Yes
				Project is potentially expensive									
C2	◒	◒		◔	◔	◔	◔	◔	◔	◔	◔	◔	Refinement topic area
C4	◒	◒		◒	●	◒	◒	◒	◒	◒		◔	Yes
C5	◒	◒		◔	◔	◒	◒	◒	◒	◒	◒	◔	Refinement topic area
C6	◒	◒		◔		◔	◔	◔	◒	◔		◔	No
D1	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	◒	Refinement topic area
D10	◒	◒		◔		◔	◒	◒					No

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
D11													No
D2													Yes
D3													Refinement topic area
D4													No
D6													Yes
D7	Project benefits not widely distributed												Yes
D8													Yes
D9													Yes
F1													Yes
F2													Yes
F3	N/A									No project advocate			No
F4	N/A												Yes
A1													Yes
A11	N/A												Yes
A12	N/A			Project already completed									No
A13													Refinement topic area
A2													Refinement topic area
A5													Yes
A6	N/A												Yes
A7	N/A												No

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	**Ability to be implemented average score**	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	**Recommend?**
A9	N/A												Refinement topic area
B1													Yes
B2													Refinement topic area
B3													Yes
C1													No
C12	N/A												Yes (with Basalt Creek)
C13													No
C14	N/A												Only with urban upgrade
C15	N/A							0		0			Only with urban upgrade
C16	N/A												Only with urban upgrade
C17													Needs Refinement
C3													Refinement topic area
C4	N/A			Turn lane already exists									No
C5													Yes
C6													No
C7													Refinement topic area
C8													No
C9													Yes
D1	N/A												No
D10	N/A			Project is already under construction									No

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	**Ability to be implemented average score**	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	**Recommend?**
D11	N/A			◒	◒	◒	◒	◒	◒		◒	◒	Yes
D12	N/A			◒	◒				◒	◒		◒	No
D13	●	●		◒		❍			◒	◒	◒	◒	Refinement topic area
D14	●	●		◒					◒	◒			Yes
D15	N/A			◒	◒	◒	◒		◒		●	◒	Refinement topic area
D16	N/A			◒								◒	No
D17	N/A			◒		◒			◒		◒	◒	Refinement topic area
D18	N/A			◒	◒	◒	◒		◒		◒	◒	Refinement topic area
D19	N/A			◒	◒	◒	◒		◒		◒	◒	Refinement topic area
D2	❍	❍		❍	❍	❍	❍	❍	◒	◒	◒	◒	No
D20	N/A			◒		◒	◒		◒		◒	◒	No
D21	N/A			◒		◒	◒		◒			◒	Refinement topic area
D22	N/A			◒	❍	◒	◒		◒		●		Yes
D23	N/A			◒		◒	◒	◒	◒		◒		Yes
D3	◒	◒	Project is relatively low cost	◒	◒	◒	◒	◒	◒	◒			Yes
D5	◒			◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
D6	N/A			❍	◒				❍	❍			No
D7	N/A			◒						◒	◒		Refinement topic area
D8	◒	◒		◒	◒	◒	◒	◒	◒	◒		◒	Refinement topic area
D9	◒	◒		◒						◒			Refinement topic area

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A1	◒	◒		◑		◑	◑	◑	◑	◑		◒	Refinement topic area
A3	◒	◒		◒		◒			◒	◒	◒	◒	Yes
A4	◒	◒		◒	◒	◒	◒	◒	◒	◒		◒	Refinement topic area
A5	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	◒	Refinement topic area
A6	◒	◒		◒	◒	◒	◒	◒	◒				Refinement topic area
A8	◒	◒		◑	◒	◒	◒	◒	◑	◒	◒		Yes
A9	◒	◒		●	●	◒	◒	◒	◒	◒		◒	Refinement topic area
B1	◑	◑		◒		◒	◒	◒	◒	◒	◒	◒	Yes
B2	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	◒	Refinement topic area
B3	◑	◑		◑		◒	◒	◒	◑	◑		◑	No
B4	N/A			◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
B5	◑	◑		◒	◒	◒	◒	◒	◒		◒	◒	No
B6	◑	◑		◒	◒							◒	Refinement topic area
B8	◑	◑		◒	◒	◒	◒	◒	◒	◒	◒		Refinement topic area
C1	●	●		◒	◒	◒	◒	◒				◑	
C2	●	●		◒	◒	◒	◒	◒	◒	◒	●	◒	Yes
C3	◒	◒		◒	◒	◒	◒	◒	◒	◒	◒	◒	Yes
C6	◑	◑		◑	◑	◒	◒	◒	◒	◒			No
C7	◒	◒	◒	◒		◑	◑	◑	◑	◑	◒	◑	Yes
D10	●	●	◒	◑	◒	◒	◒	◒	◒	◒	◒	◑	Yes

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
D11													Yes
D12													Yes
D13													Yes
D2													Refinement topic area
D3													Yes
D4													Yes
D5													Yes
D6													Yes
D7													Refinement topic area
D8													Only with urban upgrade
D9													Yes
E1													Yes
F2	N/A												No
A1													Refinement topic area
A10													Yes
A12													Yes
A13	N/A												No
A14	N/A												No
A16													No
A2													Yes

Project ID	Equity Average Score	Qualitative assessment of the relative benefits and impacts on population groups within the City	Availability of transit adjacent to areas with low incomes, transit dependant populations (vehicle-limited, under 16, over 65, etc), and other groups	Ability to be implemented average score	Qualitative assessment of ability for the project idea to be funded	Is the option consistent with existing community goals/policies	Is the option consistent with existing regional goals/policies?	Is the option consistent with existing state goals/policies?	Is the option supported by the community and political leadership?	Does the option have a champion willing to advocate?	Qualitative assessment of the life cycle and benefits of the options	Does the option consider using existing infrastructure before proposing new roads?	Recommend?
A3	●	●	◒	◒	◒	◒	◒	◒	◒	◒	◒		Yes
A4	●	●	●	◒	◒	◒	◒	◒	◒	◒	◒		Refinement topic area
A5	●	◒	●	◒	◒	◒	◒	◒	◒	◒	◒		Yes
A6	N/A			◒	◒								No
A7	●	●	●	◒	◒	◒	◒	◒	◒	◒	●		Yes
A8	●	●	●	◒	❍	◒	◒	◒	◒	◒	◒	❍	Yes
B1	N/A			❍	◒	◒	◒	◒	◒	❍	◒		No
B2	●	◒	●	◒	❍	◒	◒	◒	◒	◒	●		Yes
B4	❍	❍	◒	❍	❍	◒	❍	◒	◒	◒	❍		No
C1	●	●		◒	◒	◒	◒	◒	◒	◒	●		Yes
D1	●	●	●	◒	◒	◒	◒	◒	◒	◒	●		Yes
D2	●	●		◒	◒	◒	◒	◒	◒	◒	●		Yes
D3	●	●	●	◒	◒	◒	◒	◒	◒	◒	●		Yes
D4	●	●	◒	◒	◒	◒	◒	◒	◒	◒	●		No
D5	●	●	●	◒	◒	◒	◒	◒	◒	◒	●		No

Refinement Area Analysis
Refinement Area #1: Nyberg Interchange

Concept Package #1: Safety-Focused Solutions

Goal Statement

The primary goal for this refinement area is to address safety concerns at the Nyberg interchange, for all modes. The interchange serves as the main connection between Tualatin and the I-5 freeway, but also via Nyberg Road provides a main connection between downtown and east Tualatin. The interchange ramps have the highest crash rates in Tualatin, including several reported bicycle- and pedestrian-related crashes.

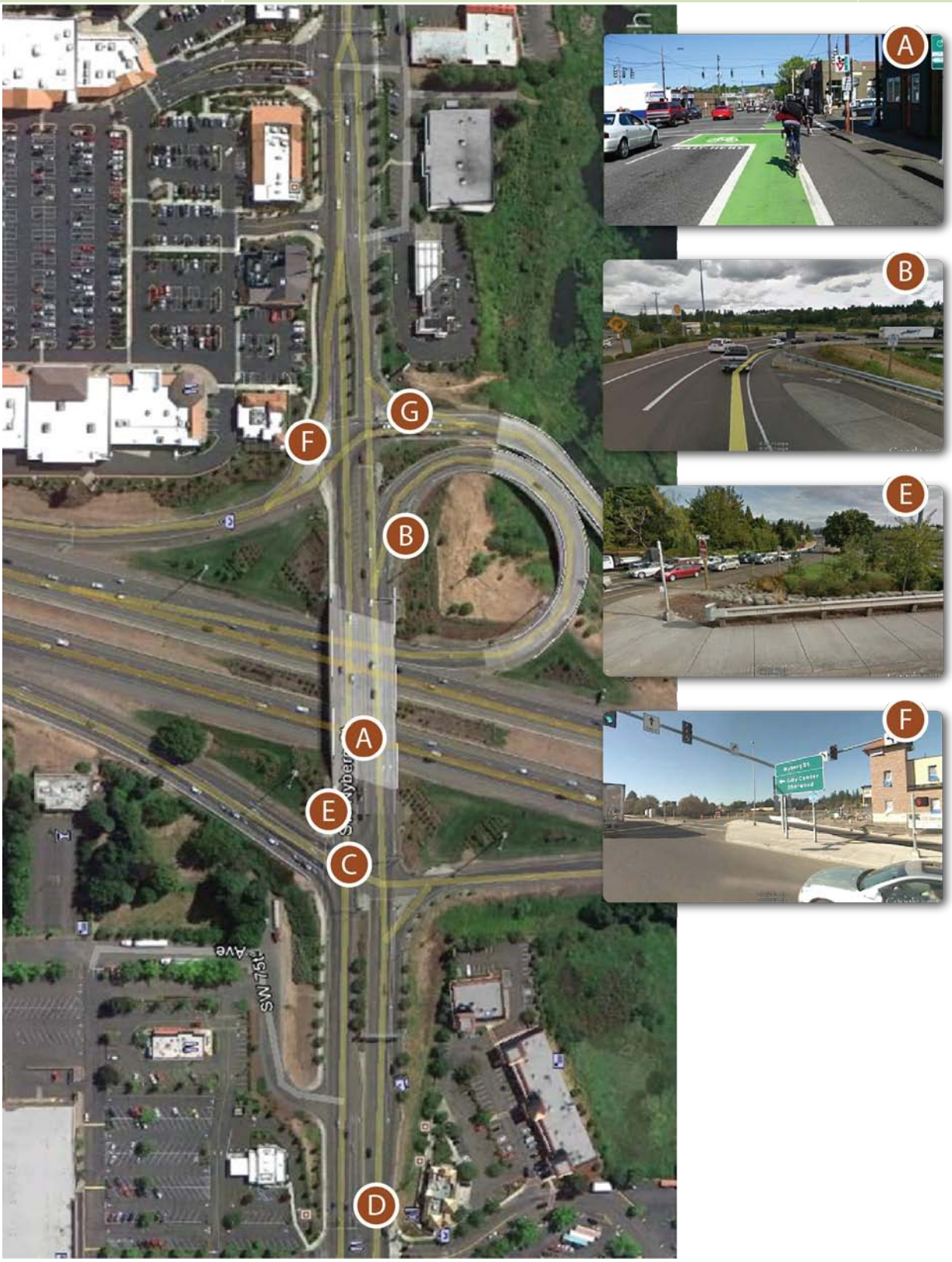
Possible Solution

The following solutions are put forth as one package at the Nyberg interchange area:

A. Paint the pavement through the interchange area to make the bicycle lane more visible and distinct from travel lanes
B. Redesign location of bicycle lane at the east end of interchange
C. Bring bicycle lane across and over at west end of interchange with skip striping
D. Improve lane signage west of the interchange to help vehicles be in the correct lane before entering interchange area
E. Move guardrail on southbound off ramp to improve sight distance
F. Redesign westbound-northbound movement to enhance safety
G. Redesign northbound off ramp to discourage traffic getting off and then right back onto I-5

Consideration Area	Comments	Score
How would this solution affect traffic and safety near the interchange?	• Minor effects on motor vehicle traffic • Moderate safety benefits from visible separation between bicycle and motor vehicle traffic	●
How would this solution affect traffic city-wide?	• Minimal effect on city-wide traffic	◒
Design Constraints / Considerations	• Striping revisions can be incorporated with minor impacts • Provides better delineation for traffic and bicyclists • Redesigns the northbound on ramp terminal to allow double rights • Discourages the northbound through traffic with minor impacts	●
Environmental / Policy Considerations	• Painted pavement would require ODOT review/approval • Recent precedent for painted bike lanes on ODOT facility • Minor changes to the interchange configuration will not	◒

	impact the wetlands preservation district	



Refinement Area #1: Nyberg Interchange

Concept Package #2: Adding lane to Tualatin-Sherwood Road from Martinazzi to I-5 (eastbound direction)

Goal Statement

Concept package #2 addresses a goal to reduce congestion on Tualatin-Sherwood Road for eastbound drivers between Martinazzi Avenue and I-5. Traffic backups have been reported at the southbound on ramps which have been verified through field visits. However, traffic analysis for the Nyberg interchange does not show congestion concerns either now (2012 traffic volumes) or in the future (forecasted 2035 traffic volumes). The southbound on-ramps with I-5 operate at a Level of Service (LOS) D now and anticipated in the future, and the northbound on-ramps with I-5 operate at LOS B now and anticipated LOS C in the future.

Potential Solution

Add a new lane on Tualatin-Sherwood Road in the eastbound direction from Martinazzi to I-5.

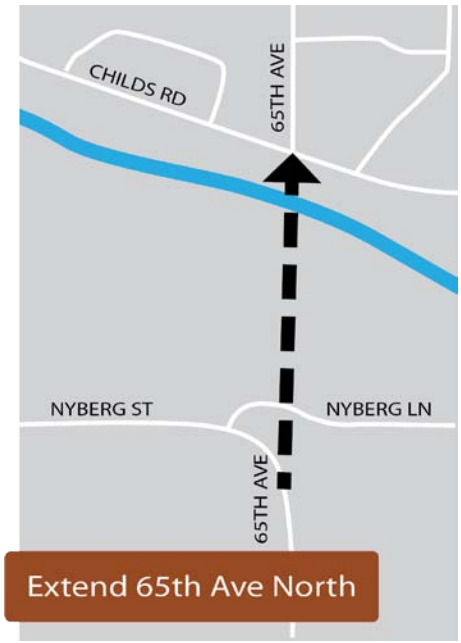
Consideration Area	Comments	Score
How would this solution affect traffic near the interchange?	• Minor increase in eastbound traffic accessing the freeway (50-100 vehicles during the PM peak hour) • Operations stay relatively consistent • Could detract from bicycle and pedestrian safety	◒
How would this solution affect traffic city-wide?	• This potential solution has minimal effect on city-wide traffic	◒
Design Constraints / Considerations	• Width of Tualatin-Sherwood Road/Nyberg Street from Martinazzi to the east is tight • No impacts forecasted to the Fred Meyer truck access road, though walls may be needed to ensure truck access retained • Requires removal of mature street trees • Possible solution would be to shift lanes and widen to the median • Past the Fred Meyer intersection, widening would likely require walls, structure widening and impacts to sensitive areas	◒
Environmental / Policy Considerations	• The area is already built • Only impacts are to the landscaping strip between the roadway and Fred Meyer	●

Refinement Area #2: 65th Avenue

Option 1: Extending North into River Grove Only

Goal Statement

This option provides an alternative to crossing the Tualatin River in a north-south direction east of I-5. The 65th Avenue corridor serves as a major north-south route. It serves residents and medical facilities located east and west of 65th Avenue, notably the Legacy Meridian Park hospital. 65th Avenue is owned and maintained by Washington County. Although current traffic levels are within accepted County and City standards, future traffic is of concern due to expected residential and business growth. 65th Avenue has sidewalk gaps and lacks bicycle lanes.



Potential Solution

Extend 65th Avenue north of its current terminus near Nyberg Road to 65th Avenue across the Tualatin River in River Grove. At its crossing over the Tualatin River, the bridge could be a narrower cross section as a turn lane would not be needed. Reconstruct intersection of 65th Avenue and Nyberg Street and consider a roundabout at this location.

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• New connection has the potential for 1,000 to 1,200 motor vehicles during the PM peak hour • Allows for connectivity to the north • Slight increase in traffic on Sagert Street, Borland Road, 50th Avenue, SW Wilke Road, and Nyberg Lane	◒
How would this solution affect traffic city-wide?	• Reduces traffic on I-5 and Boones Ferry Road • Slight increase in traffic on Tualatin Sherwood Road eastbound over the Nyberg interchange • Traffic would be impacted in River Grove and Lake Oswego	●
Design Constraints / Considerations	• Available right of way is 40' ± from river to SW Childs St • Alignment could be designed to avoid impacts to recently constructed lift station east/north of the bridge • Connection to the local roadway network north of the river	●
Environmental / Policy Considerations	• Solution requires multi-jurisdictional coordination • Adjacent to land zoned high density residential where transportation facilities are an allowed use • Impacts to Metro Riparian class Habitats I-III	◒

Refinement Area #2: 65th Avenue

Option 2: Widening to Existing Sections of 65th Avenue Only

Goal Statement

This option addresses forecasted future congestion on 65th Avenue. The 65th Avenue corridor serves as the major north-south route east of I-5. It serves residents and medical facilities located east and west of 65th Avenue, notably the Legacy Meridian Park hospital. 65th Avenue is owned and maintained by Washington County. Although current traffic levels are within accepted County and City standards, future traffic is problematic due to expected residential and business growth. This facility has some sidewalk gaps and lacks bicycle lanes.

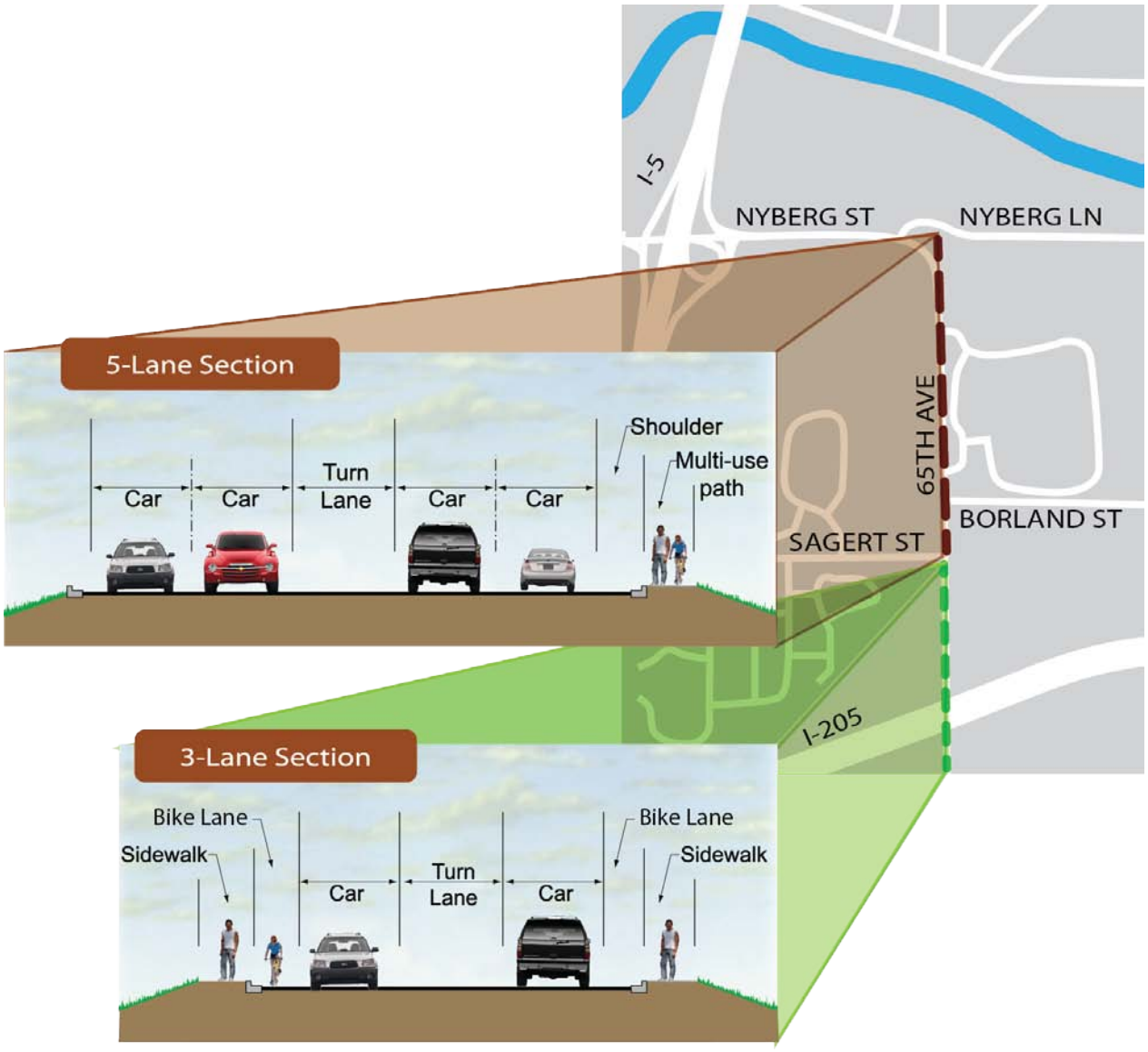
Potential Solution

This potential solution consists of the following:

- Widen 65th Avenue to 4 or 5 lanes between Nyberg Road and Sagert Street
- Widen the road to 3 lanes south of Sagert Street across I-205 to city limits
- Address the dips in the existing road
- Bicyclists and pedestrians would be accommodated via:
  - A separated bicycle and pedestrian multi-use path located near 65th Avenue, OR
  - Via continuous bicycle lanes and sidewalks on 65th Avenue
- New traffic signal at Sagert Street and 65th Avenue would operate in conjunction with the existing signal at 65th Avenue and Borland (traffic progresses through both intersections in one signal cycle) OR
- Realign intersections at Sagert Street/65th and 65th/Borland into one intersection

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Helps meet future motor vehicle demand along 65th Avenue • Little new vehicle activity attracted to the roadway (150-200 new PM peak hour vehicles) over what is expected without widening	
How would this solution affect traffic city-wide?	• Little effect realized city-wide	
Design Constraints / Considerations	• Widening north of Borland to Nyberg street to accommodate bicyclists or a multi-use path likely possible with minor impacts until the structure crossing Nyberg Creek and the wetlands area • Widening for lane/capacity likely to involve more significant right of way and utility impacts • Realignment of Borland/Sagert intersection to one location, likely the current location of Sagert/65th • Alignment dictates the extent of impacts, but could include the utility substation, or private structure	

Consideration Area	Comments	Score
Environmental / Policy Considerations	• Realigning the Sagert and Borland intersections would have right-of-way impacts • Widening the roadway would require some easements • Replacing the bridge over Nyberg Creek Greenway to accommodate bicyclists and pedestrians on the structure	



Refinement Area #2: 65th Avenue

Option 3: Extending North into River Grove AND Widening Existing Section

Goal Statement

This option provides an alternative to crossing the Tualatin River in a north-south direction east of I-5, as well as addresses forecasted future congestion on 65th Avenue. The 65th Avenue corridor serves as the major north-south route east of I-5. It serves residents and major medical facilities located east and west of 65th Avenue, notably the Legacy Meridian Park hospital. 65th Avenue is owned and maintained by Washington County. Although current traffic levels are within accepted County and City standards, future traffic is problematic due to expected residential and business growth. This facility has some sidewalk gaps and lacks bicycle lanes.

Potential Solution

- Extend 65th Avenue to the north as described in Option 1
- Widen the existing sections of 65th Avenue as described in Option 2

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Combination of extending 65th Avenue and widening the roadway is similar to the extension alone • Widening allows capacity to service the future demand on the roadway and at intersections	
How would this solution affect traffic city-wide?	• Similar effects as the 65th Avenue extension	
Design Constraints / Considerations	• See constraints/considerations from the two previous options	
Environmental / Policy Considerations	• Solution requires multi-jurisdictional coordination • Adjacent to land zoned high density residential where transportation facilities are an allowed use • Impacts to Metro Riparian class Habitats I-III • The City of Rivergrove does not have a TSP	

Refinement Area #3: North/South Connectivity

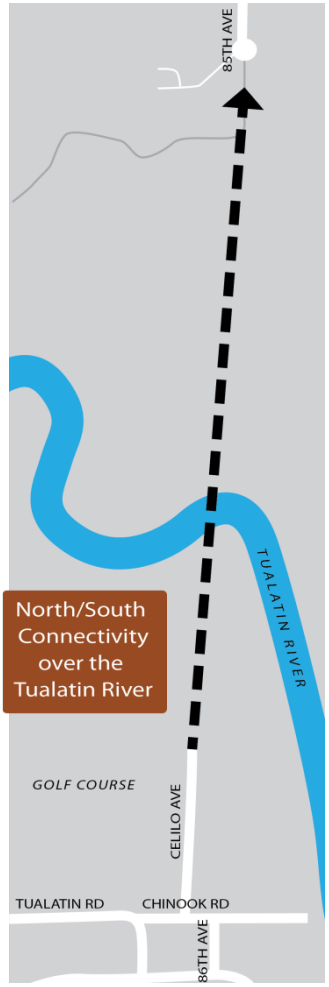
Option 1: Extension East of Country Club and West of Railroad Track

Goal Statement

This option improves connectivity in the north-south direction west of I-5. Connections in Tualatin west of I-5 are limited to Boones Ferry Road and 99W in the north-south direction, and Tualatin Road and Herman Road in the east-west direction. In the 2001 Tualatin TSP, there was a project to extend Tualatin Road to connect with Boones Ferry Road, and an extension to the north to connect with Hall Boulevard in Tigard.

Potential Solution

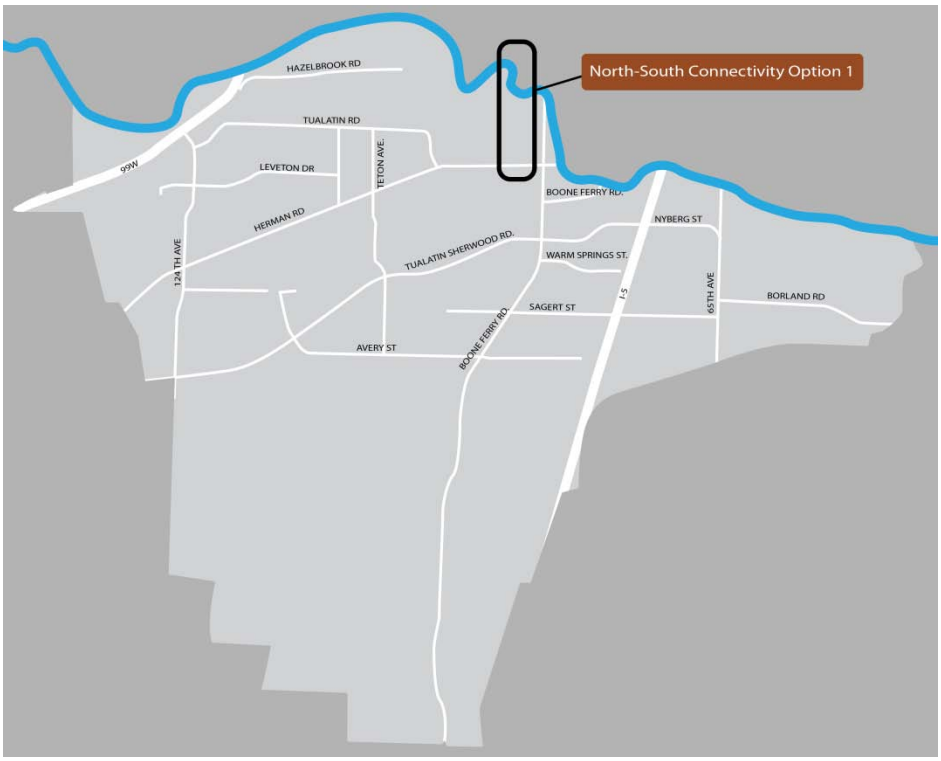
- An extension west of the railroad tracks, in the general vicinity of SW 86th Avenue east of the Country Club appears to be feasible
- Road would extend northward in the vicinity of SW Celilo Road and connect with SW 85th Avenue north of the Tualatin River



Consideration Area	Comments	Score
How would this solution affect traffic locally?	• New extension allows connectivity north/south across the Tualatin River • New roadway has the potential to carry up to 1,000 – 1,200 vehicles in each direction during PM peak hour • Will increase traffic on Boones Ferry Road in front of Tualatin Community Park – uncertain whether signal warrant would be met	

Consideration Area	Comments	Score
How would this solution affect traffic city-wide?	• Tualatin, Herman, 99W, and Boones Ferry Road (north of the Tualatin River) experience a moderate decrease in traffic • Boones Ferry Road immediately south of Celilo Road has an increase in traffic leading up to the extension	●
Design Constraints / Considerations	• Does not impact Tualatin Community Park • At least one, if not two railroad crossings would be upgraded and require crossing orders from ODOT Rail • North improvements to alignment would extend along the west edge of the tracks and tie into 85th Ave on the north side of the river	◒
Environmental / Policy Considerations	• An extension of Hall Boulevard into Tualatin is included in the Tigard TSP (long-term not fiscally constrained project list) and in the Washington County TSP	○

North-South Connectivity Option 1 Vicinity



Refinement Area #3: North/South Connectivity

Option 2: Widen Boones Ferry Road

Goal Statement

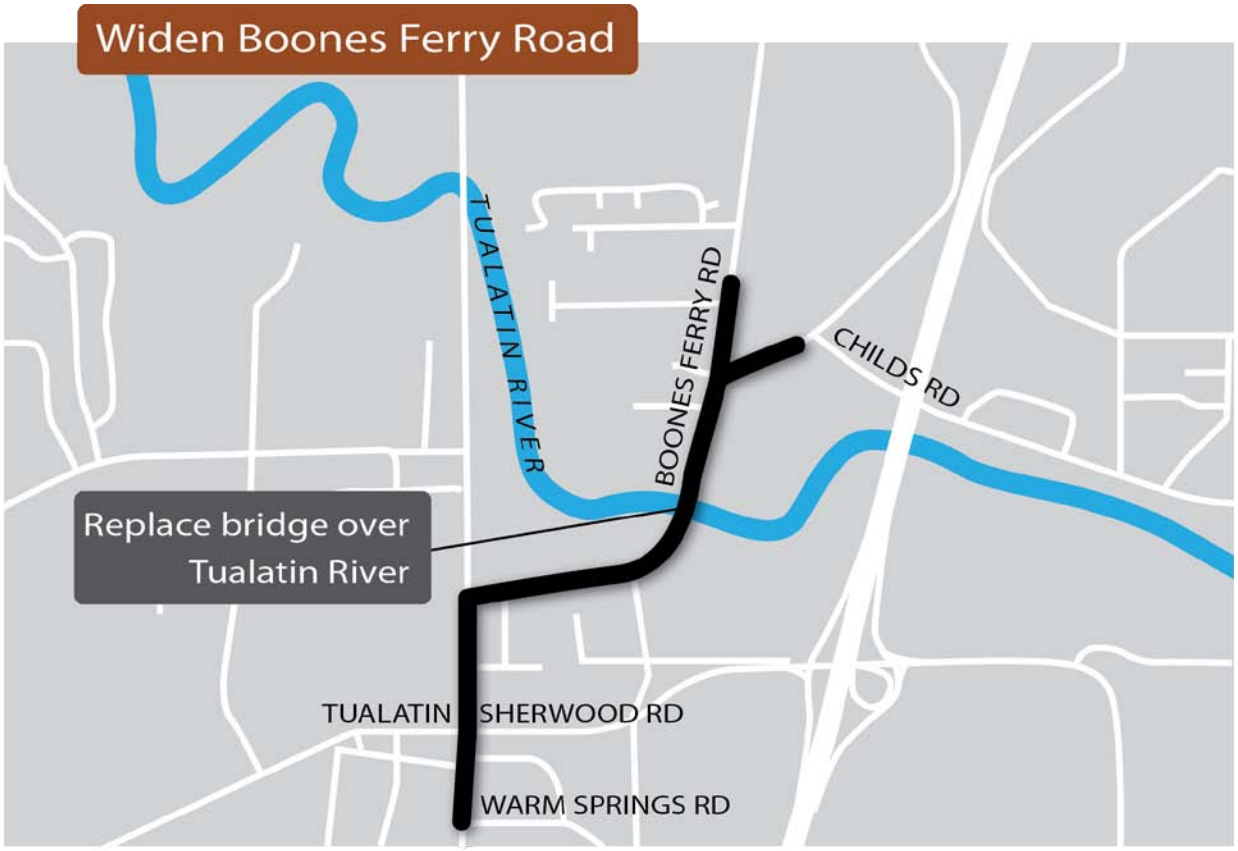
This option improves connectivity in the north-south direction west of I-5, by increasing capacity along the existing Boones Ferry Road between downtown and north of the river, towards the communities of Durham and Tigard. Connections in Tualatin west of I-5 are limited to Boones Ferry Road and 99W in the north-south direction, and Tualatin Road and Herman Road in the east-west direction. In the 2001 Tualatin TSP, there was a project to extend Tualatin Road to connect with Boones Ferry Road, and an extension to the north to connect with Hall Boulevard in Tigard. The extension of Tualatin Road project would have impacted Tualatin Community Park. After a robust community conversation the City decided not to pursue this project, and an amendment was voted in March 2011 to amend the City Charter (Chapter XI) to prevent the transfer, sale, vacation or major change in use of city parks without a public vote.

Potential Solution

- Widening Boones Ferry Road between the intersection of Lower Boones Ferry Road to the north and Warm Springs to the south
- Widening explored through:
  - Retaining a three-lane section with intersection improvements and coordinated signal timing
  - Widening to four lanes, limiting turning pockets to intersections
  - Widening to five lanes, with two travel lanes in each direction and a center-turn lane transitioning to a turn pocket at intersections
- All options assume replacement of the Tualatin River bridge

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Potential to shift traffic from Tualatin-Sherwood Road (east of Boones Ferry Road) and away from the Nyberg interchange	
How would this solution affect traffic city-wide?	• Moderate shift in traffic from Hwy 99W/Durham Road to Boones Ferry Road • Moderate shift in traffic from I-5 between the Boones Ferry Road and Nyberg interchanges to Boones Ferry Road	

Consideration Area	Comments	Score
Design Constraints / Considerations	• 4 lane and 5 lane options have significant impacts to right of way/access • All options likely require coordination and improvements to the railroad crossing north of the bridge • Widening at Boones Ferry Road and Tualatin-Sherwood Road south of the intersection is problematic • Constraints are railroad to the west and McDonald's drive thru to the east	○
Environmental / Policy Considerations	• ODOT is interested in a jurisdictional transfer from ODOT to the City if bridge is replaced • The City or ODOT could initiate the transfer process • The City would then be responsible for maintenance and upkeep on the new or modified bridge • The County would be required to approve the transfer • The existing bridge is within the Tualatin River Greenway	○



Refinement Area #3: North/South Connectivity

Other Options Considered but Dismissed

Extension west of Country Club

The team considered placing the northerly extension west of the Country Club, but dismissed this for the following reasons:

1. Traffic flows on the new arterial lessened traffic on 99w, but did not address congestion on Tualatin arterials, including Boones Ferry Road.
2. Disruption to the community in the Hazelbrook area, and especially for residents at its eastern edge including SW Shawnee Trail, and SW Cheyenne Way, was thought to be too great.
3. Geometrically, it was deemed difficult to place an arterial in this vicinity without creating an additional 90 degree turn. This in turn would create safety concerns associated with driver expectation, speed, and sight visibility.
4. This general location is aligned with a northward bend in the Tualatin River, which could make construction of a new river crossing difficult.
5. Connections with the roadway network in Tigard would be difficult. SW 92nd Avenue is the nearest roadway north of the river but connections to it are problematic, and it does not continue northward beyond SW Durham Road.

Extension north of SW 90th Avenue

The team explored extending SW 90th Avenue northward, but dismissed this concept for the following reasons:

1. It would bisect the Tualatin Country Club, a regional destination.

   The Tualatin Country Club serves patrons from throughout the south Metro area and is a major employer in Tualatin. Bisecting the club would make it difficult for it to continue its current operations as a golf course.

2. Connections with the roadway network in Tigard would be difficult. Extending SW 90th Avenue north across the Tualatin River connects with Cook Park in Tigard. It would be difficult to design an alignment that avoided impacts to this park, though it could be possible to align the river crossing so that it touched down east of the park's boundary.

   This alignment could be reconsidered in the future if the Country Club were to redevelop to another use.

Refinement Area #3: North/South Connectivity

Option 3: Hybrid. Two-lane local road connecting to Hall Boulevard, extending 65th Avenue across the Tualatin River, and Widening Boones Ferry Road.

Goal Statement

This option improves connectivity in the north-south direction west of I-5. Connections in Tualatin west of I-5 are limited to Boones Ferry Road and 99W in the north-south direction, and Tualatin Road and Herman Road in the east-west direction. In the 2001 Tualatin TSP, there was a project to extend Tualatin Road to the north to connect with Hall Boulevard in Tigard.

Potential Solution

- An extension west of the railroad tracks, in the general vicinity of SW 86th Avenue east of the Country Club
- Road would extend northward in the vicinity of SW Celilo Road and connect with SW 85th Avenue north of the Tualatin River
- Combine extending to Hall Boulevard with widening Boones Ferry Road, and extending SW 65th Avenue north over the River

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• New extension allows connectivity north/south across the Tualatin River • New two lane local roadway could carry up to 800-900 vehicles in each direction during the 2035 PM peak hour • Will increase traffic on Boones Ferry Road in front of Tualatin Community Park – uncertain whether signal warrant would be met • Tualatin-Sherwood Rd and Boones Ferry Rd V/C deteriorates slightly • Connections would increase PM Peak hour intersection volume by 400 vehicles, primarily north/south through vehicles.	

Consideration Area	Comments	Score
How would this solution affect traffic city-wide?	• Tualatin, Herman, 99W, and Boones Ferry Road (north of the Tualatin River) experience a moderate decrease in traffic • Boones Ferry Road immediately south of Celilo Road has an increase in traffic leading up to the extension	●
Design Constraints / Considerations	• Does not physically impact Tualatin Community Park • At least one, if not two railroad crossings would need crossing improvements and would require coordination with the Railroad and ODOT Rail. • North improvements to alignment would extend along the west edge of the tracks and tie into 85th Ave on the north side of the river	◒
Environmental / Policy Considerations	• An extension of Hall Boulevard into Tualatin is included in the Tigard TSP (long-term not fiscally constrained project list) and in the Washington County TSP • Potential impacts (likely temporary) to the Tualatin River and adjacent natural resources. • Potential impacts to wetlands/sensitive areas west of the existing railroad tracks north of Tualatin Road.	○

Refinement Area #4: Herman Road and Tualatin Road

Goal Statement

The refinements along these two corridors aim to encourage some through traffic to move onto Herman Road, and off of Tualatin Road, as a way to improve safety and livability for residents north of Tualatin Road. Herman Road and Tualatin Road run parallel to each other in north Tualatin. Both provide connections to downtown at the east and to 99W at the west. Herman Road is located in Tualatin's industrial center, and Tualatin Road features some industrial and manufacturing to the south, but residential to the north.

Potential Solution

The following projects have been explored as a package:

A. Reclassify Herman Road as a Minor Arterial, and retain Tualatin Road's classification as a Major Collector
B. Upgrade the remaining section of Herman Road as a 3-lane cross section between Tualatin Road and Teton Road
C. Lowering speeds on Tualatin Road
D. Eliminate the free right turn at Tualatin Road at the intersection with Herman Road, and consider a roundabout at this location
E. Add signals at the east and west ends of Tualatin Road, such as in the vicinity of 115th Avenue and Jurgens Avenue
F. Remove trees at intersection of Tualatin Road and 108th Avenue to improve sight distance at this location
G. Modify channelization of 124th Avenue and Tualatin Road to encourage traffic to proceed along 124th to the intersection with Herman Road. Consider a roundabout at this location
H. Signage that indicates that Tualatin Road is for local traffic

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Major effect is shifting of traffic from Tualatin Road to Herman Road • On the west end traffic is diverted to 124th Avenue • On the east end traffic is diverted to Herman Road • Small amount of traffic shifted to Tualatin-Sherwood Road • Some traffic diverted along Hwy 99W up to Durham Road	●
How would this solution affect traffic city-wide?	• Minimal effects to city-wide traffic • Majority of effects are local	●

Consideration Area	Comments	Score
Design Constraints / Considerations	• Traffic calming projects can be installed with minor impacts • Projects could be chicane type improvements (lane weave) or speed tables • Coordination with Tualatin Valley Fire and Rescue and Tualatin Police likely needed • Improvements to Herman Road and the intersection of Tualatin/Herman Road would require right of way but are straight forward with likely impacts to some access • Signal improvements at the intersection of Tualatin Rd/108th Ave were not met as recently as the last 5 years • New locations for signals recommended at Jurgens and 115th have not been analyzed for warrants • Removal of tree(s) at Teton, at the SW quadrant improve sight distance but have impacts to natural resources	●
Environmental / Policy Considerations	• Some adjacent land would be required north of Herman to widen to three lanes • Potential impact some landscaping and parking • Planter circles and speed table design standards would need to be added to the City's code	◒

Refinement Area #5: Tualatin-Sherwood Road

Option 1: Five-Lane Section Teton to Cipole

Goal Statement

Relieve congestion and improve safety for all modes along Tualatin-Sherwood Road within the City of Tualatin.

Tualatin-Sherwood Road serves as the major east-west arterial through Tualatin. It connects residents, employees, and visitors to the I-5 freeway system, to the community of Sherwood, and areas west. Tualatin-Sherwood Road is owned and maintained by Washington County. West of 124th Avenue average daily traffic volumes are higher than 26,000 vehicles.

Though there are continuous sidewalks and bicycle lanes throughout the corridor, including a buffered bicycle lane west of downtown, the team has heard from the community that the traffic volumes still make this corridor feel unsafe from the vantage point of a bicyclist. Crossing this arterial at key intersections can be difficult for a pedestrian.

Potential Solution

Widen Tualatin-Sherwood Road to five lanes with bicycle lanes and sidewalks between Teton to the east and Cipole to the west.

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Serves future demand that is beginning to be seen today • Minor to moderate increases in traffic seen on Avery Street, 124th Avenue, and new connection between 112th and Myslony • Widening Tualatin-Sherwood Road from 3 to 5 lanes changes V/C and LOS at the following intersections: o Improves 124th Ave: from 1.33, LOS F to 0.92, LOS C o Improves Avery St: from 0.99, LOS E to 0.92, LOS D o Teton Ave deteriorates slightly: from 0.95, LOS E to 1.03, LOS E	
How would this solution affect traffic city-wide?	• Draws traffic away from Hwy 99W, Tualatin Road, Herman Road, and the Cipole Rd extension • New traffic on Tualatin-Sherwood Road forecasted to be approximately 200-350 vehicles in each direction during afternoon rush hour	

Consideration Area	Comments	Score
Design Constraints / Considerations	• Right-of-way setbacks likely allow widening with minor impacts to properties from Teton west to Cipole • Some drainage/water quality basins that would likely need to be relocated • Major design complications not anticipated	
Environmental / Policy Considerations	• Most widening impacts would be to landscaping • Project is included in Washington County TSP • Any widening west of Cipole would require coordination with Sherwood.	

Refinement Area #5: Tualatin-Sherwood Road

Option 2: Retain 3-Lane Section, Transportation System Management

Goal Statement

Relieve congestion and improve safety for all modes along Tualatin-Sherwood Road within the City of Tualatin.

Tualatin-Sherwood Road serves as the major east-west arterial through Tualatin. It connects residents, employees, and visitors to the I-5 freeway system, to the community of Sherwood, and areas west. Tualatin-Sherwood Road is owned and maintained by Washington County. West of 124th Avenue average daily traffic volumes are higher than 26,000 vehicles. The intersection of Tualatin-Sherwood Road and Boones Ferry Road is the most congested intersection in the community of Tualatin, and serves as a activity hub, with the WES Commuter Rail station and commercial businesses on all four corners. Crossing this arterial at key intersections can be difficult for a pedestrian.

Potential Solution

The team explored keeping Tualatin-Sherwood Road as a three-lane section west of Teton, improving travel conditions via coordinated signal timing and intersection-specific treatments that would reduce overall conflicts and delay.

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• There could be a modest shift of traffic to utilize Tualatin-Sherwood Road if TSM type enhancements occur and make the corridor more efficient. • Likely shift in traffic would come from Herman Road, Tualatin Road, and Avery Street.	◒
How would this solution affect traffic city-wide?	• Most impacts would be local with little city-wide effect.	●
Design Constraints / Considerations	• N/A.	N/A
Environmental / Policy Considerations	• None	●

Refinement Area #5: Tualatin-Sherwood Road

Drilling Down on the Tualatin-Sherwood Road / Boones Ferry Road Intersection

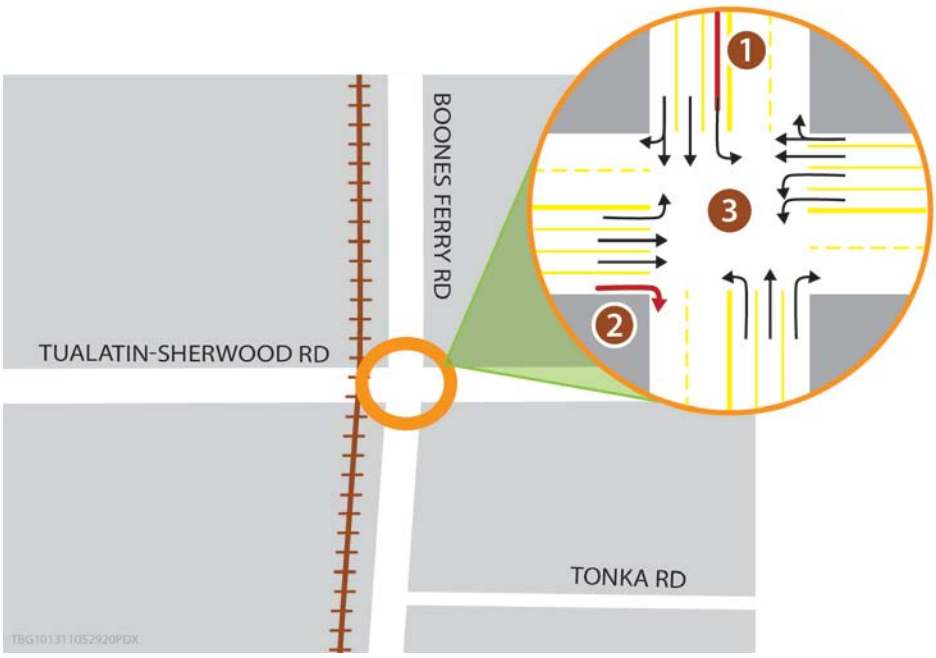
Goal Statement

The intersection of Tualatin-Sherwood Road and Boones Ferry Road is one of the busiest in the City. It is the junction of two major arterials, serves traffic moving north-south and east-west, has commercial businesses on all four corners, and is the location of WES commuter rail service. The intersection is already wide and intimidating to pedestrians. Right-of-way is limited for further widening.

Potential Solution

The team looked into several treatments that would improve conditions at this intersection while minimizing further widening.
These include:

1. Lengthening the southbound left turn pocket on Boones Ferry Road
2. Adding a right turn pocket on Tualatin-Sherwood Road
3. Changing the signal phasing to allow westbound left and through movements to proceed at the same time.



Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Overall intersection operation improvements allow for better east/west traffic flow. • Capacity improvements on side streets could allow for a signal timing shift on Tualatin-Sherwood Road. • The intersection is still likely to be over capacity by 2035 (PM peak hour).	
How would this solution affect traffic city-wide?	• Most impacts would be local with little city-wide effect.	
Design Constraints / Considerations	• Lengthening the southbound left turn pocket would have impacts to the northbound turn pocket at Nyberg Street and the Hagens parking lot. • Adding a right turn pocket on Tualatin-Sherwood Road would require improvements to the signal and railroad crossing and sidewalk/planter on Tualatin-Sherwood Road and available right-of-way width would need to be reviewed for adequacy.	
Environmental / Policy Considerations	• Drainage ditch impacts from the right turn pocket on eastbound Tualatin-Sherwood Rd. • Adding a turn pocket would move Tualatin-Sherwood Road closer to the business at that corner.	

Refinement Area #6: Boones Ferry Road

Five-lane option North of Martinazzi Avenue

Goal Statement

Boones Ferry Road serves as the main north-south arterial in Tualatin west of I-5. It connects Tualatin with Wilsonville to the south and Durham and Tigard to the north. Because of its length, Boones Ferry Road serves different needs – to the south it serves the many residents of south Tualatin, and the Byrom Elementary and Tualatin High Schools. Between Warm Springs and the Tualatin River, Boones Ferry Road is one of the major streets serving the core of downtown.

North of the river it transitions to Upper Boones Ferry Road to Durham and Tigard, and Lower Boones Ferry Road to serve the Bridgeport Village Regional Center. Our team's analysis has found the intersection of Boones Ferry Road and Lower Boones Ferry Road is one of the more congested intersections in the City. Overall the corridor has seen four reported crashes involving bicyclists, and two involving pedestrians, in the last three years.

Solution

The team explored widening Boones Ferry Road between the intersection of Lower Boones Ferry Road to the north and Martinazzi to the south, as well as keeping that section three-lanes. Assumes replacement of the Tualatin River bridge.

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• Could potentially shift traffic from Tualatin-Sherwood Road (east of Boones Ferry Road) and away from the Nyberg interchange.	
How would this solution affect traffic city-wide?	• Would shift traffic from Hwy 99W/Durham Road, and from Interstate 5 between the Boones Ferry Road and Nyberg interchanges onto Boones Ferry Road	
Design Constraints / Considerations	• Would have minor (likely temporary) impacts on natural resources. • Would require little, if any right-of-way. However accesses would be affected and would need to be reconstructed. • The railroad crossing between the bridge and Lower Boones Ferry Road would require coordination with ODOT Rail and the Railroad.	
Environmental / Policy Considerations	• Widening Boones Ferry Road would not impact any structures, mainly landscaping adjacent to the roadway.	


UPPER BOONES FERRY RD
BOONES FERRY RD
I-5
REPLACE BRIDGE
BOONES FERRY RD
SENECA
MARTINAZZI
TBG101311052920PDX
5-Lane Section
Bike Lane
Planter
Sidewalk
Turn Lane
Bike Lane
Planter
Sidewalk

Refinement Area #6: Boones Ferry Road

Options between Martinazzi Avenue and Warm Springs Avenue

Goal Statement

Boones Ferry Road serves as the main north-south arterial in Tualatin west of I-5. It connects Tualatin with Wilsonville to the south and Durham and Tigard to the north. Because of its length, Boones Ferry Road serves different needs – to the south it serves the many residents of south Tualatin, and the Byrom Elementary and Tualatin High Schools. Between Warm Springs and the Tualatin River, Boones Ferry Road is one of the major streets serving the core of downtown. The intersection of Tualatin-Sherwood and Boones Ferry Roads is one of the most congested intersections in the city. The intersection of Tualatin-Sherwood Road and Boones Ferry road is also the site of 50 crashes in the last five years and has been flagged by Washington County as a location of safety concern. Overall the corridor has seen four reported crashes involving bicyclists, and two involving pedestrians, in the last three years.

Potential Solution

The team explored three options between Martinazzi and Warm Springs:

a) Retaining a three-lane section with intersection improvements and coordinated signal timing;
b) Widening to four lanes, limiting turning pockets to intersections; and
c) Widening to five lanes, with two travel lanes in each direction and a center-turn lane transitioning to a turn pocket at intersections.

Consideration Area	Three-Lane Section with Intersection Improvements and Signal Timing		Four-Lane Section with Turn Pockets at Intersection		Five-lane Section with Center Turn lane	
How would this solution affect traffic locally?	• Signal timing improvements alone have a minor improvement, but there would still be intersection deficiencies.		• Would improve operations along the corridor to better meet demand, while shifting traffic from Interstate 5 and away from the Nyberg interchange. • Could add delay on the corridor due to turning vehicles in the travel lane		• Would improve operations along the corridor to better meet demand, while shifting traffic from Interstate 5 and away from the Nyberg interchange.	
How would this solution affect traffic city-wide?	• Effects are mostly local with signal timing improvements.		• The effects are mostly local • Shifts traffic away from I-5 and the Nyberg Interchange		• The biggest effect is the shift from traffic away from Interstate 5 and the Nyberg interchange.	
Design Constraints / Considerations	• Would not impact natural resources. • Minor impacts associated with intersection improvements.		• Would have minor (likely temporary) impacts on natural resources. • Would require right-of-way, and would impact accesses.		• Would have minor impacts on natural resources. • Would require additional right-of-way and reconstructed accesses.	
Environmental / Policy Considerations	• Few impacts – maintains the existing cross-section		• Would impact businesses and parking between Martinazzi and Warm Springs • Would make it more difficult for turning vehicles to access driveways in this section.		• Would impact businesses and parking between Martinazzi and Warm Springs.	

Refinement Area #6: Boones Ferry Road

Options South of Warm Springs

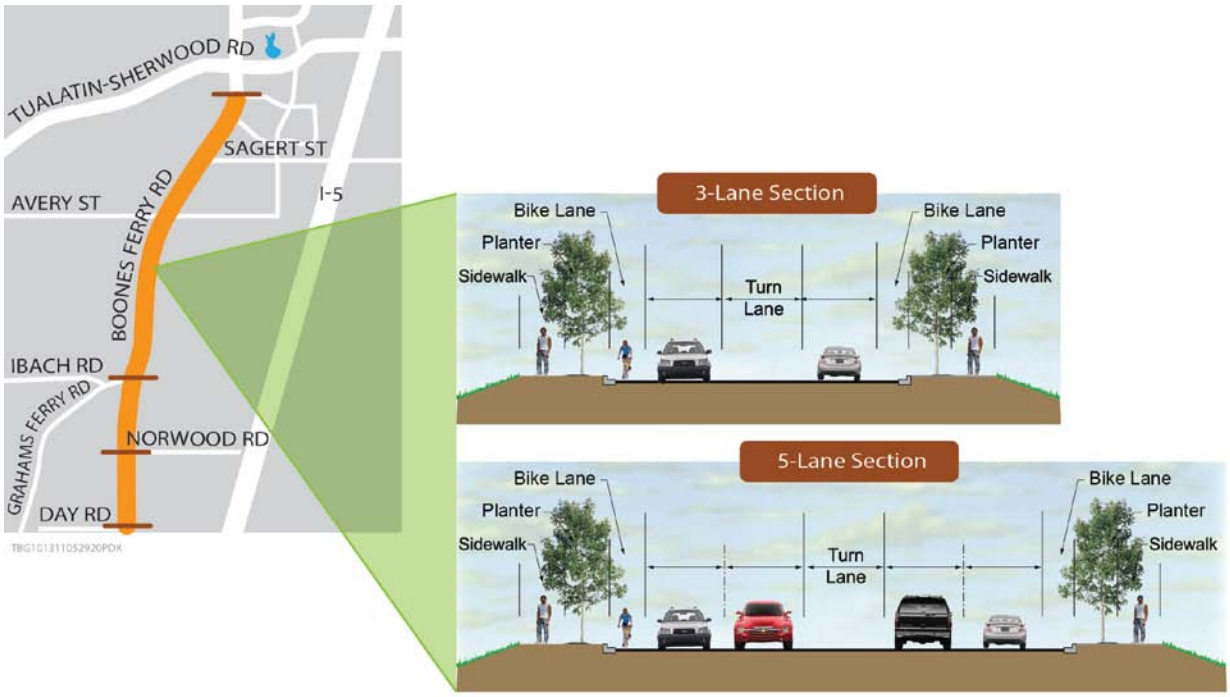
Goal Statement

Boones Ferry Road serves as the main north-south arterial in Tualatin west of I-5. It connects Tualatin with Wilsonville to the south and Durham and Tigard to the north. Because of its length, Boones Ferry Road serves different needs – to the south it serves the many residents of south Tualatin, and the Byrom Elementary and Tualatin High Schools. Overall the corridor has seen four reported crashes involving bicyclists, and two involving pedestrians, in the last three years.

Potential Solution

The team explored widening Boones Ferry Road to five lanes between Warm Springs and Ibach, and between Ibach and Norwood. Between Norwood and Day Boones Ferry Road will be expanded to three lanes (this latter project is planned for construction by Washington County).

The other option is to keep Boones Ferry Road at three lanes and improve signal timing and make targeted improvements at intersections.



Consideration Area	Three Lane Cross Section		Five Lane Cross Section	
How would this solution affect traffic locally?	• The three lane section would slightly improve intersection operations • Would not add additional vehicles on the roadway	○	• The 5 lane option would address 2035 PM peak hour capacity and operational deficiencies along Boones Ferry Road. • Widening would add approximately 200-300 vehicles in each direction along Boones Ferry Road. • Widening Boones Ferry Road from 3 to 5 lanes changes V/C and LOS at the following intersections: o Improves Sagert St: from 1.11, LOS E to 0.84, LOS C o Improves Avery St: from 1.15, LOS F to 0.96, LOS D o Improves Ibach St: from 0.98, LOS D to 0.88, LOS C	◒
How would this solution affect traffic city-wide?	• Would have little effect on city-wide traffic	○	• Moderate levels of traffic would shift from the new 124th Avenue extension, 65th Avenue, and 105th Avenue/Blake Street (a local roadway) to Boones Ferry Road.	◒
Design Constraints / Considerations	• Would have few impacts on right-of-way as the roadway is already 3 lanes wide. • Intersection improvements could require additional room to add turn lanes, etc, though few impacts are anticipated	●	• Widening to 5-lanes is relatively straight forward from Warm Springs to Norwood. • There may be some opportunities to improve vertical profiles and horizontal curves for sight distance. • Right of way varies throughout the corridor with some newer developments having full width for 5-lanes, while other areas have structures up to the ROW line.	◒
Environmental / Policy Considerations	• None	●	• Some houses are very close to Boones Ferry Road between Warm Springs and Norwood. Widening Boones Ferry Road in this area would impact setbacks and landscaping; though no houses would be impacted. • Widening the roadway could have some small impacts to Little Woodrose Nature Park, depending on the design of the widening. There are no other environmental concerns as the area is already built-up residential.	○

Refinement Area #7: Downtown Connectivity

Connections for Nyberg and Seneca

Goal Statement

Connectivity within the downtown core is limited by the Lake at the Commons, the railroad line, and high traffic volumes along the Boones Ferry Road and Tualatin-Sherwood Road corridors.

Potential Solution

Connect both sides of Seneca Street via a pedestrian and bicycle bridge over the lake. Connect to existing path around the lake, providing a connection for through east-west bicycle and pedestrian traffic.

Consideration Area	Comments	Score
How would this solution affect traffic locally?	• No effects on local traffic	N/A
How would this solution affect traffic city-wide?	• No effects on city-wide traffic	N/A
Design Constraints / Considerations	• Impacts to lake are temporary and minor	●
Environmental / Policy Considerations	• Tualatin Commons and Tualatin Commons Park are City-owned parks • The lake is human-made and a bridge and is not expected to impact habitat	●

Refinement Area #1:
Nyberg Interchange







Goal Statement (#1 of 2)

Address safety at the Nyberg Interchange for all modes

Possible Solution

A. Paint bike lanes
B. Redesign bike lane at east end of interchange
C. Skip striping on bike lane at west end of interchange
D. Improve lane signage west of interchange
E. Move guardrail on SB off ramp
~~F. Disallow right turns on red from SB off ramp~~
G. Redesign WB-NB movement to enhance safety
H. Redesign NB off ramp to discourage traffic getting off and then right back onto I-5

Nyberg Interchange – Findings

Consideration Area	Comments	Score
Local traffic/safety	• Minor effects on motor vehicle traffic • Moderate safety benefits	●
City-wide traffic	• Minimal effect on city-wide traffic	▬
Design Constraints / Considerations	• Revisions can be incorporated with minor impacts • Provides better delineation for traffic and bicyclists • Redesigns the NB on ramp to allow double rights • Discourages the NB through traffic with minor impacts	●
Environmental / Policy Considerations	• Painted pavement would require ODOT review/approval • Recent precedent for painted bike lanes on ODOT facility • Minor changes to the interchange configuration will not impact the wetlands preservation district	▬







Discussion

TTF recommendation:
Yes, move this option forward to the Summit (without F)

Goal Statement (#2 of 2)

Reduce congestion on Tualatin-Sherwood Road for eastbound drivers

Possible Solution

- Add a new lane on Tualatin-Sherwood Road in the eastbound direction from Martinazzi to I-5

Nyberg Interchange – Findings

Consideration Area	Comments	Score
Local traffic/safety	• Minor increase in EB traffic accessing freeway • Operations stay relatively consistent • Could detract from bicycle and pedestrian safety	▬
City-wide traffic	• This potential solution has minimal effect on city-wide traffic	▬
Design Constraints / Considerations	• Width of Tualatin-Sherwood Road/Nyberg Street from Martinazzi to the east is tight • No impacts forecasted to the Fred Meyer truck access road • Requires removal of mature street trees • Possible solution would be to shift lanes and widen to median • Past Fred Meyer intersection, widening would likely require walls, structure widening and impacts to sensitive areas	▬
Environmental / Policy Considerations	• The area is already built • Only impacts are to the landscaping strip between the roadway and Fred Meyer	●

Discussion

TTF recommendation:
No, do not forward on to summit as a long-term solution. Revisit upon next TSP update.







Refinement Area #2:

65th Avenue

Goal Statements

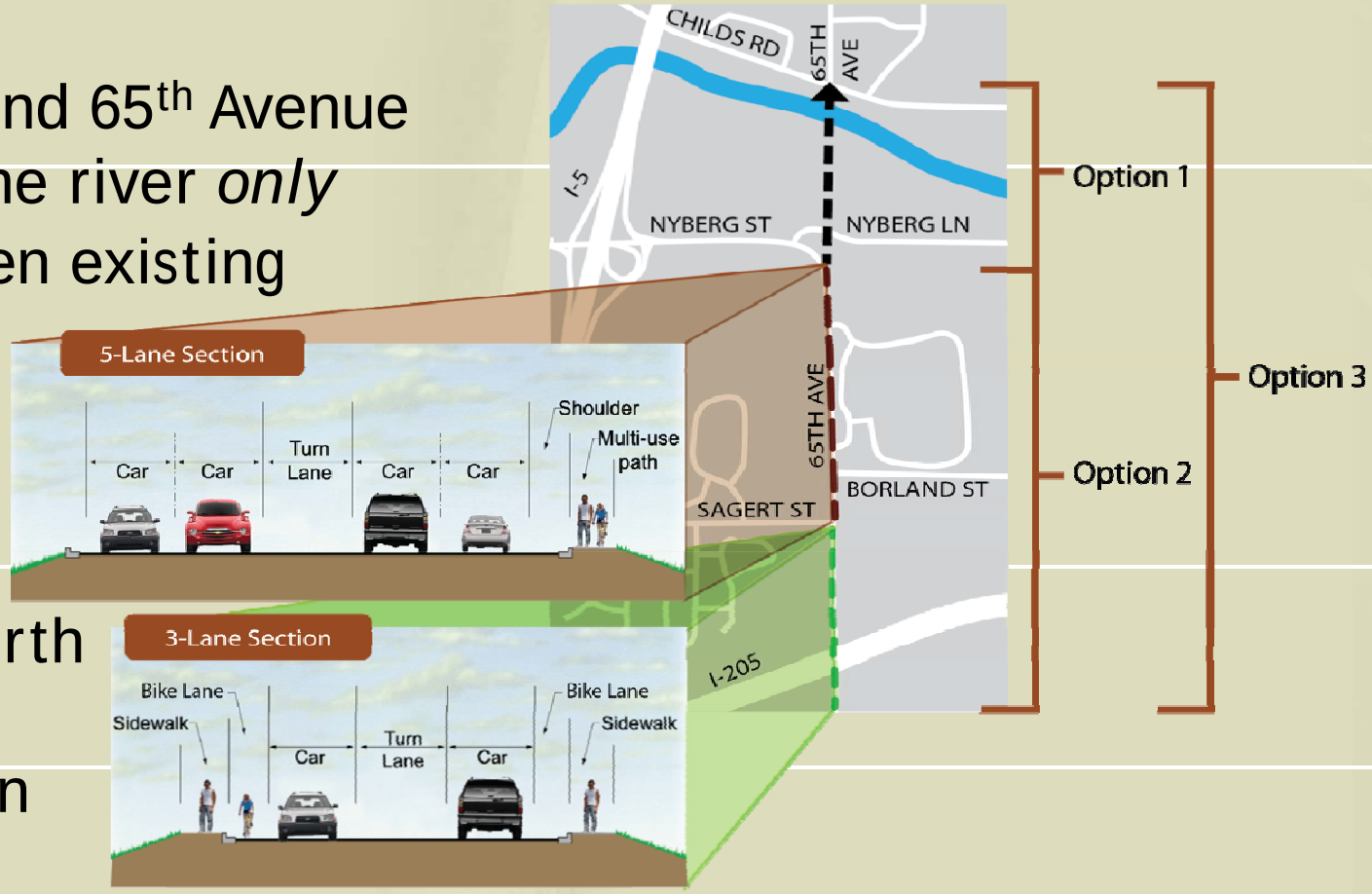
1. Provide north-south connectivity east of I-5
2. Address forecasted future congestion along 65th Avenue

Possible Solution

Option 1: Extend 65th Avenue north across the river *only*

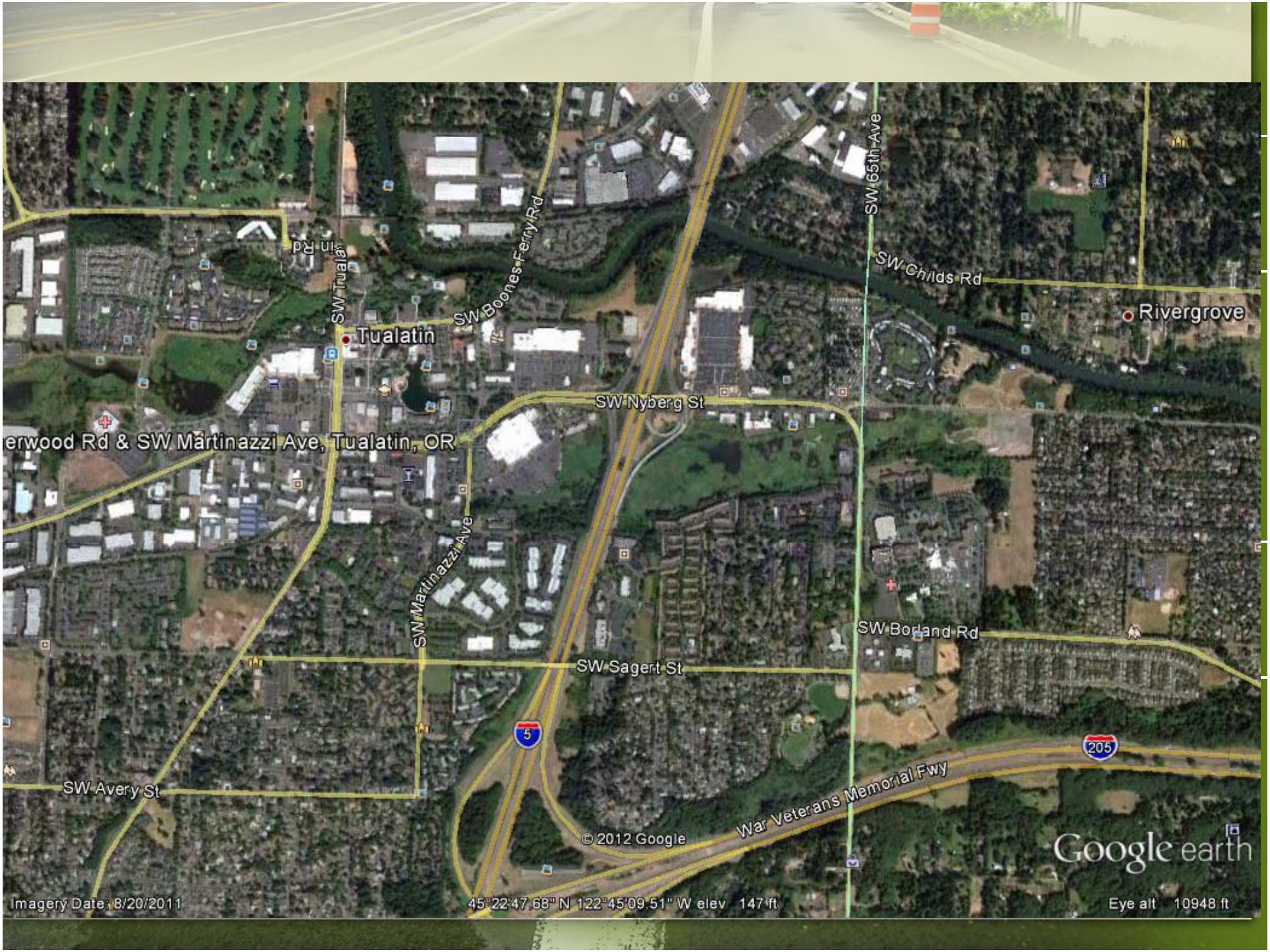
Option 2: Widen existing section of 65th Avenue *only*

Option 3: Extend 65th Avenue north and widen existing section



65th Avenue – Findings

Consideration Area	Comments	Score
Local traffic/safety	• A Four-Lane Extension allows for ➢ Connectivity to north	
	➢ Potential for 1,000-1,200 vehicles during PM peak hour • Widening allows ➢ Capacity to service the future demand on the roadway and at intersections	–
City-wide traffic	• Extension would ➢ Reduce traffic on I-5 and Boones Ferry Road ➢ Create slight increase in traffic on Tualatin Sherwood Road eastbound over the Nyberg interchange	–


SW Tualatin Rd
SW Boones Ferry Rd
SW 65th Ave
SW Childs Rd
Rivergrove
Tualatin
SW Nyberg St
erwood Rd & SW Martinazzi Ave, Tualatin, OR
SW Martinazzi Ave
SW Borland Rd
SW Sagert St
5
205
SW Avery St
War Veterans Memorial Fwy
© 2012 Google
Google earth
Imagery Date: 8/20/2011
45°22'47.68" N 122°45'09.51" W elev 147 ft
Eye alt 10948 ft

65th Avenue – Findings

Consideration Area	Comments	Score
Design Constraints / Considerations	• Extension considerations: ➢ 40' ± right of way available from river to Childs ➢ Alignment could be designed to avoid lift station east/south of Nyberg Lane • Widening considerations: ➢ Widening Borland to Nyberg possible for bikes and peds with minor impacts until structure crossing Nyberg Creek and wetlands area ➢ Widening for lane/capacity involves more significant right of way and utility impacts ➢ Signal at Sagert less impactful than combining Sagert and Borland into one intersection	●
Environmental / Policy Considerations	• Multi-jurisdictional coordination needed • Impacts to Metro riparian class I-III habitat • Easements or right of way required to extend and/or widen 65th Avenue	●







Discussion

TTF recommendation: Forward two options (Variation of Option 1 with multi-use path along 65th Avenue, Option 3) on to summit







Refinement Area #3:
North to South Connectivity







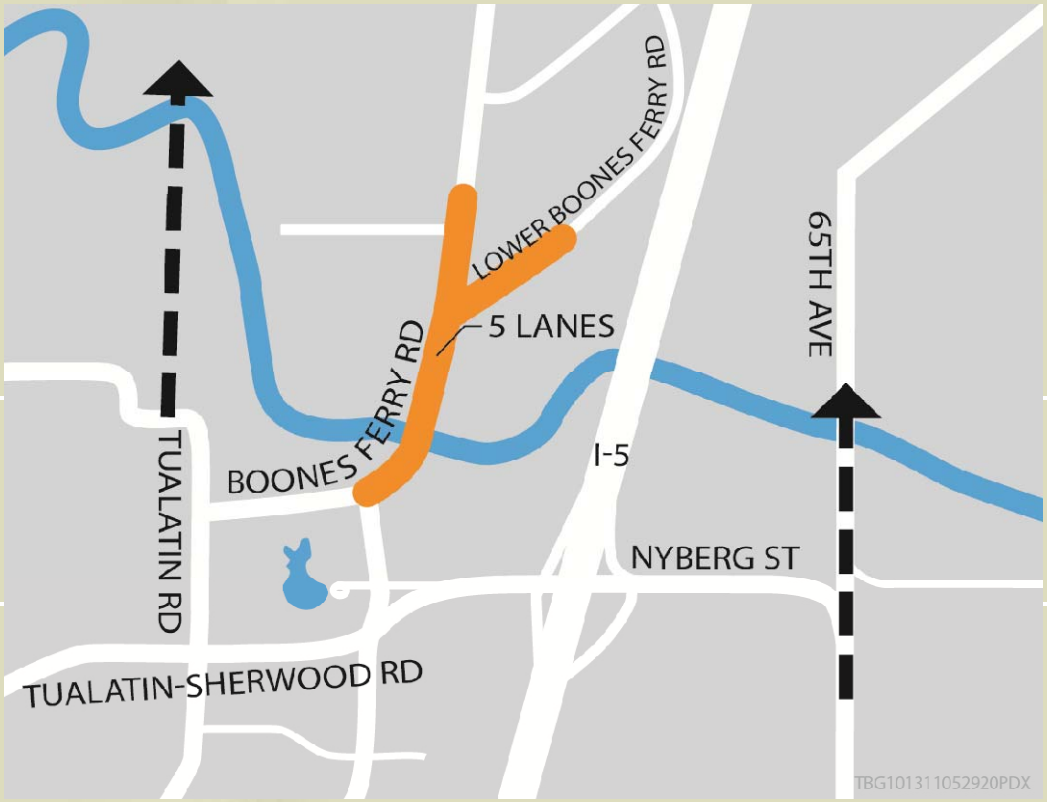
Goal Statement

Improve north-south connectivity west of I-5

From our July Meeting…

Look at a hybrid option that:

- Constructs a two-lane road connecting from Tualatin Road to Hall Boulevard north of the river
- Widens Boones Ferry Road to five lanes between Martinazzi and Lower Boones Ferry
- Assumes extension of 65th Avenue




SW Cejilo St
SW Chinook St
SW 86th Ave
SW Tualatin Rd
© 2012 Google
Imagery Date: 8/20/2011
45°23'12.72" N 122°45'46.68" W elev 127 ft


+ 880
+ 820
Tualatin Road
Lower Boones Ferry Rd
Interstate 5
E
1.11
- 420
- 470
- 640
- 590
F
1.26
C
0.86
Boones Ferry Rd
+ 1,090
+ 1,020
D
0.90
B
0.78
Nyberg
F
1.31
E
1.02
Tualatin-Sherwood Rd
Martinazzi
+ 220
2035 PM Peak hour
No –build Operations
LOS
V/C

What Does This Do For Tualatin?

Area	Benefits	Impacts
Traffic	• Decreases traffic on 99W, Boones Ferry Road (east of Tualatin Road), I-5 • Decreases traffic on Herman and Tualatin Roads	• Increases traffic into downtown and onto Tualatin-Sherwood Road
Design	• Removes one 90 degree turn on Tualatin Road	• Requires significant right of way • Additional at-grade crossing of RR tracks might be difficult
Environmental / Policy	• Extension included in Tigard and Washington County TSPs • Does NOT impact Sweek House • If local connection is made at Tualatin Community Park, helps circulation into park	• Additional environmental analysis would be needed related to river crossing, crossing of trail(s), and noise and air quality assessments

Discussion

City Council discussed North-South connectivity and voted No, do not move north-south connectivity on to Summit

Revisiting Refinement Area #4:

Herman Road and Tualatin Road







Goal Statement

Encourage through traffic to move onto Herman Road and off of Tualatin Road

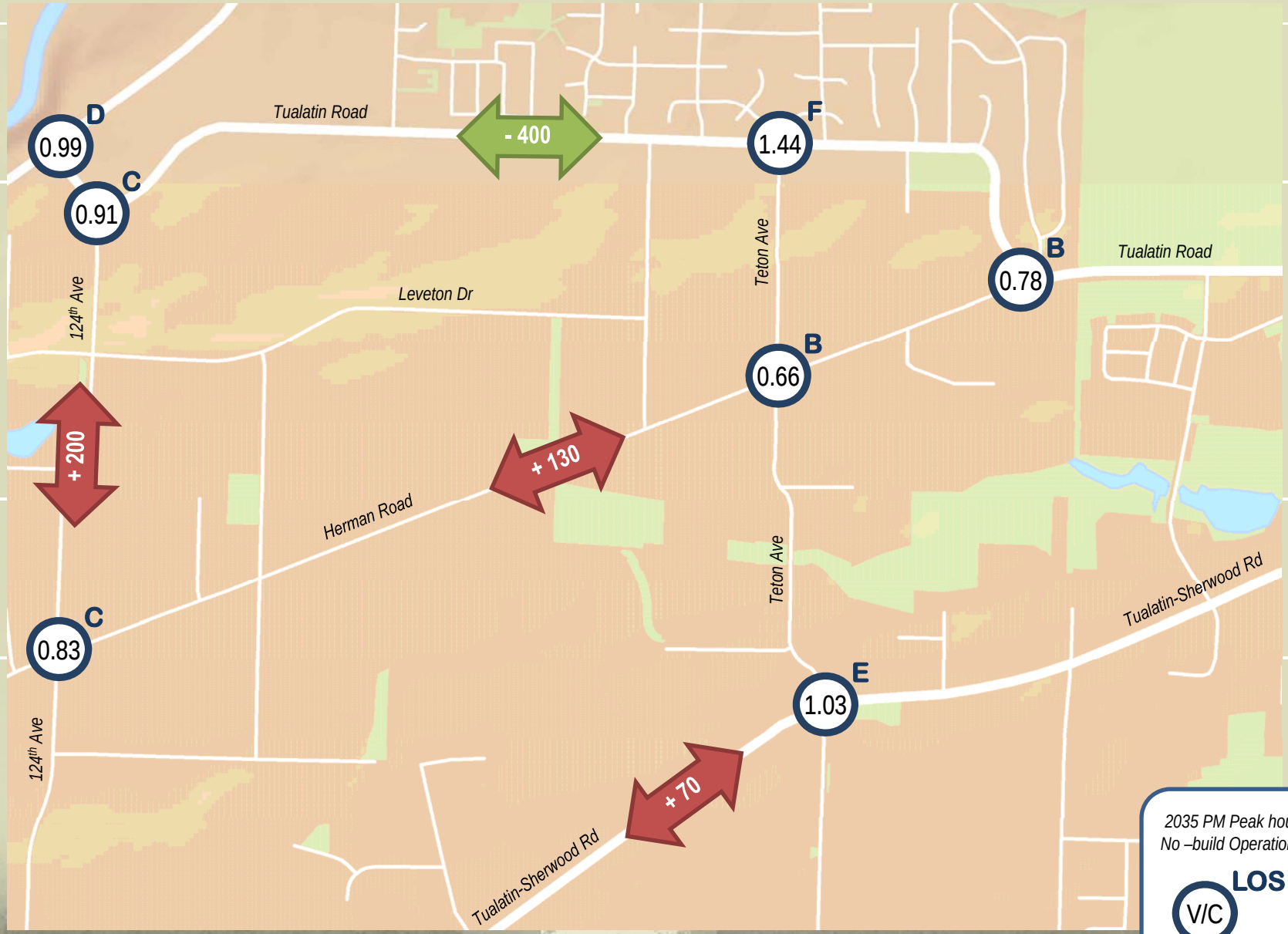
Refined Solution

A. Reclassify Herman to a minor arterial
B. Upgrade section of Herman to 2 lanes
C. Lower speeds on Tualatin
D. Eliminate free right turn at Tualatin/Herman intersection, consider roundabout
E. Add signals at the east and west ends of Tualatin
F. Remove trees at Tualatin and 108th
G. Modify channelization of 124th and Tualatin, consider roundabout
H. Signage to indicate that Tualatin is for local traffic

Responses to Questions

No.	Question	Response
1.	Can you look at keeping Herman at 2-lanes between Teton and Tualatin?	Yes. There are limited driveways that would warrant a center-turn lane. Modified recommendation to upgrade Herman to 2-lanes with bicycle lanes and sidewalks
2.	Can you look at retaining current speeds on Tualatin?	Yes, but fewer cars move off of Tualatin as a result. Speeds would decrease as a result of signals
3.	What would the roundabout look like at the east end?	There appears to be sufficient room for a single-lane roundabout at this location, allowing Cheyenne to access it, would shift intersection slightly to north to avoid railroad tracks
4.	What happens to the signal on Tualatin and Teton?	This signal stays above the mobility threshold but we can look at minor modifications to the intersection and the timing to improve flow
5.	How many vehicles move from Tualatin to Herman?	See next slide – approx. 400 with suite of projects
6.	What about the 45-degree angles east of where you're looking?	See earlier discussion. There are modifications that could be done, or other ways to encourage traffic to turn on Teton or 124th to move south

A Closer Look at Traffic…



Herman Road and Tualatin Road – Findings

Consideration Area	Comments	Score
Local traffic/safety	• Major effect is shifting of traffic from Tualatin Road to Herman Road	
	• On the west end traffic is diverted to 124th • On the east end traffic is diverted to Herman • Small amount of traffic shifted to Tualatin-Sherwood Road • Some traffic diverted along Hwy 99W up to Durham Road	–
City-wide traffic	• Minimal effects to city-wide traffic • Majority of effects are local	–

Tualatin Road and Herman Road – Findings

Consideration Area	Comments	Score
Design Constraints / Considerations	• Traffic calming can be installed with minor impacts • Projects could be chicane type improvements (lane weave) or speed tables	
	• Coordination with Tualatin Valley Fire and Rescue and Tualatin Police likely needed • Improvements to Herman and the intersection of Tualatin/ Herman require right of way • New locations for signals recommended at Jurgens and 115th have not been analyzed for warrants • Removal of tree(s) at Teton, at the SW quadrant improve sight distance but have impacts to natural resources	
Environmental / Policy Considerations	• Some adjacent land would be required north of Herman to widen to three lanes • Potential impact some landscaping and parking • Planter circles and speed table design standards would need to be added to the City's code	







Discussion

TTF recommendation: Yes, move this option forward to Summit

Refinement Area #5:
Tualatin-Sherwood Road



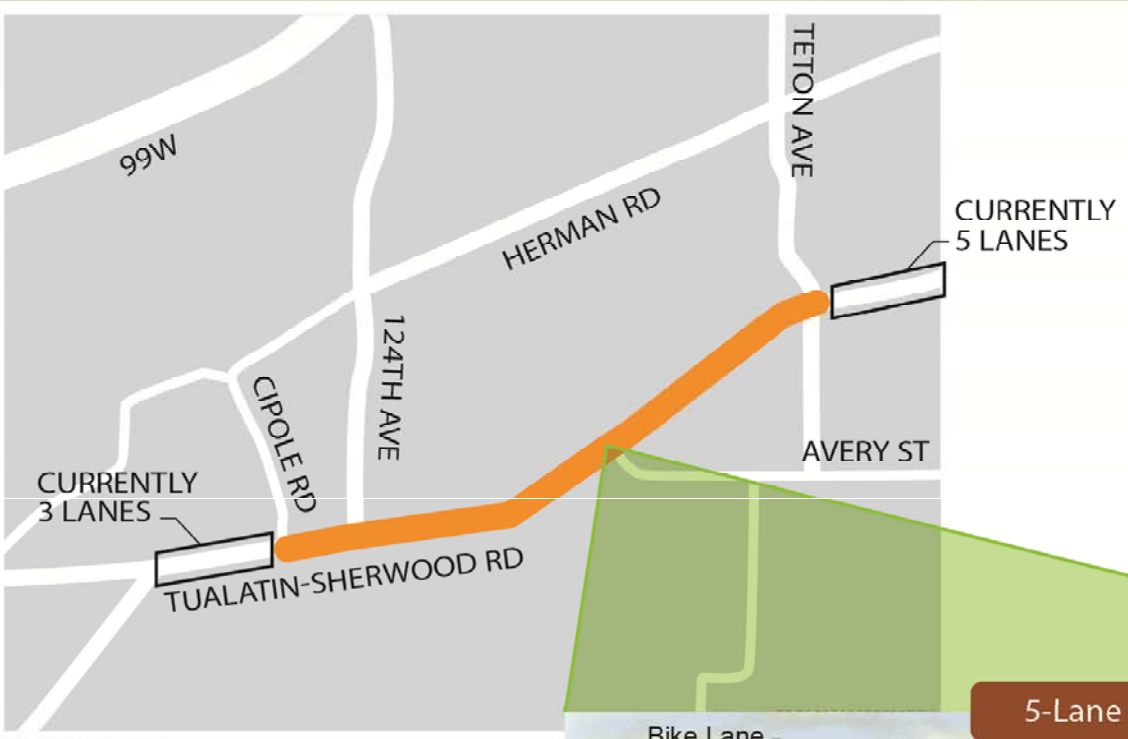


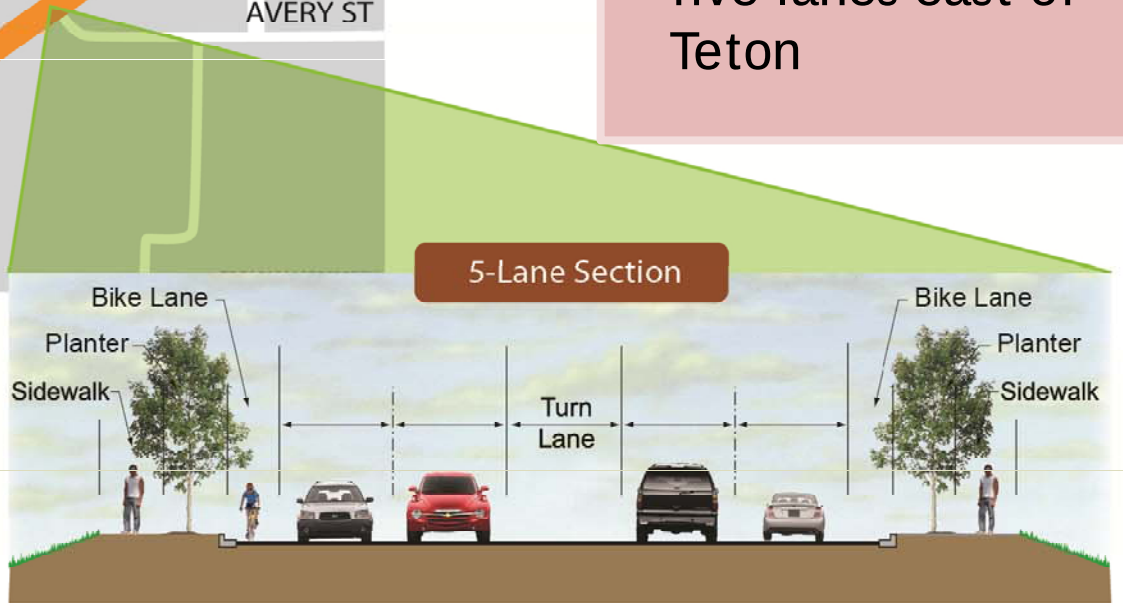


Goal Statement

Relieve congestion and improve safety for all modes

Option #1: Complete Five Lane Section



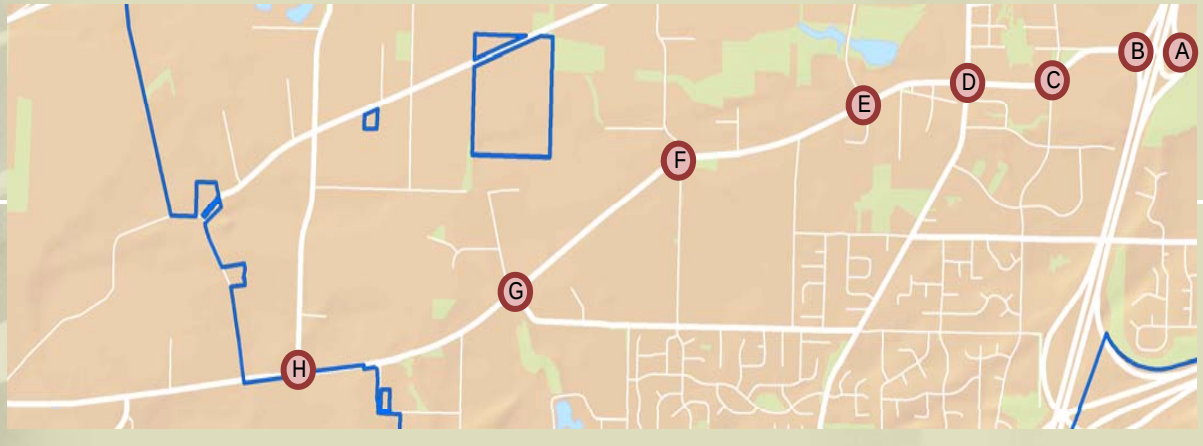


- Widens Tualatin-Sherwood Road to five lanes between Teton and Cipole
- Road is currently five lanes east of Teton

Option #2: Retain Three Lane Section

- One travel lane in each direction
- Center turn lane
- Retains shoulder bicycle lanes and sidewalks
- Coordinated signal timing
- Spot improvements at key intersections

What Do These Options Do For Traffic?



PM Peak Hour Operations

Tualatin-Sherwood Road &	2011 Existing	Retain Three Lane Cross Section	Widen to Full Five-Lane Cross Section
A I-5 Northbound	0.68 (B)	0.78 (B)	0.78 (B)
B I-5 Southbound	0.79 (D)	0.90 (D)	0.90 (D)
C Martinazzi Ave	0.94 (D)	1.02 (E)	1.02 (E)
D Boones Ferry Road	0.93 (D)	1.31 (F)	1.31 (F)
E 90th Avenue	0.60 (C)	0.78 (C)	0.78 (C)
F Teton Avenue	0.79 (D)	0.95 (E)	0.95 (E)
G Avery St	0.71 (B)	0.99 (E)	0.92 (D)
H 124th Avenue	0.60 (C)	1.33 (F)	0.92 (C)

V/C ratio (Level-of-Service)

Other Connectivity Options

Option	West of Boones Ferry Rd	East of Boones Ferry Road
65th Extension	+ 50 vehicles ⇧	+180 vehicles ⇧
North/South Connection	+ 170 vehicles ⇧	-50 vehicles ⇩
Hybrid (both 65th and North/South)	+130 vehicles ⇧	+80 vehicles ⇧
TSM Option	Negligible	Negligible

What are the Other Benefits to Tualatin?

Area	Five-Lane	Three-Lane
Design Constraints	• Setbacks appear to allow widening with minor impacts to properties • Some drainage/water quality basins may require relocation	• None – this largely retains existing cross section. Widening at key intersections could be accommodated with no major design concerns
Environmental / Policy	• Project is included in Washington County TSP	• This option is not consistent with the Washington County TSP

Discussion

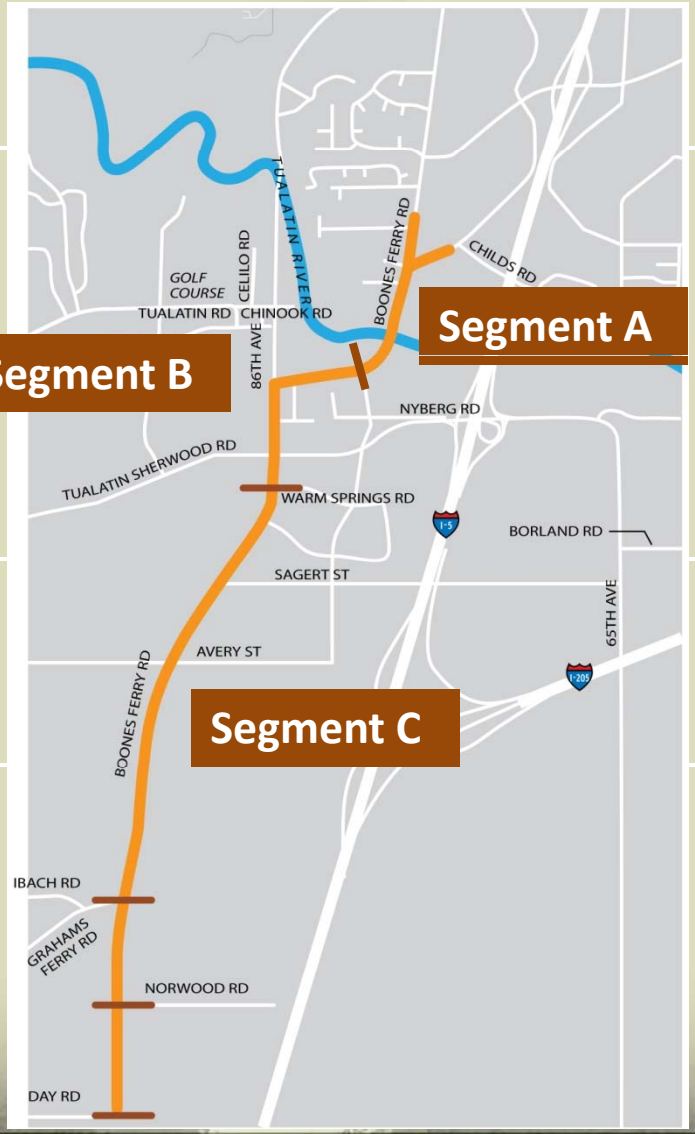
TTF recommendation:
Move five-lane option forward to summit

Refinement Area #6:
Boones Ferry Road

Goal Statement

Reduce congestion and improve safety on Boones Ferry Road throughout Tualatin

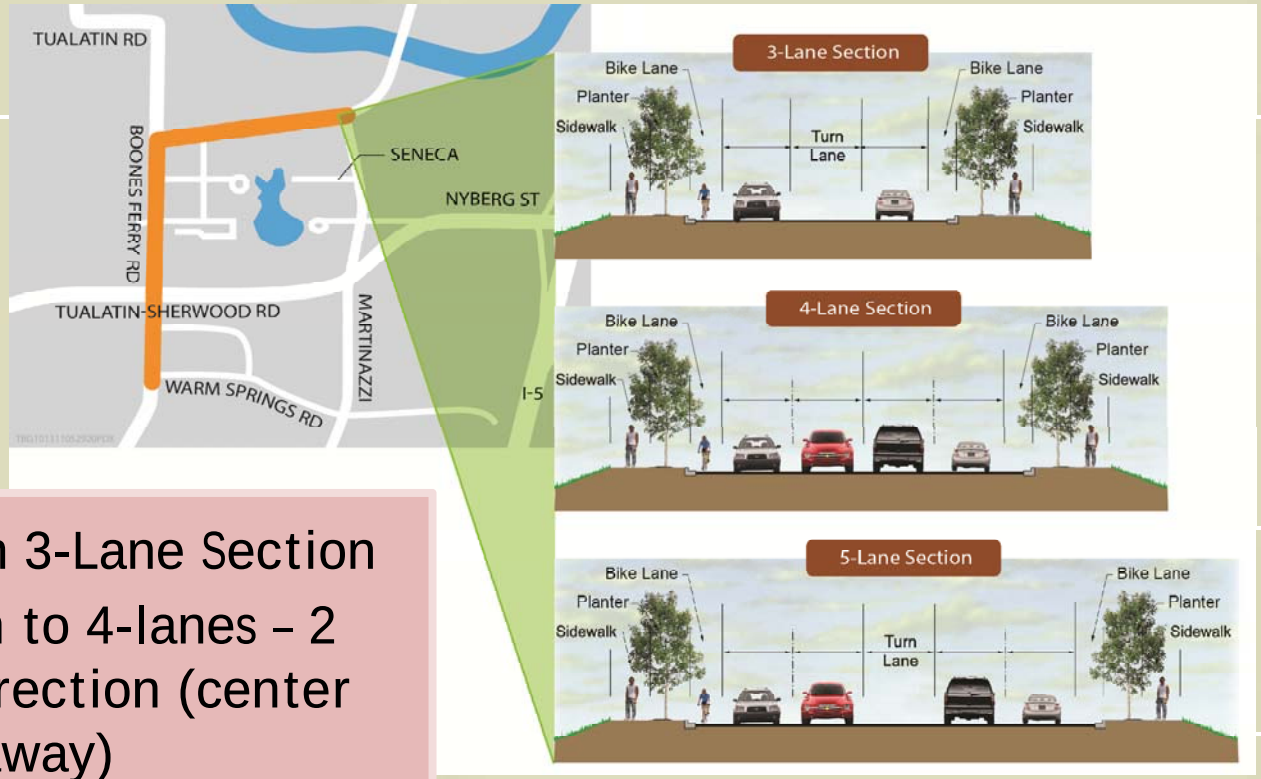
Three Segments of Boones Ferry Road



Segment A: North of Martinazzi

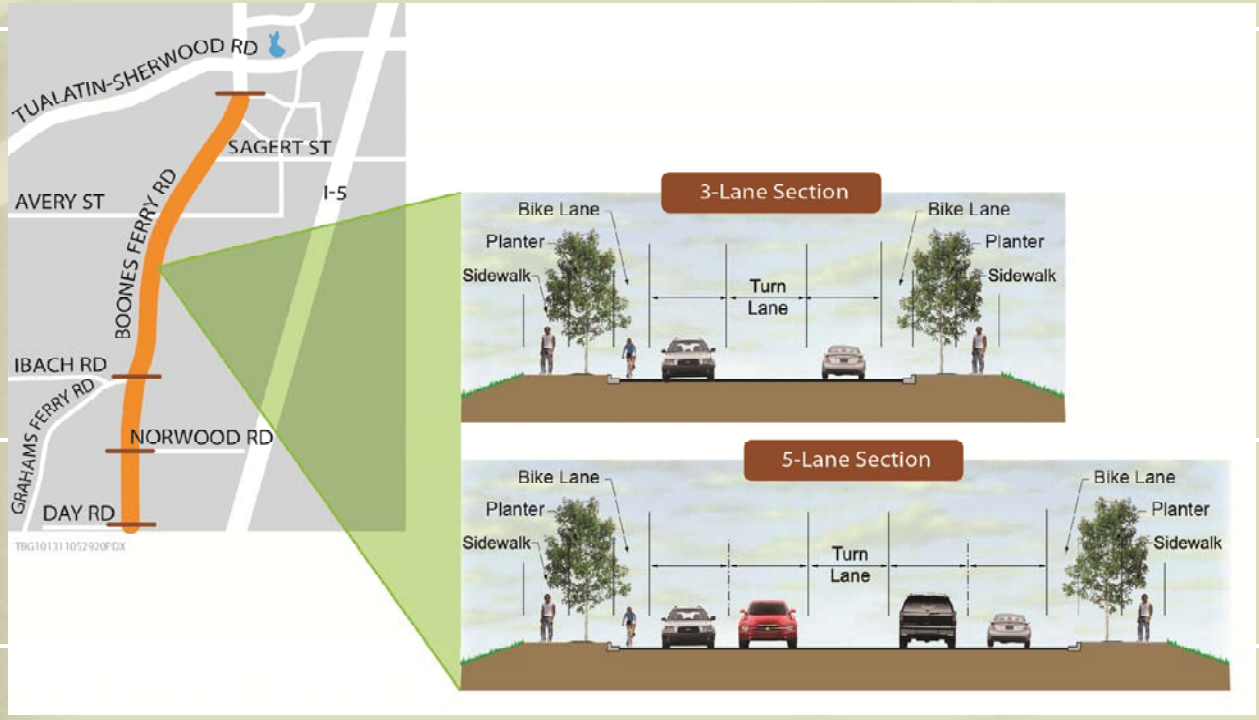
- Widen to five lanes from intersection with Lower Boones Ferry to bridge
- Replace current bridge, widen to four lanes with bike lanes and sidewalks
- Transition to three lanes south of bridge with transition at Martinazzi (left turn lane)

Segment B: Through Downtown



- Option 1: Retain 3-Lane Section
- Option 2: Widen to 4-lanes – 2 lanes in each direction (center turn lane goes away)
- Option 3: Widen to 5-lanes – 2 lanes in each direction with center turn lane

Segment C: South of Warm Springs



- Option 1: 3-lane section with widening at key intersections, coordinated signal timing
- Option 2: 5-lane section (2 travel lanes in each direction with center turn lane)

Boones Ferry Road Traffic: All Options

PM Peak Hour Operations

	Boones Ferry Road &	2011 Existing	2035 No-Build	Widen South of Tualatin-Sherwood Rd to Norw ood	Widen North of Martinazzi to Lower Boones
A	Lower Boones Ferry	0.76 (C)	1.11 (E)	1.11 (E)	0.89 (C)
B	Martinazzi Ave	0.89 (D)	1.26 (F)	1.26 (F)	1.33 (F)
C	Tualatin Road	0.62 (B)	0.86 (C)	0.86 (C)	0.92 (C)
D	Tualatin-Sherwood Rd	0.93 (D)	1.31 (F)	1.30 (F)	1.31 (F)
E	Sagert St	0.75 (C)	1.11 (E)	0.84 (C)	1.11 (E)
F	Avery St	0.87 (C)	1.15 (F)	0.96 (D)	1.15 (F)
G	Ibach St	0.70 (B)	0.98 (D)	0.88 (C)	0.98 (D)

V/C ratio (Level-of-Service)

Other Connectivity Options

Option	South of Tualatin-Sherwood Rd	TSR to Martinazzi Rd	North of Martinazzi
65th Extension	- 70 vehicles ↓	-180 vehicles ↓	-440 vehicles ↓
North/South Connection	+ 520 vehicles ↑	-270 vehicles ↓	-570 vehicles ↓
Hybrid (both 65th and North/South)	+220 vehicles ↑	-500 vehicles ↓	-890 vehicles ↓

What are the Benefits for Tualatin?

Area		Segment A	Segment B	Segment C
Design	3-lane	• No impacts	• No impacts	• No impacts
	4-lane	• N/A	• Would require ROW • Access impacts	• N/A
	5-lane	• Minor impacts • Little ROW needed • Railroad coordination needed	• Would require additional ROW • Would require reconstructed accesses	• Could improve curves and grade for sight distance improvements • Some structures close to ROW line
Environmental/ Policy	3-lane	• None	• None	• None
	4-lane	• N/A	• Business impacts • Difficult turning movements	• N/A
	5-lane	• Some landscaping impacts adjacent to road	• Impacts businesses in this segment	• Impacts setbacks and landscaping (no houses) • Near Woodrose Nature Park







Discussion

TTF recommendation: Move forward with

Segment A: Five lanes

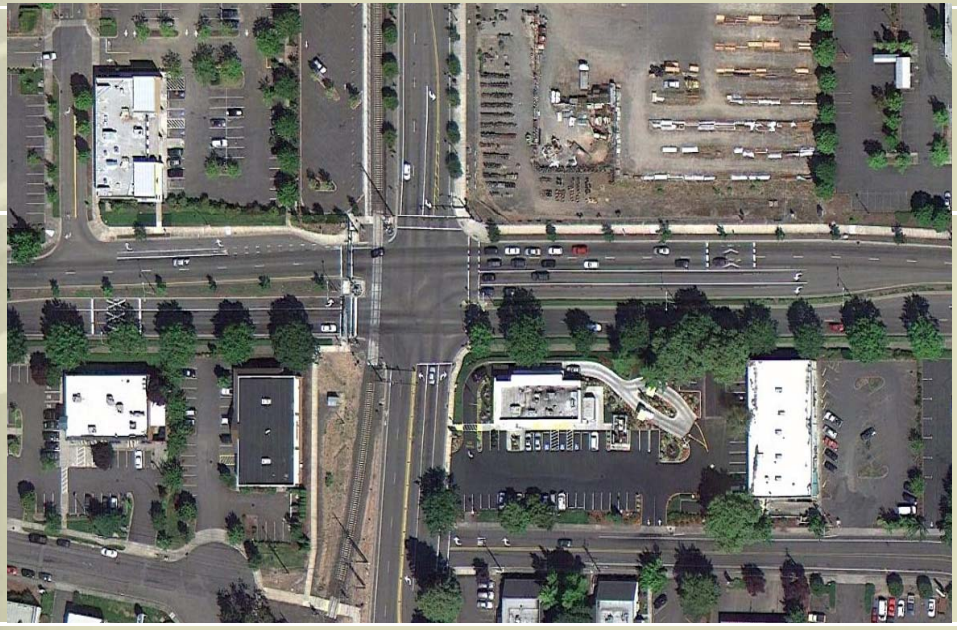
Segment B: Three lanes

Segment C: Three lanes

To the summit

Refinement Area #7:
Downtown Connectivity

Tualatin-Sherwood Road/Boones Ferry Road Intersection



Notes:

- Signal timing is already optimized at this intersection, but other phasing/timing/ coordination alternatives may be tested
- Changing the signal timing to 120 seconds could improve the V/C ratio from 1.30 (F) to 1.22 (F)
- Intersection is well over capacity, even a test of 140 second signal cycle with right turns on every approach yields a V/C of 1.06 (E)

PM Peak Hour Operations

	Tualatin-Sherwood Road/Boones Ferry Road
Existing Conditions	0.93 (D)
2035 No-Build	1.31 (F)
Added Eastbound Right Turn Pocket	1.18 (E)
Added Westbound Right Turn Pocket	1.31 (F)
Added Southbound Right Turn Pocket	1.18 (E)

V/C ratio (Level-of-Service)

Other Connectivity Options

Option	West of Boones Ferry Rd	East of Boones Ferry Road	North of TSR	South of TSR
65th Extension	+ 50 vehicles ↑	+180 vehicles ↑	-60 vehicles ↓	- 70 vehicles ↓
North/South Connection	+ 170 vehicles ↑	-50 vehicles ↑	+420 vehicles ↑	+ 520 vehicles ↑
Hybrid (both 65th and North/South)	+130 vehicles ↑	+80 vehicles ↑	+280 vehicles ↑	+220 vehicles ↑
TSM Option	Negligible	Negligible	Negligible	Negligible

Connectivity in the Downtown Core

- Auto bridge over the lake was screened out
- Auto tunnel under the lake was screened out
- At least we can improve connectivity for bicyclists and pedestrians

Discussion

TTF recommendation: No, with changes to Lake, Yes, with recommendations to Boones Ferry and Tualatin Sherwood Road intersection

City of Tualatin

Putting it all Together

Tualatin TSP

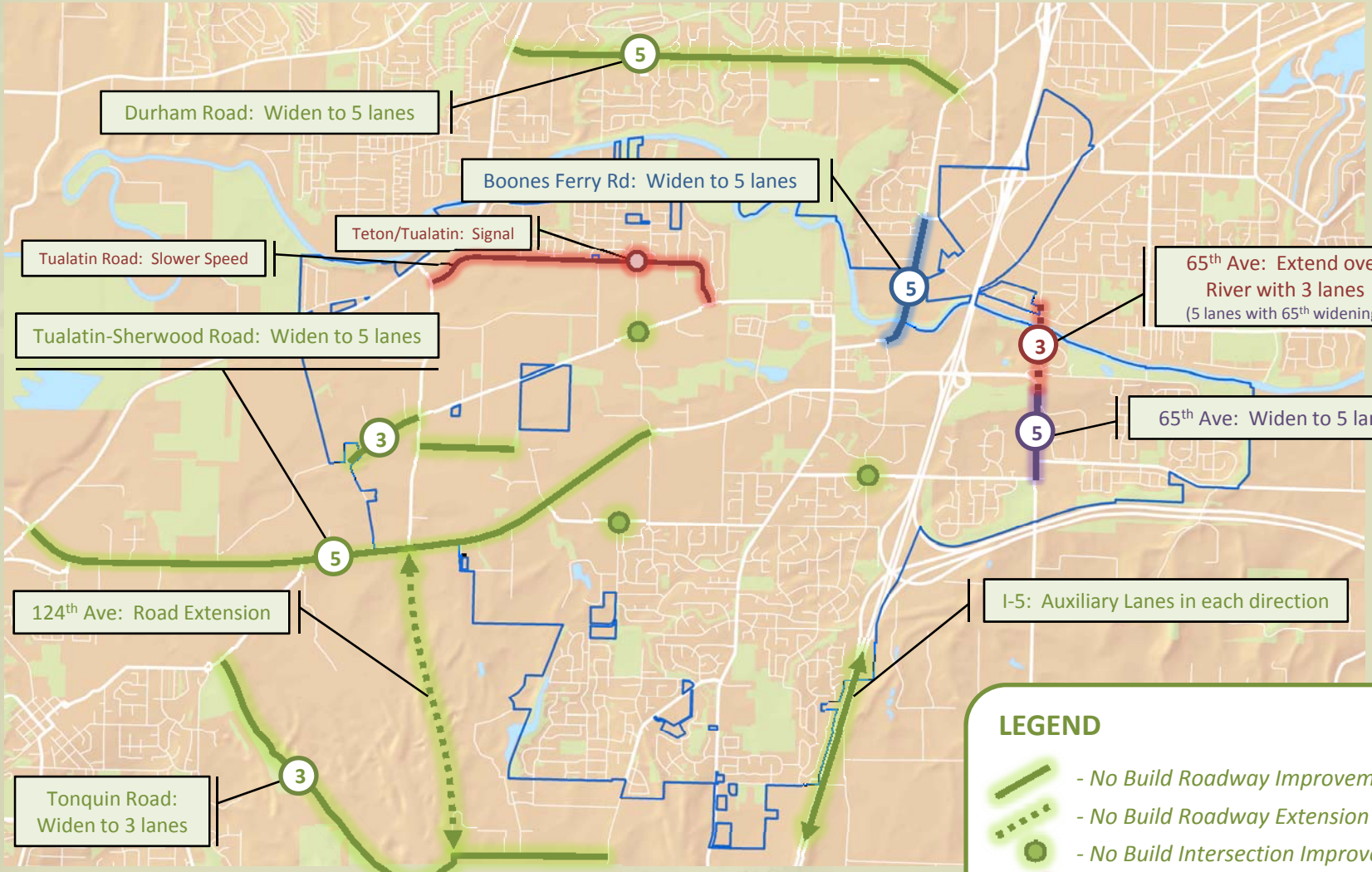
Presentation to
Tualatin Transportation Task Force
September 20, 2012

Scenarios

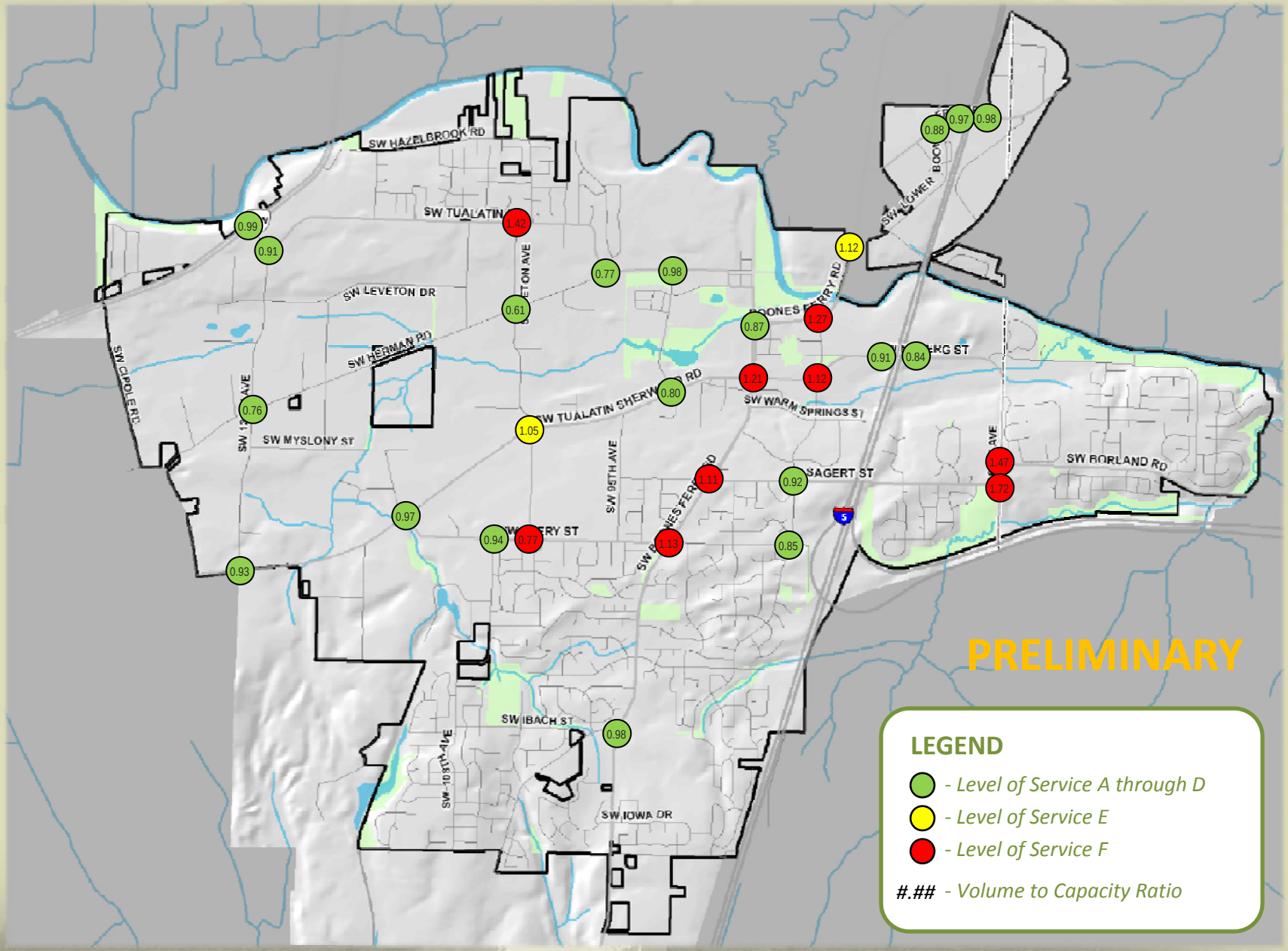
Scenarios Rely on TTF Guidance

1. Includes compilation of guidance from 7 refinement areas
2. Looked at various options for 65th Avenue
   a. No extension
   b. 2-lane bridge extension
   c. 5-lane widening of 65th with 4-lane bridge extension
3. Looked at widening Boones Ferry Road north of Martinazzi

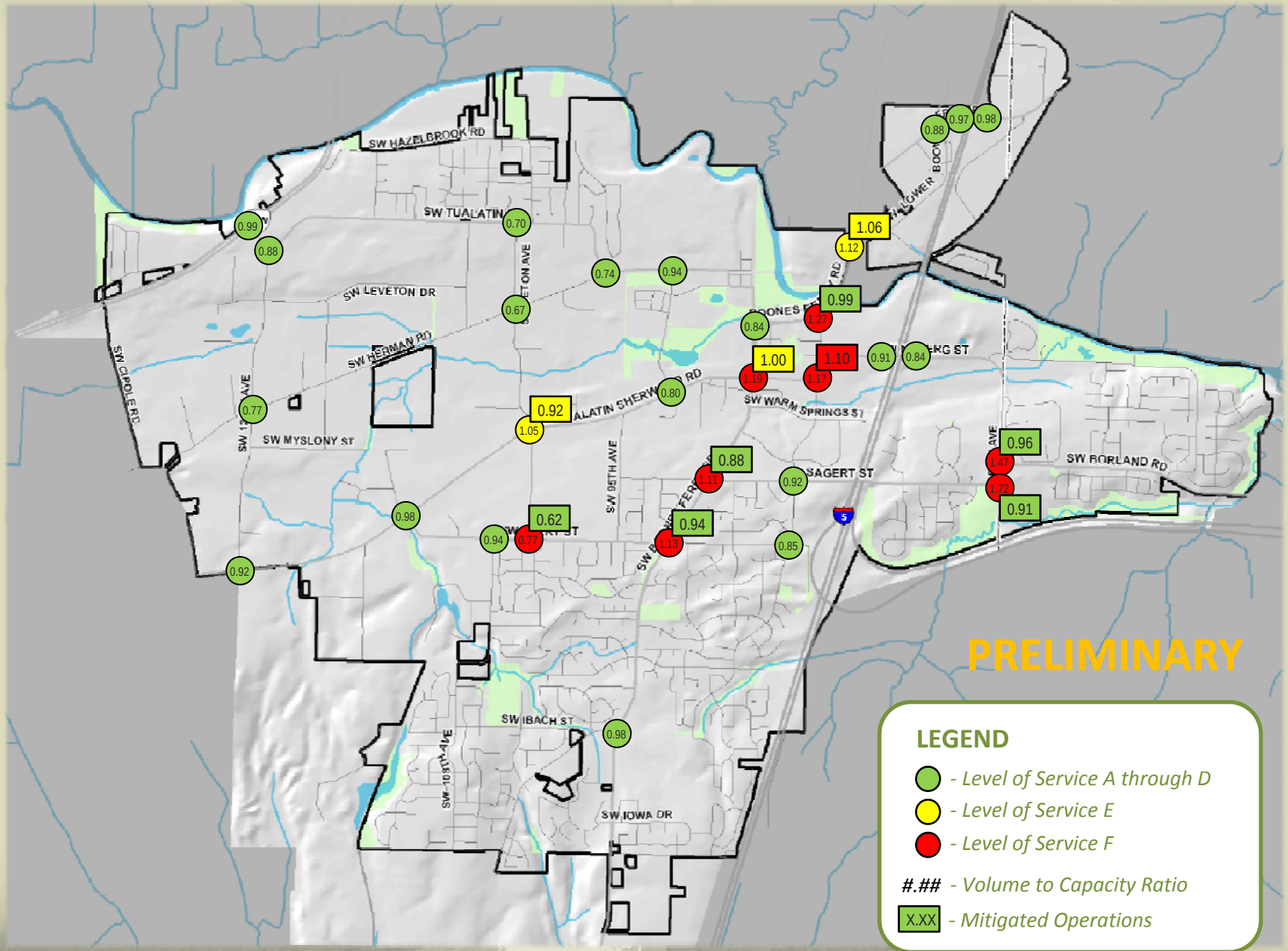
Assumed Future 2035 Scenarios and Roadway Projects



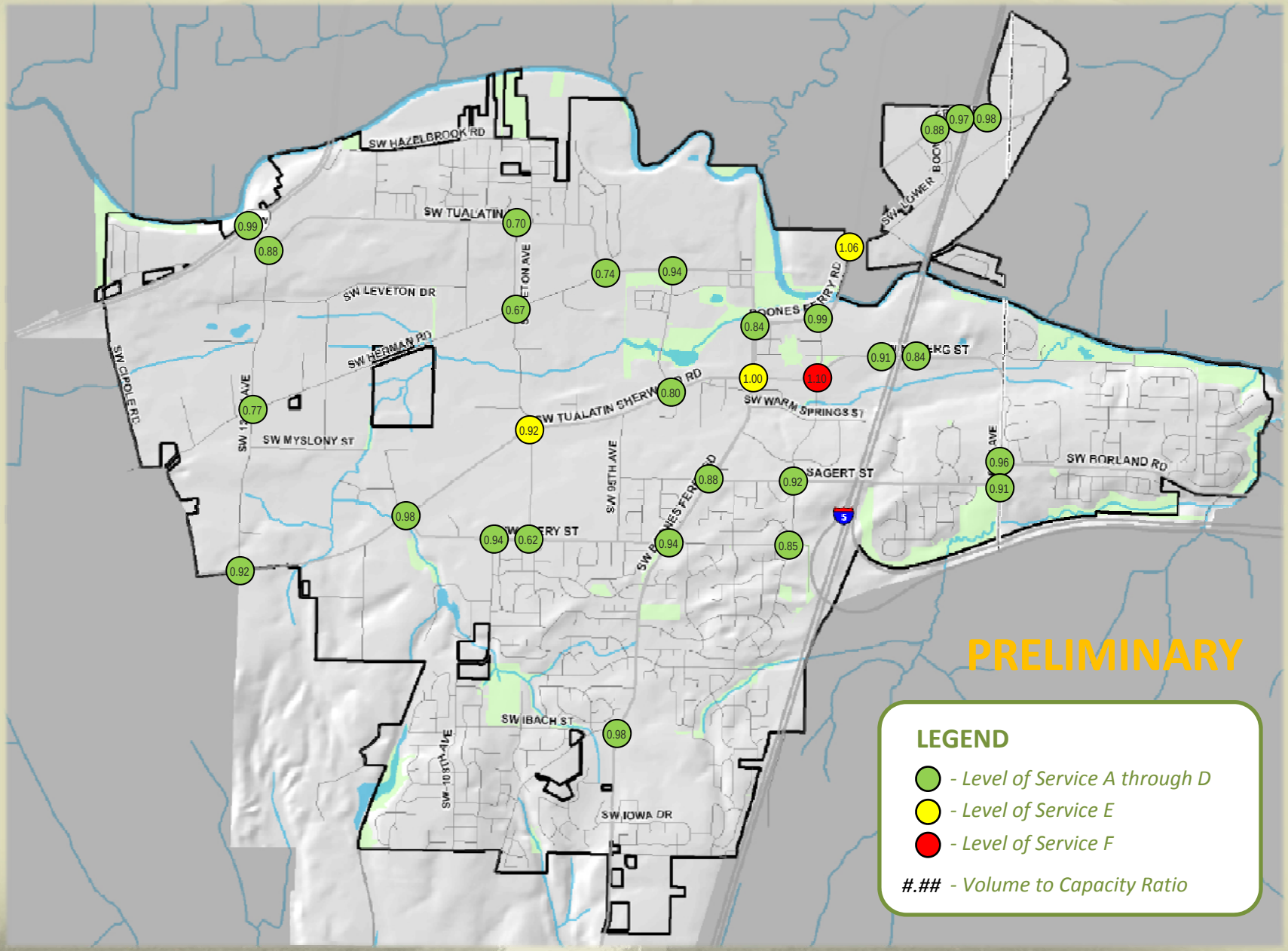
No Build Option



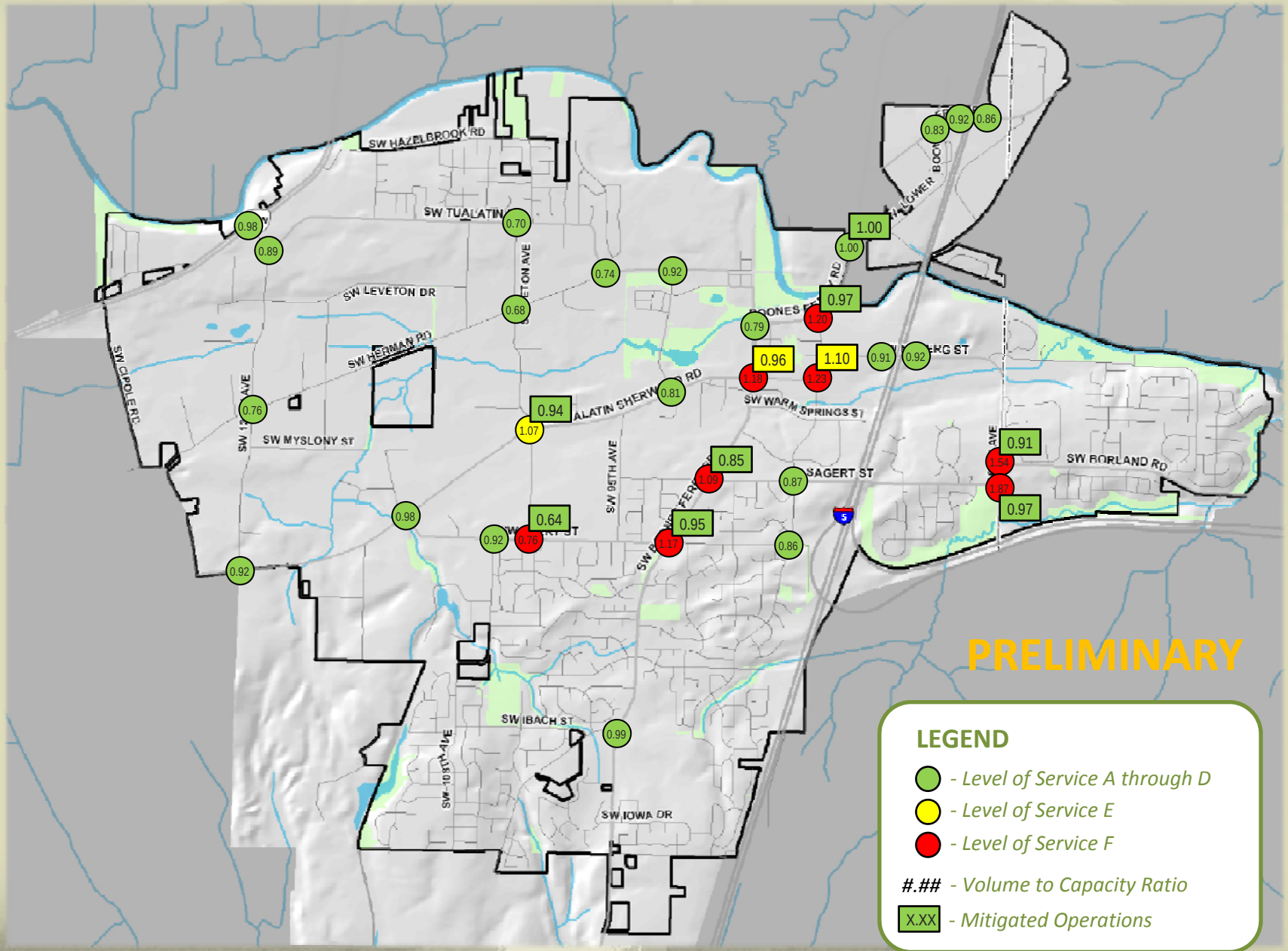
LOW Build Option – Without 65th Ave Extension



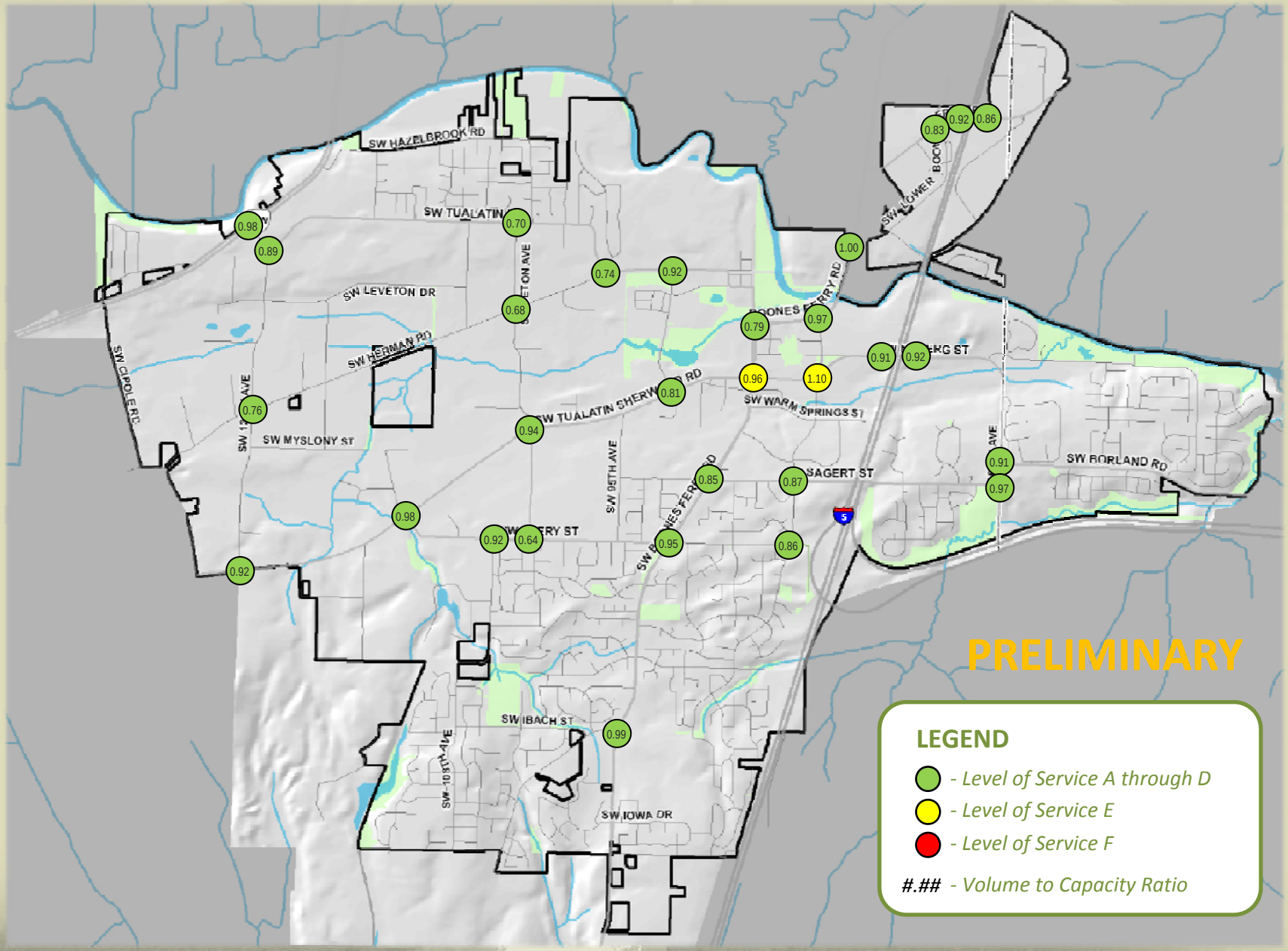
LOW Build Option – Without 65th Ave Extension



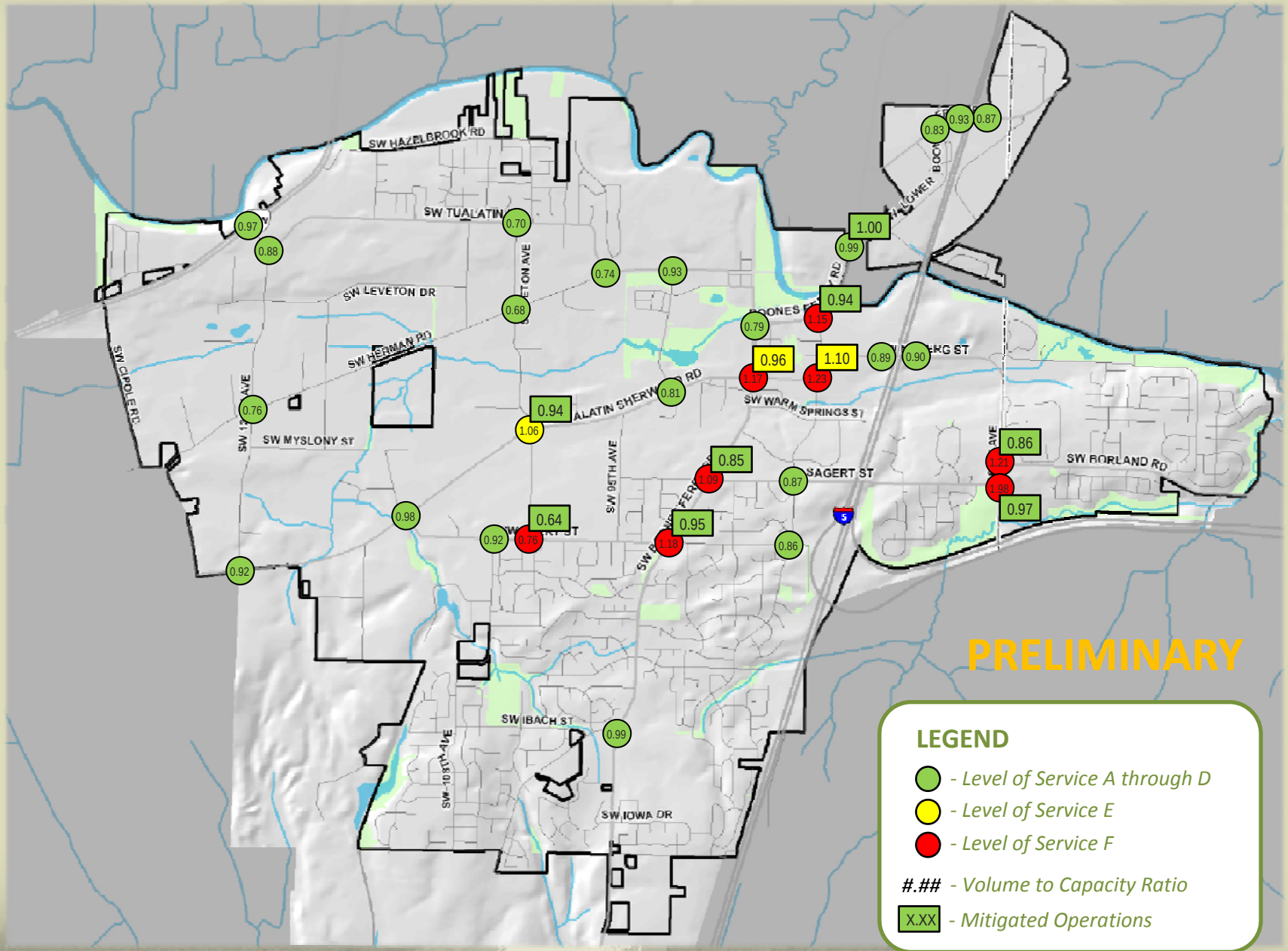
LOW Build Option – WITH 65th Ave Extension



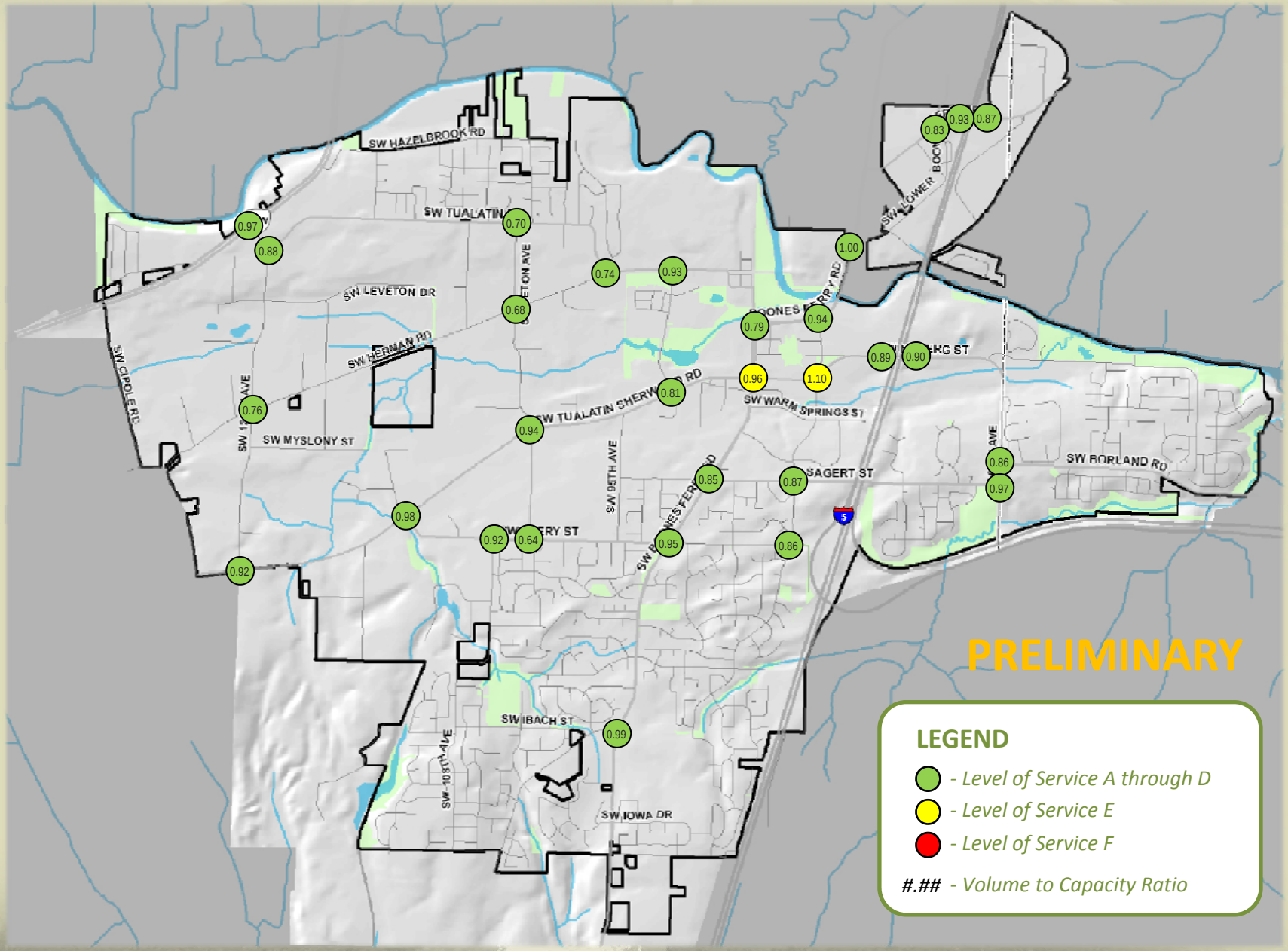
LOW Build Option – WITH 65th Ave Extension



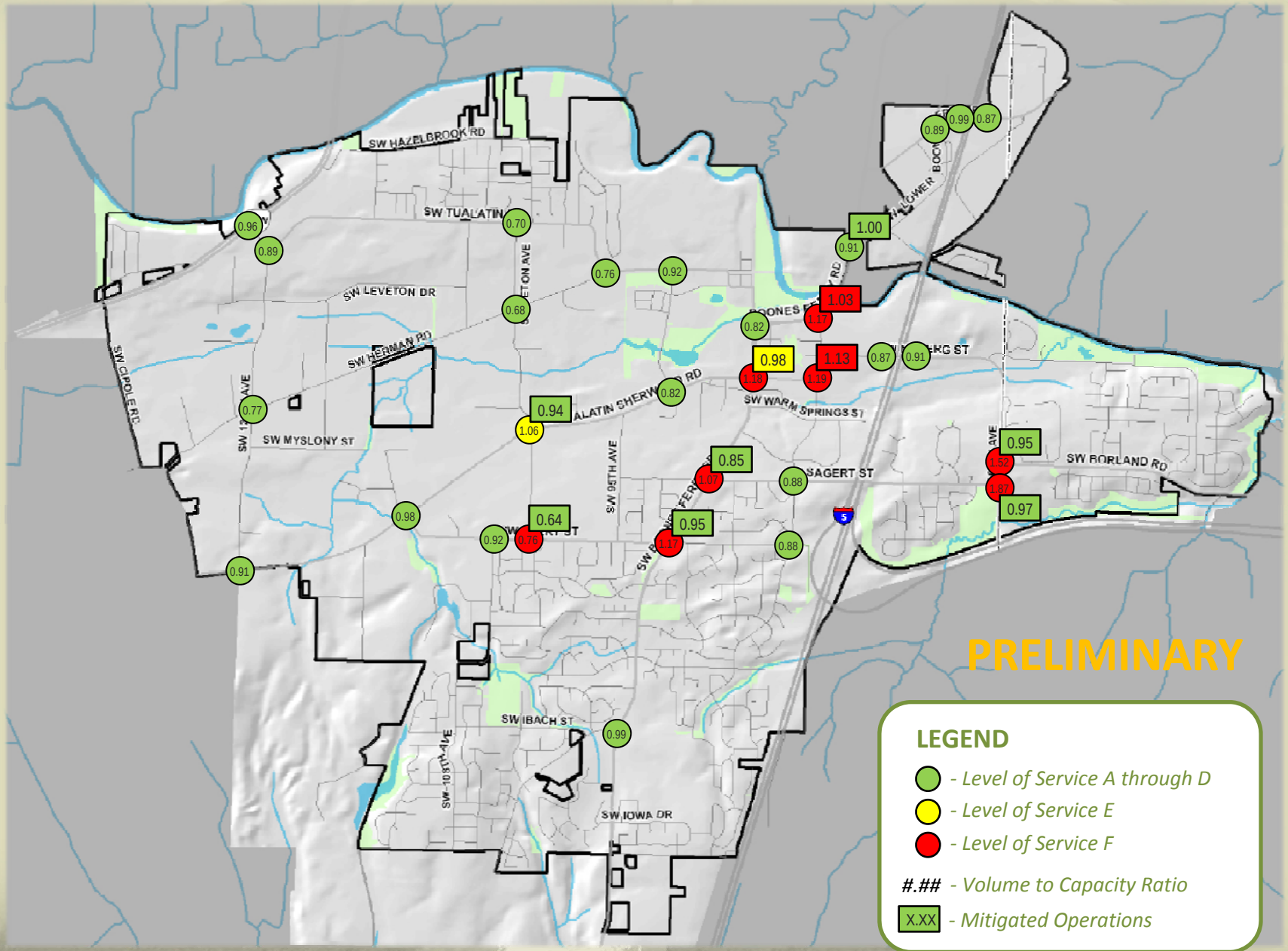
LOW Build Option – WITH 65th Ave Extension and 5 Lane



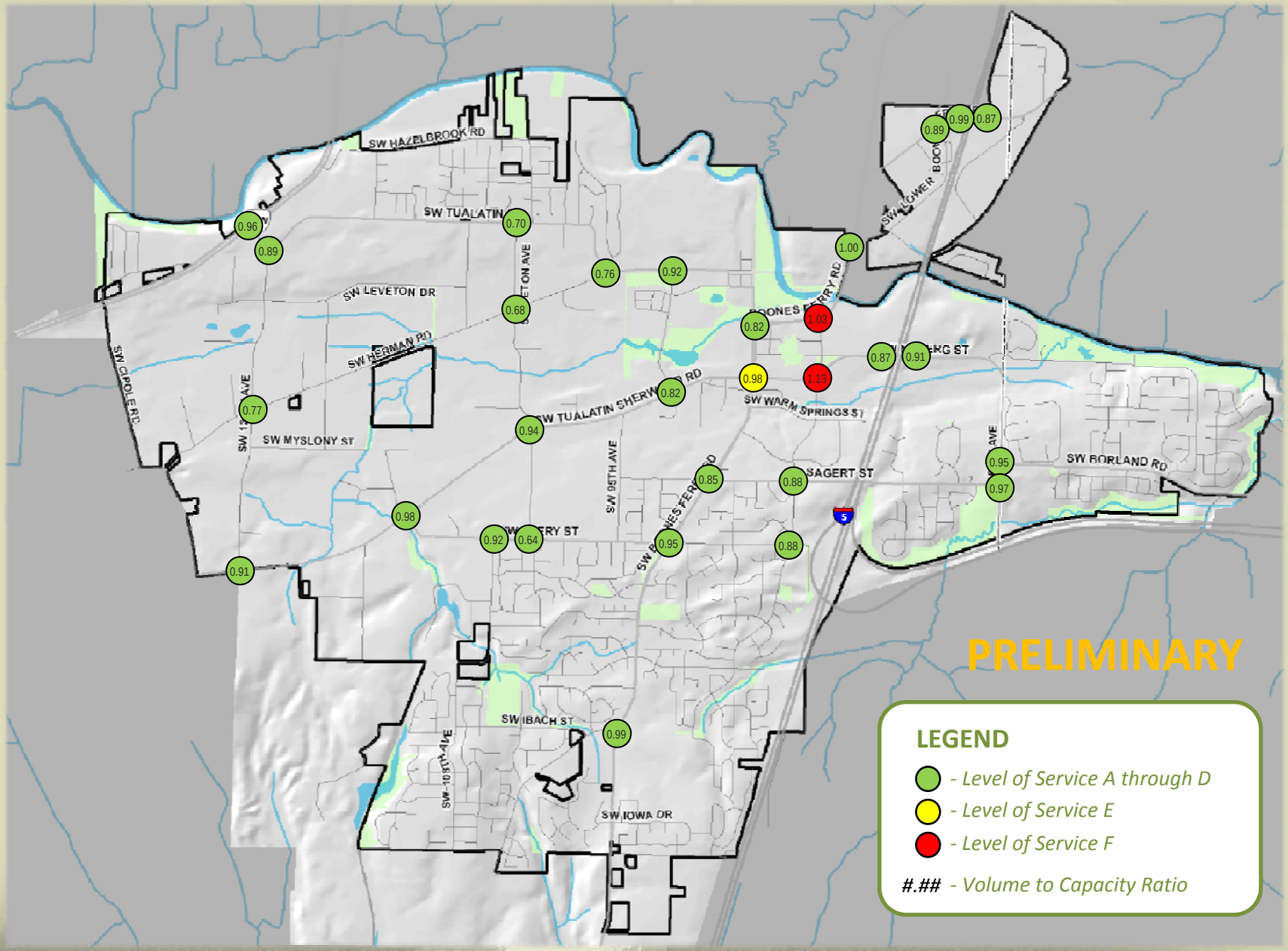
LOW Build Option – WITH 65th Ave Extension and 5 Lane



LOW Build Option – WITH Boones Ferry Road North Widening



LOW Build Option – WITH Boones Ferry Road North Widening



Technical Memorandum

City-Wide Traffic Analysis Results for Roadway Capacity Scenarios

PREPARED FOR:	Tualatin Transportation System Plan Project Management Team
PREPARED BY:	Theresa Carr, CH2M HILL Alan Snook, DKS & Associates Mat Dolata, DKS & Associates
COPIES:	Terra Lingley, CH2M HILL Eryn Deeming Kehe, JLA
DATE:	October 17, 2012

This memorandum highlights traffic analysis findings for six roadway infrastructure scenarios prepared for Tualatin's Transportation System Plan (TSP). The purpose is to provide information about the benefits and tradeoffs of various capacity projects being considered in the TSP, with a focus on a possible extension of 65th Avenue to the north and the possible widening of Boones Ferry Road north of Martinazzi. Both of these projects center on a crossing of the Tualatin River: the 65th Avenue extension would be a new crossing, and the Boones Ferry Road widening would be a widening of an existing crossing. This memorandum provides information to support decision makers and the community with finalizing TSP recommendations (fall of 2012). The analysis centers on mobility/access, one of the TSP's seven evaluation categories. The other evaluation categories are: safety, vibrant community, equity, economy, health and the environment, and ability to be implemented.

Information is organized into four sections: (1) project scenarios, which includes descriptions of the six scenarios analyzed; (2) results, which highlights the intersection operations, traffic volumes, and travel time changes associated with each scenario; (3) conclusions and recommendations; and (4) next steps.

Project Scenarios

What follows are descriptions of the six scenarios evaluated in this memo, and a description of the three components of the traffic analysis: (1) intersection level of service, (2) traffic volume shifts, and (3) travel times. Each of these three components reveals something different about overall system performance: from what it feels like to live near a major roadway capacity project, to how much time drivers spend waiting to proceed through an intersection, to what effect a project can have on the total amount of time it takes a driver to cross town.

Six scenarios were analyzed:

1. ***Existing conditions.*** An existing conditions analysis takes into account what drivers experience *today*. It is based on traffic counts collected in October 2011 throughout the City, site visits to

verify intersection geometry and land uses, and observed and recorded travel times (also from fall 2011). Existing conditions lay a solid foundation on which to compare all future scenarios.

2. ***Future "no build."*** This scenario takes into account the projected growth in population and employment in Tualatin and elsewhere over the next 20+ years (Year 2035), assuming the transportation network will remain the same. The only transportation projects are included in this scenario are those with funding and a subset of projects on Metro's fiscally-constrained Regional Transportation Plan (RTP), such as the extension of 124th Avenue south of Tualatin-Sherwood Road. This scenario allows us to consider what congestion concerns might arise in the future.
3. ***Future "low build.[1]"*** The future "low build" scenario begins with the assumption that there will be "no build" and then adds in those projects that the Tualatin Task Force (TTF) agreed to unanimously during the evaluation and refinement area analysis meetings (May through August 2012). A list of projects included in the "low build" scenario is included below. This scenario does not include any changes to 65th Avenue or Boones Ferry Road north of Martinazzi Avenue.
4. ***Future "low build" with 65th Avenue extension.*** This scenario begins with the "low build" option and then adds an extension of 65th Avenue to the north, from Nyberg Road to the vicinity of Childs Road north of the Tualatin River. This option was analyzed with the assumption that the existing three-lane cross section of 65th Avenue between Nyberg Road and Sagert Street would be retained and the northerly extension would transition to a two-lane cross section over the river, continuing as a two-or three-lane roadway towards Lakeview Boulevard.
5. ***Future "low build" with Boones Ferry Road widening.*** This scenario begins with the "low build" option and then adds a widening of Boones Ferry Road to five lanes north of Martinazzi Avenue. The existing cross section of three lanes would be retained through Tualatin's downtown core.
6. ***Future "low build" with 65th extension and Boones Ferry Road widening.*** This scenario begins with the "low build" option and then adds a widening of Boones Ferry Road to five lanes north of Martinazzi Avenue and an extension of 65th Avenue to the north, from Nyberg Road to the vicinity of Childs Road north of the Tualatin River. This scenario is a combination of Scenarios 4 and 5.

The traffic analysis for each of these scenarios relies on both the traffic counts collected during the fall of 2011 and Metro's regional travel demand model. For each of the scenarios analyzed, major infrastructure improvements were:

(1) Coded into the Metro regional travel demand model;
(2) Post-processed to be calibrated to traffic counts taken for the TSP; and
(3) Analyzed in the Synchro operational analysis software at an intersection-specific scale.

[1] The "low-build" scenario assumes the following projects:

- Tualatin-Sherwood Road as a five lane facility (throughout Tualatin, including widening of Sherwood segment as per Regional Transportation Plan)
- Boones Ferry Road as a three lane facility for entire length
- Herman Road as a two lane facility from Teton Ave to Tualatin Road
- Tualatin Road as a "30 mph" roadway
- Signal at Teton Avenue/Tualatin Road
- Teton Avenue as a three lane road from Herman Road to Avery Street

Intersection Level of Service

An analysis of intersection-level traffic operations helps to understand the driver experience of waiting at specific intersections along the network. The wait can be long, frustrating, and—in some cases—unsafe when traffic volumes are high, when there is a mix of different types of users (e.g., railroad trains, freight trucks, bicycles), or when there are multiple approaches and traffic movements. To mitigate this, traffic engineers work to keep intersection performance within certain congestion thresholds or mobility standards. Mobility standards can vary depending on where the intersection is located, who owns (and therefore controls) it, and its main purpose.

Depending on the location, roadways and intersections are owned and operated by one of three jurisdictions: (1) City of Tualatin, (2) Washington County, or (3) the Oregon Department of Transportation (ODOT). These jurisdictions measure traffic operations in different ways – either by level of service (LOS) or by volume-to-capacity (v/c). These terms are defined below:

- Level of service (LOS): A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in cars waiting through more than one signal cycle to get through an intersection.
- Volume-to-capacity (v/c) ratio**:** This measure is a range and represents how full an intersection is with vehicles. The ratio is similar to a percentage, for example, if a glass of water were 75 percent full, it would have a v/c ratio of 0.75. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If an intersection reports v/c higher than 1.0, it indicates that volumes are higher than capacity.

The City of Tualatin uses a LOS standard; depending on intersection type, the acceptable standard is either LOS D or LOS E. Washington County and ODOT use a v/c standard, which compares traffic volumes to intersection capacity. Both agencies define the acceptable mobility standard at or under a 0.99 v/c.

The next section of this memorandum compares intersection-level performance with congestion thresholds at these intersections:

1. Along Tualatin-Sherwood Road
    a. Tualatin-Sherwood Road/124th Avenue
    b. Tualatin-Sherwood Road/Boones Ferry Road
    c. Tualatin-Sherwood Road/Martinazzi Avenue
2. Along Boones Ferry Road
    a. Boones Ferry Road/Tualatin-Sherwood Road
    b. Boones Ferry Road/Tualatin Road
    c. Boones Ferry Road/Martinazzi Avenue
    d. Boones Ferry Road/Lower Boones Ferry Road
3. Along 65th Avenue
    a. 65th Avenue/Sagert Street
    b. 65th Avenue/Borland Road
    c. 65th Avenue/Nyberg Road

Shifts in Traffic Volumes from One Roadway to Another

Coding infrastructure improvements into Metro's travel demand model—Step 1 of the analysis process outlined at the top of this page—will provide key outputs that will be helpful in understanding the major trends of specific infrastructure projects. One of those trends is traffic volume shifts. Volume shifts provide an understanding of the scale of activity both at new connections and at the existing connections that are "relieved" by a new one. For example, when a new roadway is added to the network, volume shift diagrams help illustrate the number of trips that involve the new roadway, and—of those trips—how many are new trips versus those that have been diverted from elsewhere in the system. This analysis is only relevant to Scenarios 4-6, as these are the scenarios which introduce one or both of the river crossing projects that could affect traffic routing. Further, volume shifts were only recorded for these key roadways:

- Tualatin Road
- Herman Road
- 99W
- I-5
- Boones Ferry Road
- Tualatin-Sherwood Road
- Martinazzi Avenue
- Sagert Street
- Borland Road
- 65th Avenue
- Nyberg Road

Travel Time

Travel time is one of the most intuitive measures of traffic performance. Drivers know the amount of time it takes to get from one place to another, and the extent to which congestion can change travel times. What follows is a comparison of travel times, for each scenario, between these key north-south and east-west destination pairs:

- Boones Ferry Road
  - Tualatin High School to Bridgeport Village
  - Tualatin High School to Nyberg Interchange
- Tualatin Road
  - 115th/Tualatin to Bridgeport Village
  - 115th/Tualatin to Nyberg Interchange
- Tualatin-Sherwood Road (TSR)
  - TSR/Cipole Road to Bridgeport Village
  - TSR/Cipole Road to Nyberg Interchange
- Borland Road and 65th Avenue
  - Bridgeport Elementary School to Nyberg Interchange
  - Sagert/65th to Bridgeport Village

Results

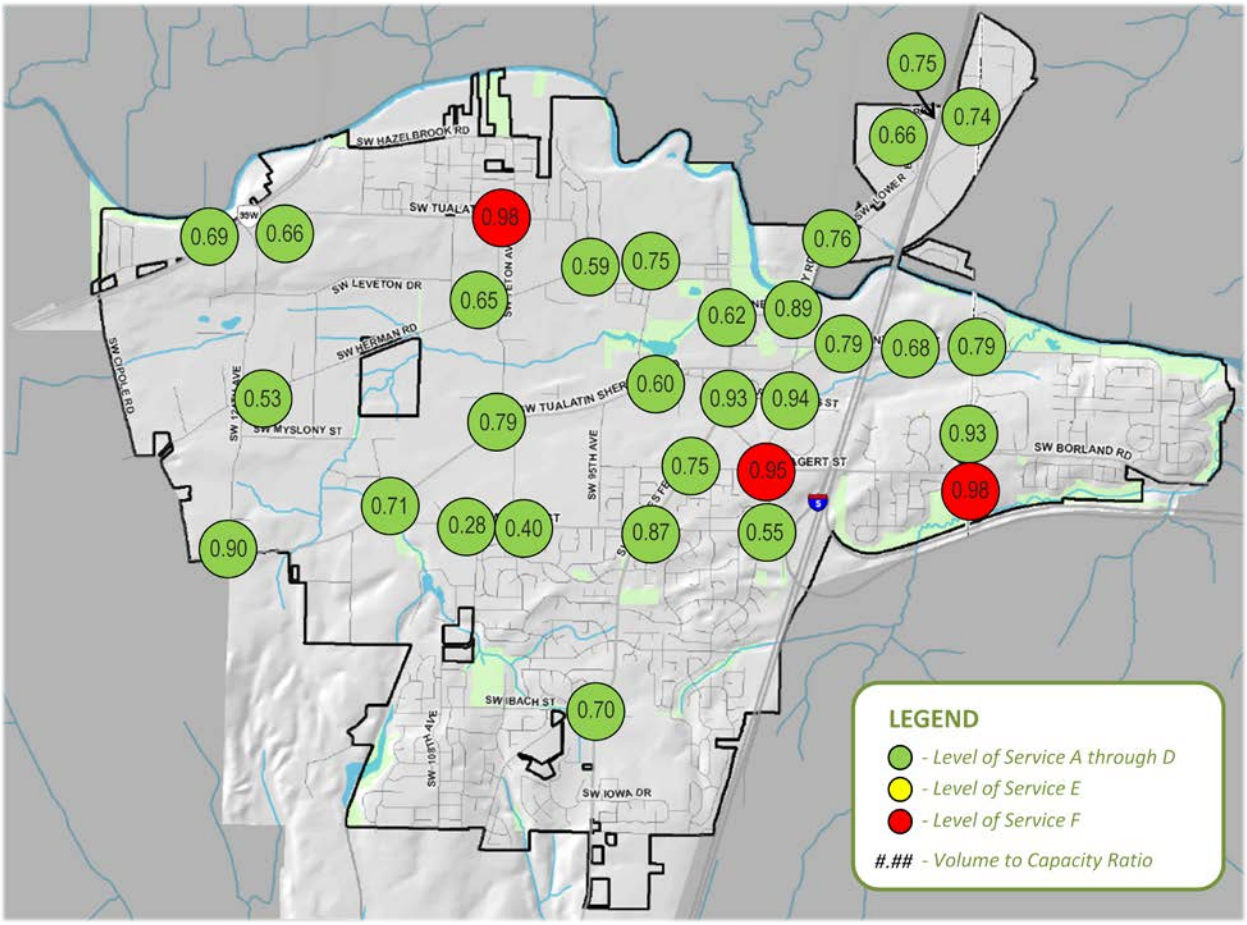
This section includes a description of findings from intersection operations, traffic volume shifts, and travel times for each of the scenarios outlined in the previous section. Appendix A provides the traffic operations results by scenario with and without intersection-level optimizations.

Scenario 1: Existing Conditions

Traffic Operations

Figure 1 shows traffic conditions for all 30 study intersections in Tualatin as of October 2011. It is based on counts collected on weekdays during the morning (7:00 a.m.to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) traffic rush hours. In addition, 24-hour counts were conducted at 11 locations on key roadways in Tualatin to provide an understanding of the fluctuations in traffic throughout the day and night. Figure 1 illustrates the current operations within the City of Tualatin. Green circles indicate the intersection meets City accepted standards and red circles indicate that standards are not met. Numbers within the circles indicate the intersection v/c ratio. Three intersections currently do not meet City accepted standards: (1) Tualatin Road/Teton Road, which performs at an LOS F with a v/c ratio of 0.98, (2) 65th Avenue/Sagert Street, which performs at an LOS F with a v/c ratio of 0.98; and (3) Martinazzi Avenue/Sagert Street, which performs at an LOS F with a v/c ratio of 0.95.

Figure 1. Intersection Operations, Existing Conditions



Travel Times

In addition to intersection and daily volume profiles, the project team collected corridor data related to travel times and speeds during the p.m. peak period. These travel times are recorded in Table 1 below. As can be seen, it takes between 9 and 10 minutes to drive north-south through Tualatin on Boones Ferry Road, and between 11 and 13 minutes to drive east-west through the City on Tualatin-Sherwood Road. These current travel times are compared to various future scenarios in the pages that follow.

TABLE 1
Existing (2011) P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	10 min, 20 sec
	Bridgeport Village	Tualatin High School	9 min, 10 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	7 min, 25 sec
	Nyberg Interchange	Tualatin High School	7 min, 5 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	8 min, 35 sec
	Bridgeport Village	115th Avenue	8 min, 30 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	8 minutes
	Nyberg Interchange	115th Avenue	8 min, 40 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	11 min, 40 sec
	Bridgeport Village	Cipole Road	13 minutes
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	8 min, 40 sec
	Nyberg Interchange	Cipole Road	10 min, 10 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 10 sec
	Nyberg Interchange	Bridgeport Elementary	2 min, 20 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Bridgeport Village	9 min, 10 sec
	Bridgeport Village	Bridgeport Elementary	8 min, 25 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)
NOTE: All travel times are rounded to the nearest 5 seconds

Scenario 2: Future "No Build" (2035)

Traffic Operations

By 2035, there will be much more congestion throughout the network in Tualatin, both along Tualatin-Sherwood Road (intersection with Teton Road, Boones Ferry Road, and Martinazzi Avenue), along Boones Ferry Road (intersections with Lower Boones Ferry Road, Martinazzi Avenue, Tualatin-Sherwood Road, Sagert Road, and Avery Street), along Teton Avenue (intersections with Tualatin Road, Tualatin-Sherwood Road, and Avery Street), and along 65th Avenue (intersections with Borland Road and Sagert Street). Operations are illustrated in Figure 2 below.

Travel Times

Travel times are summarized in Table 2 for the future (Year 2035) "no build" scenario. Travel times in the north-south direction would increase over existing conditions substantially, from between 9 and 10 minutes to between 12 and 15 minutes. Travel time increases would be more dramatic in the east-west direction: from between 11 and 13 minutes to approximately 17 minutes. Table 2 shows the travel time differences between the future no build and existing conditions. In most instances travel times increase by at least one minute. Some locations travel times increase by over 4 minutes – for example between Tualatin High School and Bridgeport Village, between 115th Avenue and Bridgeport Village, and between Bridgeport Village and Cipole Road. One destination pairing (Bridgeport Village to Bridgeport Elementary) saw a travel time increase of 6 minutes.

Figure 2. Intersection Operations, Future (2035) "No Build" Conditions

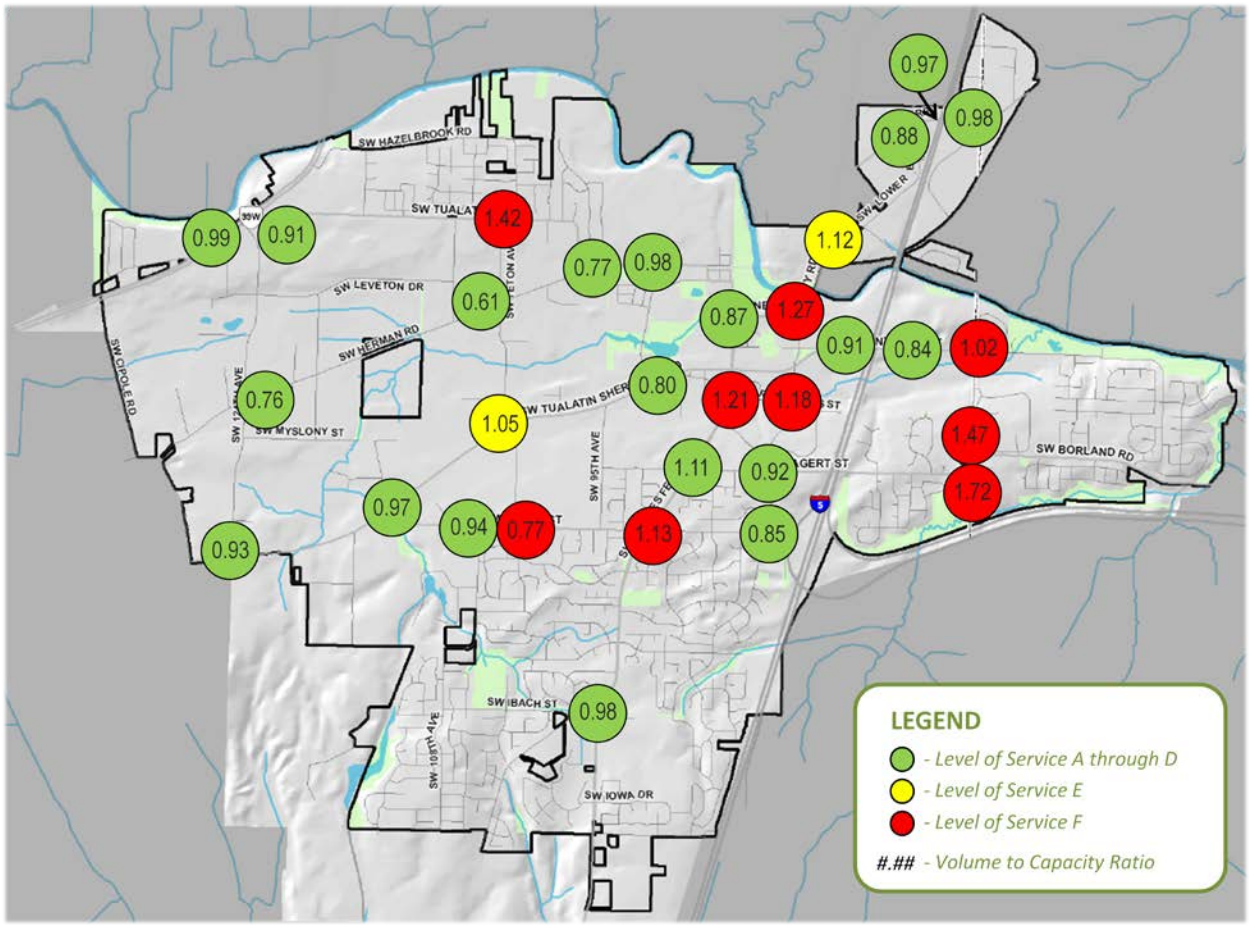


TABLE 2
Future (2035) "No Build" P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Existing Conditions
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	+4 min, 45 sec
	Bridgeport Village	Tualatin High School	12 min, 10 sec	+3 min
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	+2 min, 15 sec
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	+1 min, 5 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	13 minutes	+4 min, 25 sec
	Bridgeport Village	115th Avenue	11 min, 40 sec	+3 min, 10 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 35 sec	+2 min, 35 sec
	Nyberg Interchange	115th Avenue	10 min, 25 sec	+1 min, 45 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	+5 min, 20 sec
	Bridgeport Village	Cipole Road	17 min, 20 sec	+ 4min, 20 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 minutes 35 sec	+2min, 55 sec
	Nyberg Interchange	Cipole Road	11 min, 50 sec	+1 min, 45 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	+15 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	+1 min, 10 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Bridgeport Village	12 min, 55 sec	+3 min, 45 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	+6 min

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)
NOTE: All travel times are rounded to the nearest 5 seconds

Scenario 3: Future "Low Build"

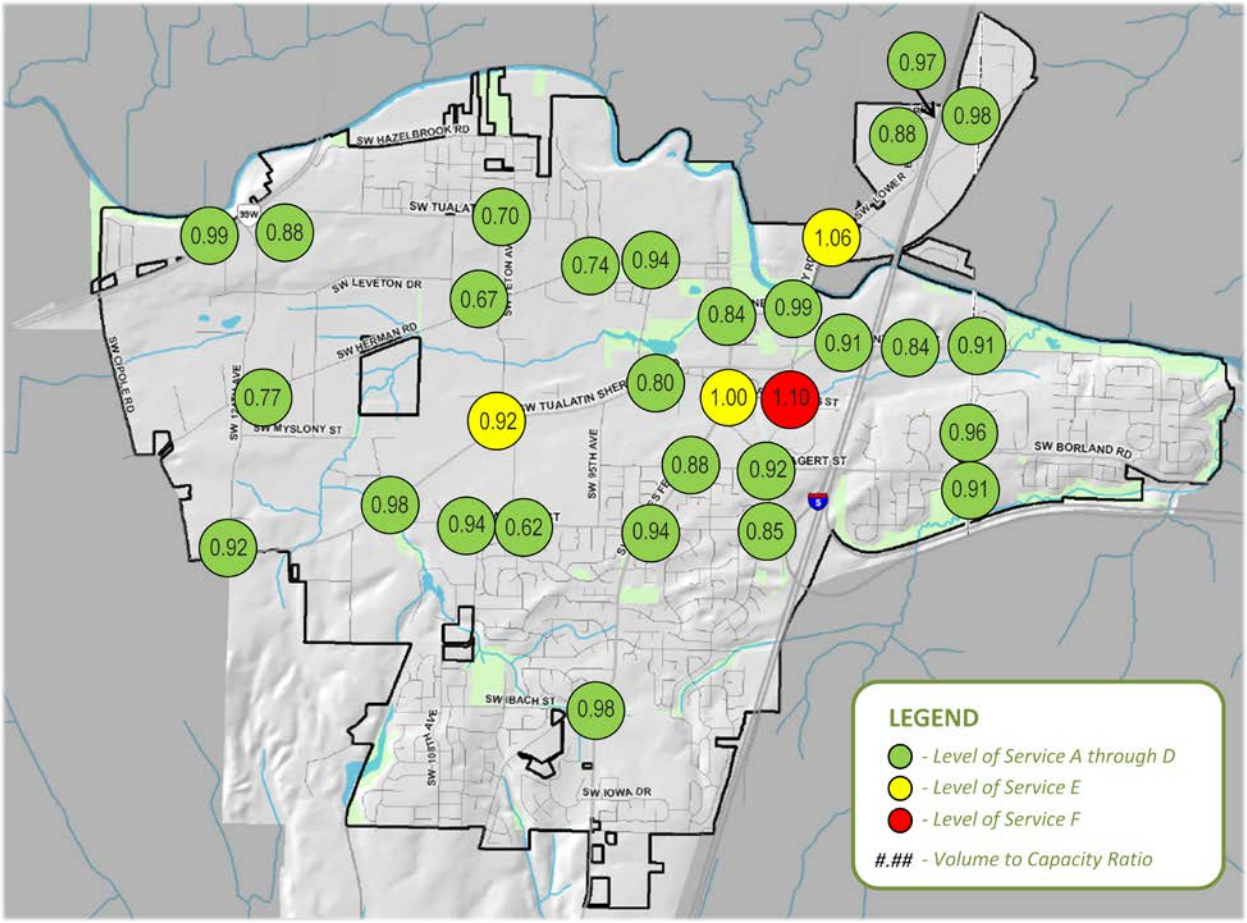
Traffic Operations

As described above, the future "low build" scenario serves as a starting point that represents all of the roadway infrastructure projects agreed to by the Task Force, Planning Commission, Tualatin Parks Advisory Committee, and City Council through the project evaluation and refinement area evaluation phases of the TSP. These include widening Tualatin-Sherwood Road between Cipole and Teton Roads, widening Teton Road to three lanes, and other intersection-specific treatments.

Raw outputs from the traffic model Synchro (as shown in Appendix A) indicate that up to ten study intersections have a v/c higher than 1.0 and/or LOS of F. However, intersections can be optimized to improve performance through one or more of these treatments:

- Signal timing adjustments
- Adding a turn lane in one or two directions (such as an eastbound left-turn lane)
- Restriping an approach lane to allow turn movements from two lanes instead of one
- Restricting a driveway approach to right-in, right-out (only used if traffic volumes entering facility are very low)

Figure 3. Intersection Operations, Future (2035) "Low Build"



With adjustments, traffic operations can improve. As shown in Figure 3, three intersections would operate with v/c at or higher than 1.0; two of these (Boones Ferry Road/Lower Boones Ferry Road and Boones Ferry Road/Tualatin-Sherwood Road) would operate at an LOS E and one (Boones Ferry Road

and Martinazzi Avenue) operates at an LOS F. One additional intersection (Tualatin-Sherwood Road and Teton Avenue) would operate at an LOS E, but meets Washington County standards with a v/c of 0.92.

Travel Times

Travel times are summarized in Table 3 for the future (Year 2035) "low build" scenario.

TABLE 3
Future (2035) "Low Build" P.M. Peak Period (4:00 a.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	No difference
	Bridgeport Village	Tualatin High School	12 min, 10 sec	No difference
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	13 min, 30 sec	+30 sec
	Bridgeport Village	115th Avenue	12 minutes	+20 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 50 sec	+25 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	No difference
	Bridgeport Village	Cipole Road	17 min, 25 sec	+5 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65th Ave	Bridgeport Elementary	Bridgeport Village	12 min, 50 sec	-5 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	No difference

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)
NOTE: All travel times are rounded to the nearest 5 seconds

Travel times in the north-south direction would not change from the "no build" condition, and would increase slightly over the "no build" condition in the east-west direction.

Scenario 4: Future "Low Build" with 65th Avenue Extension

Traffic Operations

Scenario 4 is the future "low build" (Scenario 3) with the extension of 65th Avenue to the north over the Tualatin River. Under this scenario, the cross section of 65th Avenue would remain three lanes between Nyberg Road and Sagert Street and then transition to two lanes south of Sagert Street. The northerly extension would involve three lanes transitioning to a two-lane bridge over the Tualatin River, connecting with 65th Avenue in Rivergrove in the vicinity of Childs Road.

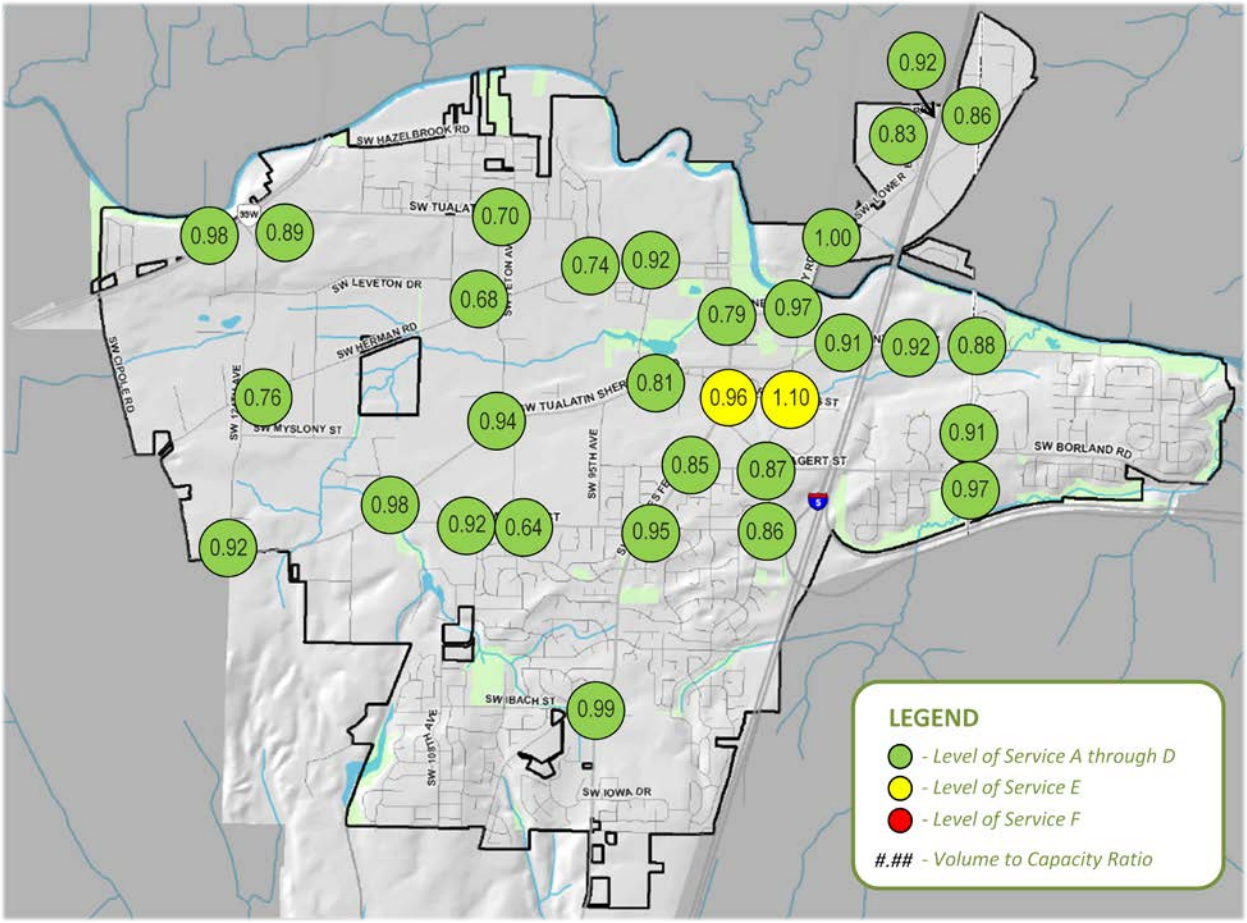
Raw outputs from the traffic model Synchro, as shown in Appendix A, indicate that up to 10 study intersections would have a v/c higher than 1.0 and/or LOS of F. However, when optimized to improve performance, traffic operations would improve. Figure 4 illustrates the traffic operations at all study intersections. Those intersections which show an improvement over the "low build" scenario alone are highlighted in Table 4 below.

TABLE 4
Future (2035) Operational Analysis Comparison between Scenario 3 and Scenario 4

	Scenario 3 ("Low Build")		Scenario 4 ("Low Build" with 65th Extension)	
	LOS	V/C	LOS	V/C
I-5 NB Ramps and SW Lower Boones Ferry Road	D	0.98	C	0.86
I-5 SB Ramps and SW Lower Boones Ferry Road	D	0.97	D	0.92
SW 72nd Avenue and Lower Boones Ferry Road and Bridgeport Road	D	0.88	D	0.83
SW Boones Ferry Road and SW Lower Boones Ferry Road	E	1.12	D	1.00
SW Tualatin Road and SW Boones Ferry Road	C	0.87	C	0.79
SW Boones Ferry Road and SW Tualatin-Sherwood Road	F	1.21	E	0.96

Scenario 4 shows only one intersection (Boones Ferry Road/Martinazzi Avenue) operating with v/c higher than 1.0, and one intersection (Boones Ferry Road/Lower Boones Ferry Road) operates at a v/c of a 1.0. No intersections would operate with an LOS F. Two intersections (Boones Ferry Road/Martinazzi Avenue and Boones Ferry Road/Tualatin-Sherwood Road) would operate at an LOS E. In this scenario, Boones Ferry Road/Tualatin-Sherwood Road would meet Washington County standards with a v/c of 0.96.

Figure 4. Intersection Operations, Future (2035) "Low Build" with 65th Avenue Extension



Traffic Volume Shifts

In this scenario, traffic volumes would shift to 65th Avenue and drivers would use the new crossing between Tualatin and Lake Oswego/Rivergrove. Moderate increases in traffic volumes would occur along 65th Avenue between Nyberg Street and Sagert Street and between Childs Road and Lakeview Boulevard. Minor increases in traffic would occur south of Sagert Street to Norwood Road, along Childs Road, along Sagert Street, and along Nyberg Road east of 65th Avenue. Traffic volumes would decrease along I-5 between the Lower Boones Ferry Road and Nyberg Road interchanges, which indicates that some drivers would take I-5 for short, local trips in this location. Minor to moderate traffic decreases would also occur on Boones Ferry Road between Lower Boones Ferry Road and Sagert Street and along Stafford Road.

Travel Times

Travel times are summarized in Table 5 below for the future (Year 2035) "low build" scenario with an extension of 65th Avenue over the Tualatin River.

TABLE 5
Future (2035) "Low Build" with 65th Avenue Extension P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Future "No Build"
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 20 sec	-50 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	10 min	+20sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 20 sec	-40 sec
	Bridgeport Village	115th Avenue	11 min, 25 sec	-15 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	11 min, 10 sec	+35 sec
	Nyberg Interchange	115th Avenue	11 min	+35 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	16 min	-1 min
	Bridgeport Village	Cipole Road	16 min 25 sec	-55 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	12 min	+25 sec
	Nyberg Interchange	Cipole Road	12 min, 25 sec	+40 sec
SW Borland Road/65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road/65th Ave	Bridgeport Elementary	Bridgeport Village	10 min, 40 sec	-2 min, 15 sec
	Bridgeport Village	Bridgeport Elementary	12 min, 10 sec	-2 min, 15 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times have been rounded to the nearest 5 seconds

Travel times would decrease under this scenario by approximately 1 minute among various destination pairs. This difference is most notable for travel times extending through Tualatin either north-south or east-west. This is due to the fact that the main east-west pairing would actually extend northward along Boones Ferry Road and would benefit from the lower traffic volumes on Boones Ferry Road. In addition, however, travel times between Bridgeport Elementary School near Borland Road and 65th Avenue and Bridgeport Village would decrease by more than 2 minutes in both directions (northbound and southbound).

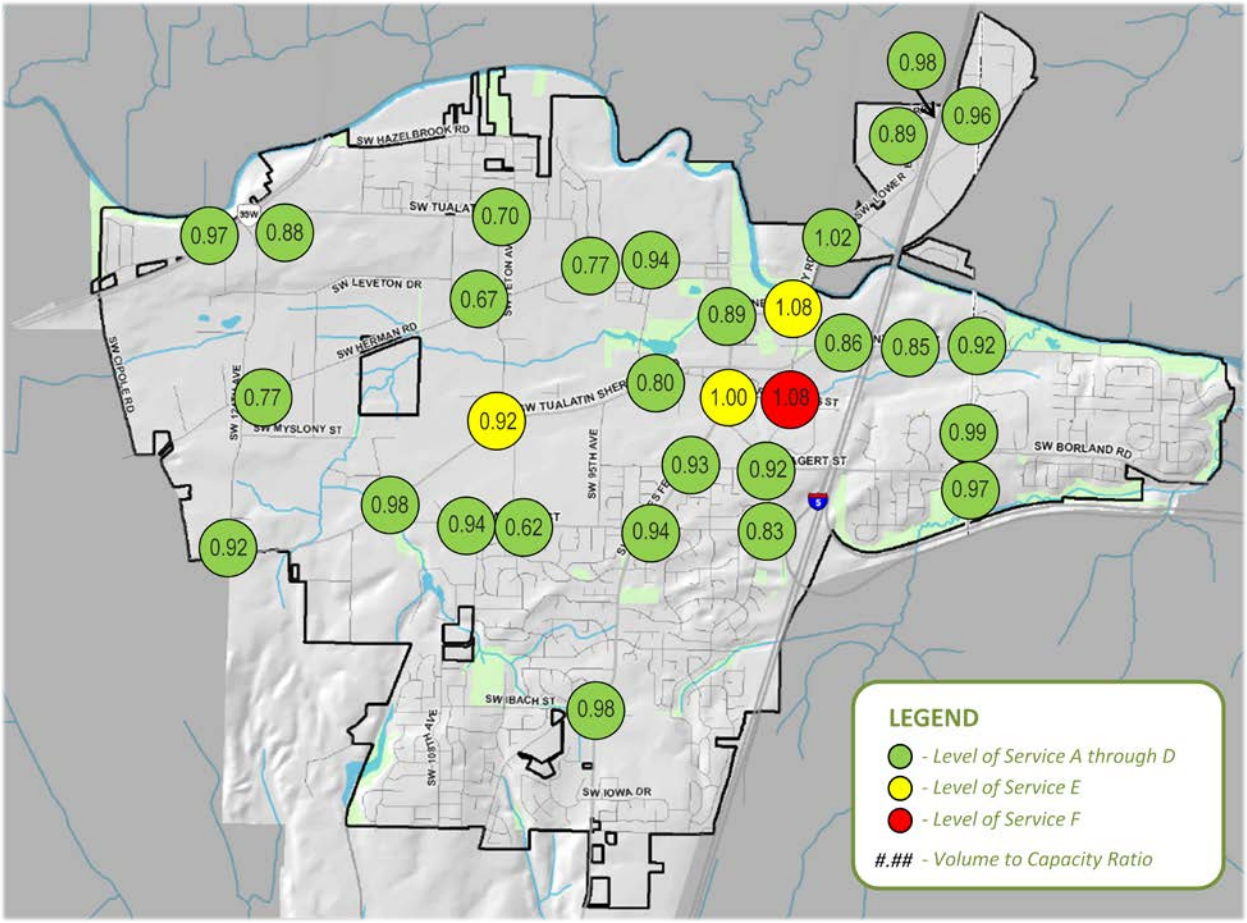
Scenario 5: Future "Low Build" with Boones Ferry Road Widening

Traffic Operations

Scenario 5 is the future "low build" (Scenario 3) with the widening of Boones Ferry Road to five lanes north of Martinazzi Avenue. Under this scenario, the cross section of 65th Avenue would remain three lanes between Nyberg Road and Sagert Street and not be extended north over the Tualatin River. Boones Ferry Road would be widened to a five lane section between Martinazzi at the south and Lower Boones Ferry Road at the north, replacing the existing two lane structure over the Tualatin River with a four lane structure.

Raw outputs from the traffic model Synchro (as shown in Appendix A) indicate that up to 12 study intersections would have a v/c higher than 1.0 and/or LOS of F. However, when optimized to improve performance, traffic operations would improve so that 4 intersections operate at a v/c at or above 1.0. As shown in Figure 5, these are: Boones Ferry Road/Tualatin-Sherwood Road, Martinazzi Avenue/Tualatin-Sherwood Road, Martinazzi Avenue/Boones Ferry Road, and Boones Ferry Road/Lower Boones Ferry Road. In this scenario, Boones Ferry Road/Lower Boones Ferry Road improves slightly but not sufficiently by itself to meet ODOT standards. In addition, conditions worsen at the intersection of Martinazzi/Boones Ferry Road as this intersection represents where the cross section tapers back to its original three lane section through the heart of downtown Tualatin. Additional volumes cause congestion at this intersection.

Figure 5. Intersection Operations, Future "Low Build" with Boones Ferry Road Widening



Another observation is that traffic diverts in this scenario from Tualatin-Sherwood Road to Sagert Street, as it becomes quicker to stay on Boones Ferry Road. This worsens conditions slightly along Sagert Street, as seen at both the Boones Ferry Road and 65th Avenue intersections. However, conditions improve slightly along Tualatin-Sherwood Road between Boones Ferry Road and 65th Avenue.

Traffic Volume Shifts

Widening this segment of Boones Ferry Road diverts trips from I-5 to Boones Ferry Road between the Lower Boones Ferry Road and Tualatin-Sherwood Road interchanges. Shifts are moderate on Boones Ferry Road between Tualatin Road and Lower Boones Ferry Road, and minor north and south of these intersections.

Travel Times

Travel times for Scenario 5 are highlighted in Table 6 below.

TABLE 6
Future (2035) "Low Build" with Boones Ferry Road Widening P.M. Peak Period (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin HS	11 min, 30 sec	-40 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin HS	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 30 sec	-30 sec
	Bridgeport Village	115th Avenue	11 min, 20 sec	-20 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 40 sec	+15 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	15 min, 50 sec	-1 min, 10 sec
	Bridgeport Village	Cipole Road	16 min, 40 sec	-40 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65th Avenue	Bridgeport Elementary	Nyberg Interchange	3 min, 25 sec	+5 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65th Avenue	Bridgeport Elementary	Bridgeport Village	12 min, 10 sec	-45 sec
	Bridgeport Village	Bridgeport Elementary	13 min, 40 sec	-45 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)
NOTE: All travel times are rounded to the nearest 5 seconds

The travel time savings associated with this scenario are similar to what is seen under Scenario 4 ("low build" with 65th Avenue extension), with the notable exception of travel times between Bridgeport Elementary School in the vicinity of 65th Avenue / Borland Road and Bridgeport Village. Scenario 4 sees a travel time savings of over 2 minutes due to the extension of 65th Avenue whereas Scenario 5 sees a 45 second travel time increase. Other destination pairings, such as Tualatin High School/ Bridgeport Village, and Cipole Road/Bridgeport Village, see over a 1 minute travel time savings due to the widening of Boones Ferry Road.

Scenario 6: Future "Low Build" with 65th Avenue Extension and Boones Ferry Road Widening

Traffic Operations

Scenario 6 illustrates traffic operations when both Boones Ferry Road is widened north of Martinazzi Avenue and when 65th Avenue is extended northward over the Tualatin River. Raw outputs from the Synchro model show that up to nine intersections operate at a v/c of 1.0 or an LOS of F. However, by implementing such mitigations as signal timing modifications, restriping, and turn pockets at intersections, operations can be improved so that only two intersections (Martinazzi/Tualatin-Sherwood Road and Martinazzi/Boones Ferry Road) would continue to operate within failing conditions. In addition, operations would be much improved at several intersections under this scenario, as shown in the table below.

Although the operations improvements at the intersection of Boones Ferry Road and Tualatin-Sherwood Road would be slight, they would bring the intersection within the 0.99 v/c threshold and are thus reported here. Under this scenario, there would be substantial improvements at the intersection of Boones Ferry Road and Lower Boones Ferry Road and at the intersection of I-5 and Lower Boones Ferry Road, with better mobility from a combination of additional capacity along Boones Ferry Road and an alternate route east of I-5.

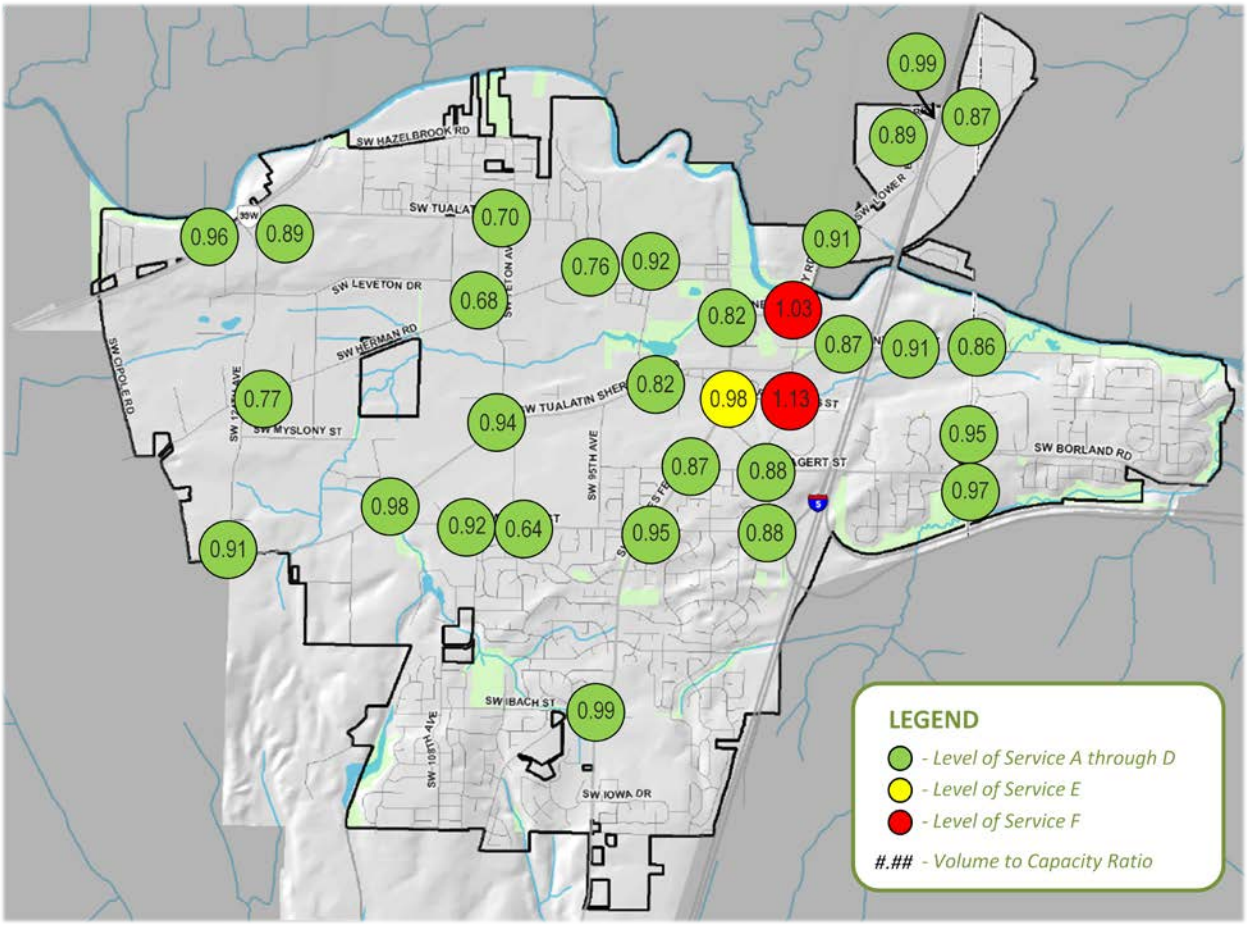
TABLE 7
Future (2035) Operational Analysis Comparison between Scenario 3 and Scenario 6

	Scenario 3 ("Low Build")		Scenario 6 ("Low Build" with 65th Extension and Boones Ferry Road Widening)	
	LOS	V/C	LOS	V/C
Boones Ferry/Tualatin-Sherwood Road	E	1.0	E	0.98
I-5 SB Ramps and Nyberg Road	D	0.91	C	0.87
Boones Ferry Road / Lower Boones Ferry Road	E	1.06	C	0.91
I-5 NB Ramps and Lower Boones Ferry Road	D	0.98	C	0.87
Martinazzi/Sagert	D	0.92	D	0.88
65th/Nyberg	C	0.91	C	0.86

Traffic Volume Shifts

Traffic volumes shift to 65th Avenue under this scenario, though with fewer shifts than under Scenario 4. Moderate increases in traffic volumes would occur along 65th Avenue between Nyberg Street and Sagert Street and between Childs Road and Lakeview Boulevard. Minor increases would continue south of Sagert Street to Norwood Road, along Childs Road, along Sagert Street, and along Nyberg Road east of 65th Avenue. Traffic volumes would decrease along I-5 between the Lower Boones Ferry Road and Nyberg Road interchanges, which indicates that some drivers would take I-5 for short, local trips in this location. Unlike Scenario 4, minor increases would occur on Boones Ferry Road between Lower Boones Ferry Road and Sagert Street, due to the extra capacity along that corridor.

Figure 6. Intersection Operations, Future (2035) "Low Build" with 65th Avenue Extension and Boones Ferry Road Widening



Travel Times

Travel times are summarized in Table 8 below for the future (Year 2035) "low build" scenario with an extension of 65th Avenue over the Tualatin River and a widening of Boones Ferry Road north of Martinazzi.

TABLE 8
Future (2035) "Low Build" with 65th Avenue Extension and Boones Ferry Road Widening P.M. Peak Period (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	12 min, 35 sec	-2 min, 30 sec
	Bridgeport Village	Tualatin High School	10 min, 35 sec	-1 min, 35 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 50 sec	+10 sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	11 min, 30 sec	-1 min, 30 sec
	Bridgeport Village	115th Avenue	10 min, 55 sec	-45 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	11 minutes	+25 sec
	Nyberg Interchange	115th Avenue	10 min, 55 sec	+30 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	14 min, 55 sec	-2 min, 5 sec
	Bridgeport Village	Cipole Road	15 min, 40 sec	-1 min, 40 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 50 sec	+15 sec
	Nyberg Interchange	Cipole Road	12 min, 20 sec	+30 sec
SW Borland Road / 65th	Bridgeport Elementary	Nyberg Interchange	3 min, 30 sec	+10 sec

TABLE 8
Future (2035) "Low Build" with 65th Avenue Extension and Boones Ferry Road Widening P.M. Peak Period (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
Avenue	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65th	Bridgeport Elementary	Bridgeport Village	10 min, 25 sec	-2 min, 30 sec
Avenue	Bridgeport Village	Bridgeport Elementary	11 min, 50 sec	-2 min, 35 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)
NOTE: All travel times are rounded to the nearest 5 seconds

Travel time decreases under this scenario would be dramatic for some destination pairings. Between Tualatin High School and Bridgeport Village and between Bridgeport Elementary School and Bridgeport Village, for example, there are travel time savings of greater than 2 minutes. For traffic to and from the west (Tualatin Road, Cipole Road, 115th Avenue), there would be a travel time savings greater than a minute.

Conclusions

Looking at the six scenarios as a whole, we see that Tualatin is somewhat congested now, and becomes very congested in the future. The main roadways of Tualatin-Sherwood Road, Boones Ferry Road, 65th Avenue, Teton Avenue, and SW Avery Street bear the burden of this congestion, as observed in both intersection operations and travel times. In some locations, it is expected to take 6 minutes longer to travel across town than it does today.

The "low build" scenario does a fair job of mitigating intersection level problems. Adding signals, restriping lanes, and adding turn pockets by themselves can move cars more quickly through any given intersection but travel times show that conditions on the roadway sections between intersections remain congested. "Low build" travel times are no different than those seen under future no build.

Scenario 4, which combines the "low build" projects with the 65th Avenue extension, improves both intersection conditions and travel times. Travel time savings are seen for cross-town trips in both the north/south and east/west direction, but are most dramatic in the vicinity of 65th Avenue (between Bridgeport Elementary School and Bridgeport Village), where travel time reductions are in excess of two minutes.

Scenario 5, which combines the "low build" with widening Boones Ferry Road north of Martinazzi, displays similar travel time benefits to Scenario 4 except for this last pairing, which is purely a benefit of the 65th Avenue extension. Scenario 5 maintains much of the intersection level operations as under the "low build" and improves conditions at the Boones Ferry Road/Lower Boones Ferry Road intersection through additional capacity. Conditions at the Boones Ferry Road/Martinazzi Avenue intersection are worsened because this is the location that the roadway transitions back to its existing three lane section.

Scenario 6 intersection operations show that more traffic flows along Boones Ferry Road, but that capacity projects at Boones Ferry Road / Lower Boones Ferry Road accommodate some of this traffic. Operations from Scenario 6 are improved along sections of Tualatin-Sherwood Road, Boones Ferry Road, and along 65th Avenue. Of concern for Scenario 6 are the two Martinazzi intersections (Boones Ferry Road and Tualatin-Sherwood Road) which experience worsened traffic congestion in the afternoon rush hour. When intersection conditions are considered in combination with travel time savings, Scenario 6 benefits Tualatin more than any other scenario. Travel time savings in the north/south and east/west

directions are in excess of 2 minutes (Tualatin High School/Bridgeport Village, Cipole Road/Bridgeport Village, Bridgeport Elementary School/Bridgeport Village).

Next Steps

The Tualatin TSP is available in draft form as all project, program, and policy recommendations have been identified apart from the two river crossings described in this memorandum. At its next meeting, the Transportation Task Force will use the traffic analysis results to make a recommendation on which, if any, river crossing projects should be included in the TSP. This recommendation will then be taken into consideration by the Tualatin Planning Commission, Tualatin Parks Advisory Committee, and City Council as they begin deliberations on the TSP package as a whole.

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Appendix A: Traffic Operations and Travel Times Data

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APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (Without Intersection Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011 LOS	2011 V/C	2035 No-Build LOS	2035 No-Build V/C	2035 Low-Build w/out 65th LOS	2035 Low-Build w/out 65th V/C	2035 Low-Build w/out 65th & w/BFR widened LOS	2035 Low-Build w/o 65th & w/BFR widened V/C	2035 Low-Build w/2-lane 65th LOS	2035 Low-Build w/2-lane 65th V/C	2035 Low-Build with 2-lane 65th & w/BFR widened LOS	2035 Low-Build with 2-lane 65th & w/BFR widened V/C
Signalized														
SW 124th Ave & Hwy 99W	ODOT	0.99	C	0.69	D	0.99	D	0.99	D	0.97	D	0.98	D	0.96
SW 124th Ave & SW Tualatin Rd	Tualatin	D	B	0.66	C	0.91	C	0.88	C	0.88	C	0.89	C	0.89
SW 124th Ave & SW Herman Rd	Tualatin	D	C	0.53	C	0.76	C	0.77	C	0.77	C	0.76	C	0.77
SW 124th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.90	C	0.93	C	0.92	C	0.92	C	0.92	C	0.91
SW Avery St & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	B	0.71	D	0.97	D	0.98	D	0.98	D	0.98	D	0.98
SW Teton Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.79	E	**1.05**	E	**1.05**	E	**1.05**	E	**1.07**	E	**1.06**
SW 90th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.60	C	0.80	C	0.80	C	0.80	D	0.81	D	0.82
SW Boones Ferry Rd & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.93	F	**1.21**	F	**1.19**	F	**1.17**	F	**1.18**	F	**1.18**
SW Martinazzi Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.94	F	**1.18**	F	**1.17**	F	**1.15**	F	**1.23**	F	**1.19**
I-5 SB Ramps & SW Nyberg Rd	ODOT	0.99	D	0.79	D	0.91	D	0.91	D	0.86	C	0.91	C	0.87
I-5 NB Ramps & SW Nyberg Rd	ODOT	0.99	B	0.68	C	0.84	C	0.84	C	0.85	C	0.92	C	0.91
SW 65th Ave & SW Borland Rd	Wash. Co.	0.99	D	0.93	F	**1.47**	F	**1.47**	F	**1.47**	F	**1.54**	F	**1.52**
SW Teton Ave & SW Herman Rd	Tualatin	D	C	0.65	B	0.61	C	0.67	C	0.67	C	0.68	C	0.68
SW Tualatin Rd & SW Herman Rd	Tualatin	D	B	0.59	B	0.77	B	0.74	B	0.77	B	0.74	B	0.76
SW 90th Ave & SW Tualatin Rd	Tualatin	D	B	0.75	D	0.98	C	0.94	C	0.94	C	0.92	C	0.92
SW Tualatin Rd & SW Boones Ferry Rd	Wash. Co	0.99	B	0.62	C	0.87	C	0.84	C	0.89	C	0.79	C	0.82
SW Martinazzi Ave & SW Boones Ferry Rd	Wash. Co	0.99	D	0.89	F	**1.27**	F	**1.27**	F	**1.24**	F	**1.20**	F	**1.18**
SW Boones Ferry Rd & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.76	E	**1.12**	E	**1.12**	D	**1.05**	D	**1.00**	C	0.91
SW 72nd Ave & Lower Boones Ferry Rd & Bridgeport Rd	Wash. Co	0.99	C	0.66	D	0.88	D	0.88	D	0.89	D	0.83	D	0.89
I-5 SB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.75	D	0.97	D	0.97	D	**1.03**	D	0.92	D	0.99
I-5 NB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	B	0.74	D	0.98	D	0.98	D	**1.00**	C	0.86	C	0.87
SW Boones Ferry Rd & SW Avery St	Wash. Co.	0.99	C	0.87	F	**1.13**	F	**1.13**	F	**1.20**	F	**1.17**	F	**1.17**
SW Boones Ferry Rd & SW Sagert St	Wash. Co.	0.99	C	0.75	E	**1.11**	E	**1.11**	F	**1.13**	E	**1.09**	E	**1.07**
SW Boones Ferry Rd & SW Ibach St	Wash. Co.	0.99	B	0.70	D	0.98	D	0.98	D	0.98	D	0.99	D	0.99
SW 105th Ave & SW Avery St[2]	Tualatin	E	C	0.28	C	0.94	C	0.94	C	0.94	C	0.92	C	0.92
SW Martinazzi Ave & SW Sagert St[3]	Tualatin	E	**F**	0.95	D	0.92	D	0.92	D	0.93	D	0.87	D	0.88
SW 65th Ave & SW Nyberg Rd	Wash. Co	0.99	B	0.79	D	**1.02**	D	**1.02**	D	**1.02**	F	**1.50**	F	**1.41**

[2] Existing Conditions operations evaluated with minor street stop control.
[3] Existing Conditions operations evaluated with minor street stop control. HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the three lanes (one dedicated to each movement) are combined into two: through-right and through-left lanes. Because of this approximation, actual performance may be slightly better than reported above.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (Without Intersection Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011 LOS	2011 V/C	2035 No-Build LOS	2035 No-Build V/C	2035 Low-Build w/out 65th LOS	2035 Low-Build w/out 65th V/C	2035 Low-Build w/out 65th & w/BFR widened LOS	2035 Low-Build w/o 65th & w/BFR widened V/C	2035 Low-Build w/2-lane 65th LOS	2035 Low-Build w/2-lane 65th V/C	2035 Low-Build with 2-lane 65th & w/BFR widened LOS	2035 Low-Build with 2-lane 65th & w/BFR widened V/C
All-way Stop-control														
SW Martinazzi Ave & SW Avery St*	Tualatin	E	B	0.55	D	0.85	D	0.85	D	0.83	D	0.86	D	0.88
SW Teton Ave & SW Avery St*	Tualatin	E	C	0.40	**F**	0.77	**F**	0.77	**F**	0.77	**F**	0.76	**F**	0.76
SW 65th Ave & SW Sagert St*[4]	Wash. Co.	0.99	F	0.98	F	**1.72**	F	**1.72**	F	**1.72**	F	**1.87**	F	**1.87**
*Minor Street Stop-control**														
SW Teton Ave & SW Tualatin Rd	Tualatin	E	**F**	0.98	**F**	1.42	B**	0.70**	B**	0.70**	B**	0.70**	B**	0.70**

SOURCE: Consultant Team
*LOS and V/C reported for highest delay movement.
**Evaluated as a traffic signal. Assumes construction of traffic signal.
BOLD and highlighted dark grey text indicates meet minimum performance standard is not met

[4] HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the dedicated southbound left turn lane and through lane are combined, due to the relatively small volume on the left turn movement. Because of this approximation, actual performance may be slightly better than reported above.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (With Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011 LOS	2011 V/C	2035 No-Build LOS	2035 No-Build V/C	2035 Low-Build LOS	2035 Low-Build V/C	2035 Low-Build w/BFR widened LOS	2035 Low-Build w/BFR widened V/C	2035 Low-Build (w/2-lane 65th) LOS	2035 Low-Build (w/2-lane 65th) V/C	2035 Low-Build 2-lane 65th & w/BFR widened LOS	2035 Low-Build 2 lane 65th & w/BFR widened V/C	**Mitigation** (identified for Low-Build Scenario w/65th Avenue, unless noted otherwise)
Signalized															
SW 124th Ave & Hwy 99W	ODOT	0.99	C	0.69	D	0.99	D	0.99	D	0.97	D	0.98	D	0.96	
SW 124th Ave & SW Tualatin Rd	Tualatin	D	B	0.66	C	0.91	C	0.88	C	0.88	C	0.89	C	0.89	
SW 124th Ave & SW Herman Rd	Tualatin	D	C	0.53	C	0.76	C	0.77	C	0.77	C	0.76	C	0.77	
SW 124th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.90	C	0.93	C	0.92	C	0.92	C	0.92	C	0.91	
SW Avery St & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	B	0.71	D	0.97	D	0.98	D	0.98	D	0.98	D	0.98	
SW Teton Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.79	E	0.92	E	0.92	E	0.92	D	0.94	D	0.94	Signal Adjustments (Timing and Phasing)
SW 90th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.60	C	0.80	C	0.80	C	0.80	D	0.81	D	0.82	
SW Boones Ferry Rd & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.93	E	**1.02**	E	**1.00**	E	**1.00**	E	0.96	E	0.98	EBR, WBR, SBL pockets & Signal Adjustments
SW Martinazzi Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.94	E	**1.11**	F	**1.10**	F	**1.08**	E	**1.10**	F	**1.13**	EBT, NBR pocket, WBR prohibited & Signal Adjustments
I-5 SB Ramps & SW Nyberg Rd	ODOT	0.99	D	0.79	D	0.91	D	0.91	D	0.86	C	0.91	C	0.87	
I-5 NB Ramps & SW Nyberg Rd	ODOT	0.99	B	0.68	C	0.84	C	0.84	C	0.85	C	0.92	C	0.91	
SW 65th Ave & SW Borland Rd	Wash. Co.	0.99	D	0.93	D	0.96	D	0.96	D	0.99	C	0.91	D	0.95	NBR, WBL pocket & Signal Adjustments. Alternative access for EB approach (closed)
SW Teton Ave & SW Herman Rd	Tualatin	D	C	0.65	B	0.61	C	0.67	C	0.67	C	0.68	C	0.68	
SW Tualatin Rd & SW Herman Rd	Tualatin	D	B	0.59	B	0.77	B	0.74	B	0.77	B	0.74	B	0.76	
SW 90th Ave & SW Tualatin Rd	Tualatin	D	B	0.75	D	0.98	C	0.94	C	0.94	C	0.92	C	0.92	
SW Tualatin Rd & SW Boones Ferry Rd	Wash. Co	0.99	B	0.62	C	0.87	C	0.84	C	0.89	C	0.79	C	0.82	
SW Martinazzi Ave & SW Boones Ferry Rd	Wash. Co	0.99	D	0.89	D	0.99	D	0.99	E	**1.08**	D	0.97	F	**1.03**	Widen BFR east to create 2 EB entry lanes. Alternative access for SB approach (closed.) Restripe lanes & Signal adjustments.
SW Boones Ferry Rd & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.76	E	**1.06**	E	**1.06**	D	**1.02**	D	**1.00**	C	0.91	RIRO on EB approach including prohibiting NBL.
SW 72nd Ave & Lower Boones Ferry Rd & Bridgeport Rd	Wash. Co	0.99	C	0.66	D	0.88	D	0.88	D	0.89	D	0.83	D	0.89	
I-5 SB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.75	D	0.97	D	0.97	D	0.98	D	0.92	D	0.99	
I-5 NB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	B	0.74	D	0.98	D	0.98	D	0.96	C	0.86	C	0.87	
SW Boones Ferry Rd & SW Avery St	Wash. Co.	0.99	C	0.87	D	0.94	D	0.94	D	0.94	D	0.95	D	0.95	EBR, SBR pockets & Signal Adjustments (Timing and Phasing)
SW Boones Ferry Rd & SW Sagert St	Wash. Co.	0.99	C	0.75	D	0.88	D	0.88	D	0.93	D	0.85	D	0.87	NBR pocket & Signal Adjustments (Timing and Phasing)
SW Boones Ferry Rd & SW Ibach St	Wash. Co.	0.99	B	0.70	D	0.98	D	0.98	D	0.98	D	0.99	D	0.99	
SW 105th Ave & SW Avery St[5]	Tualatin	E	C	0.28	C	0.94	C	0.94	C	0.94	C	0.92	C	0.92	
SW Martinazzi Ave & SW Sagert St[6]	Tualatin	E	**F**	0.95	D	0.92	D	0.92	D	0.92	D	0.87	D	0.88	

[5] Existing Conditions operations evaluated with minor street stop control.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (With Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011 LOS	2011 V/C	2035 No-Build LOS	2035 No-Build V/C	2035 Low-Build LOS	2035 Low-Build V/C	2035 Low-Build w/BFR widened LOS	2035 Low-Build w/BFR widened V/C	2035 Low-Build (w/2-lane 65th) LOS	2035 Low-Build (w/2-lane 65th) V/C	2035 Low-Build 2-lane 65th & w/BFR widened LOS	2035 Low-Build 2 lane 65th & w/BFR widened V/C	**Mitigation** (identified for Low-Build Scenario w/65th Avenue, unless noted otherwise)
SW 65th Ave & SW Nyberg Rd	Wash. Co	0.99	B	0.79	C	0.91	C	0.91	C	0.92	C	0.88	C	0.86	Signal timing adjustments.
All-way Stop-control															
SW Martinazzi Ave & SW Avery St*	Tualatin	E	B	0.55	D	0.85	D	0.85	D	0.83	D	0.86	D	0.88	
SW Teton Ave & SW Avery St*	Tualatin	E	C	0.40	**F**	0.77	B**	0.62**	B**	0.62**	B**	0.64**	B**	0.64**	Traffic Signal
SW 65th Ave & SW Sagert St*[7]	Wash. Co.	0.99	F	0.98	D**	0.91**	D**	0.91**	D**	0.97**	D**	0.97**	D**	0.97**	**Traffic Signal & Restripe (NBL, EBL). Alternate access for WB approach (closed)**
*Minor Street Stop-control**															
SW Teton Ave & SW Tualatin Rd	Tualatin	E	**F**	0.98	**F**	1.42	B**	0.70**	B**	0.70**	B**	0.70**	B**	0.70**	Traffic Signal (assumed in Low-Build)

SOURCE: Consultant Team
*LOS and V/C reported for highest delay movement.
**Evaluated as a traffic signal. Assumes construction of traffic signal.
BOLD and highlighted dark grey text indicates meet minimum performance standard is not met

[6] Existing Conditions operations evaluated with minor street stop control. HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the three lanes (one dedicated to each movement) are combined into two: through-right and through-left lanes. Because of this approximation, actual performance may be slightly better than reported above.
[7] HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the dedicated southbound left turn lane and through lane are combined, due to the relatively small volume on the left turn movement. Because of this approximation, actual performance may be slightly better than reported above.

2035 PM Peak Travel Time Comparison by Scenario (minutes)

Corridor	From	To	Existing (2011)	No-Build (2035)	Low-Build	Low-Build w/ Boones Ferry Rd. Widening	Low-Build w/ 65th Extension	Low-Build w/65th Extension & Boones Ferry Rd. Widening
SW Boones Ferry Road	Tualatin HS	Bridgeport Village	10.3	15.1	15.1	13.7	13.7	12.6
	Bridgeport Village	Tualatin HS	9.2	12.2	12.2	11.5	11.3	10.6
SW Boones Ferry Road	Tualatin HS	Nyberg Interchange	7.4	9.7	9.7	9.7	10.0	9.8
	Nyberg Interchange	Tualatin HS	7.1	8.2	8.2	8.2	8.4	8.4
SW Tualatin Road	115th Ave	Bridgeport Village	8.6	13.0	13.5	12.5	12.3	11.5
	Bridgeport Village	115th Ave	8.5	11.7	12.0	11.3	11.4	10.9
SW Tualatin Road	115th Ave	Nyberg Interchange	8.0	10.6	10.9	10.9	11.2	11.0
	Nyberg Interchange	115th Ave	8.7	10.4	10.8	10.7	11.0	10.9
SW Tualatin-Sherwood Road	Cipole Rd	Bridgeport Village	11.7	17.0	17.0	15.8	16.0	14.9
	Bridgeport Village	Cipole Rd	13.0	17.3	17.4	16.7	16.4	15.7
SW Tualatin-Sherwood Road	Cipole Rd	Nyberg Interchange	8.7	11.6	11.6	11.6	12.0	11.8
	Nyberg Interchange	Cipole Rd	10.1	11.8	12.0	12.0	12.4	12.3
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3.1	3.3	3.3	3.4	3.3	3.5
	Nyberg Interchange	Bridgeport Elementary	2.3	3.5	3.5	3.5	3.5	3.5
SW Borland Road / 65th Ave	Bridgeport Elementary	Bridgeport Village	9.2	12.9	12.8	12.2	10.7	10.4
	Bridgeport Village	Bridgeport Elementary	8.4	14.4	14.4	13.7	12.2	11.8

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

2035 PM Peak Travel Time Comparison by Scenario (Percent Change Relative to No-Build Scenario)

Corridor	From	To	Low-Build	Low-Build w/ Boones Ferry Rd. Widening	Low-Build w/ 65th Extension	Low-Build w/ 65th Extension & w/ Boones Ferry Rd. Widening
SW Boones Ferry Road	Tualatin HS	Bridgeport Village	0%	-10%	-9%	-16%
	Bridgeport Village	Tualatin HS	0%	-5%	-8%	-13%
SW Boones Ferry Road	Tualatin HS	Nyberg Interchange	0%	0%	3%	1%
	Nyberg Interchange	Tualatin HS	0%	0%	3%	2%
SW Tualatin Road	115th Ave	Bridgeport Village	3%	-4%	-5%	-12%
	Bridgeport Village	115th Ave	2%	-3%	-3%	-7%
SW Tualatin Road	115th Ave	Nyberg Interchange	3%	3%	6%	4%
	Nyberg Interchange	115th Ave	4%	3%	6%	5%
SW Tualatin-Sherwood Road	Cipole Rd	Bridgeport Village	0%	-7%	-6%	-13%
	Bridgeport Village	Cipole Rd	1%	-4%	-5%	-9%
SW Tualatin-Sherwood Road	Cipole Rd	Nyberg Interchange	0%	0%	4%	2%
	Nyberg Interchange	Cipole Rd	2%	1%	4%	4%
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	0%	1%	0%	4%
	Nyberg Interchange	Bridgeport Elementary	0%	0%	1%	0%
SW Borland Road / 65th Ave	Bridgeport Elementary	Bridgeport Village	0%	-5%	-16%	-19%
	Bridgeport Village	Bridgeport Elementary	0%	-5%	-15%	-18%

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

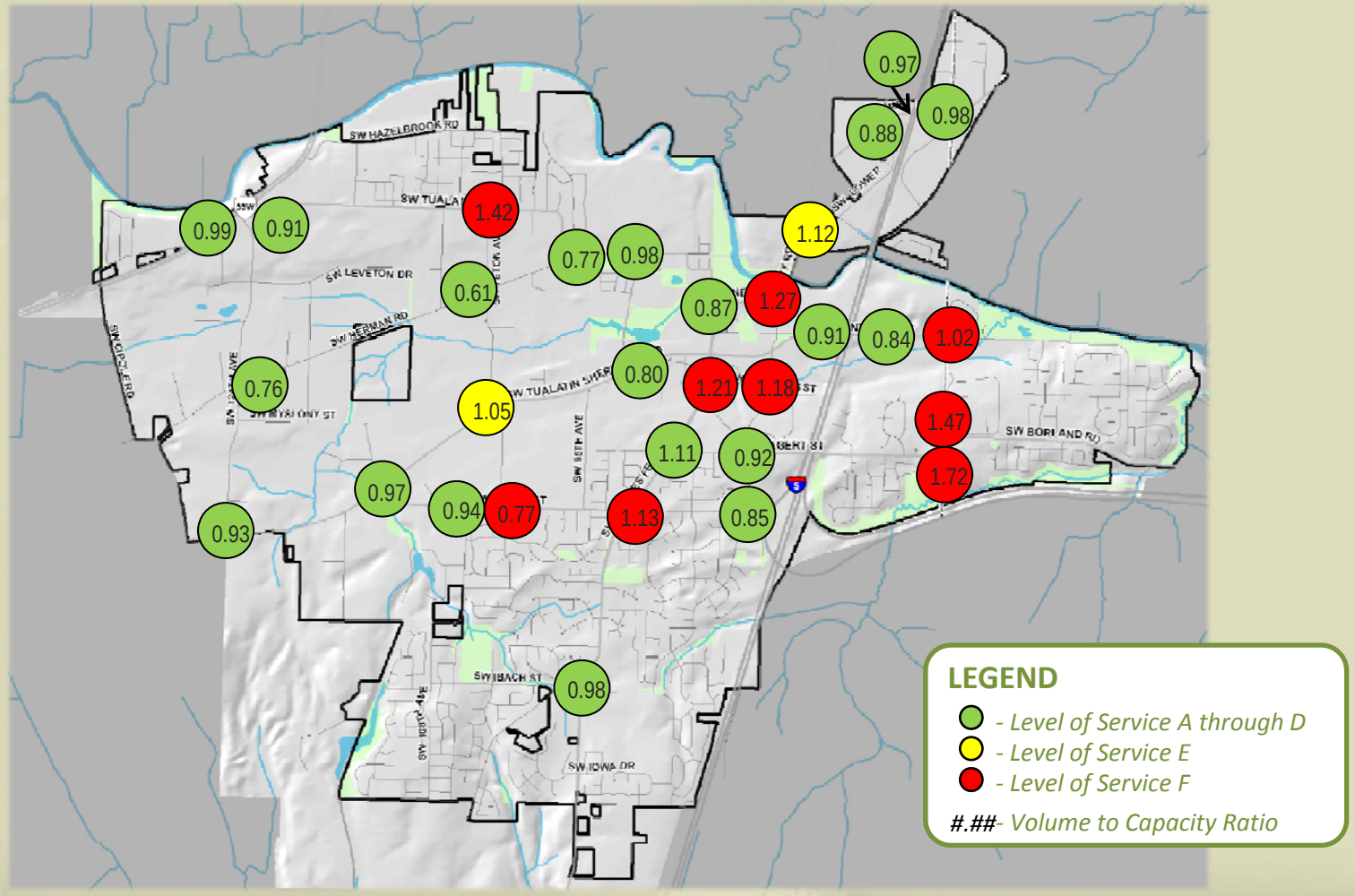
City of Tualatin

Overview of Traffic Analysis

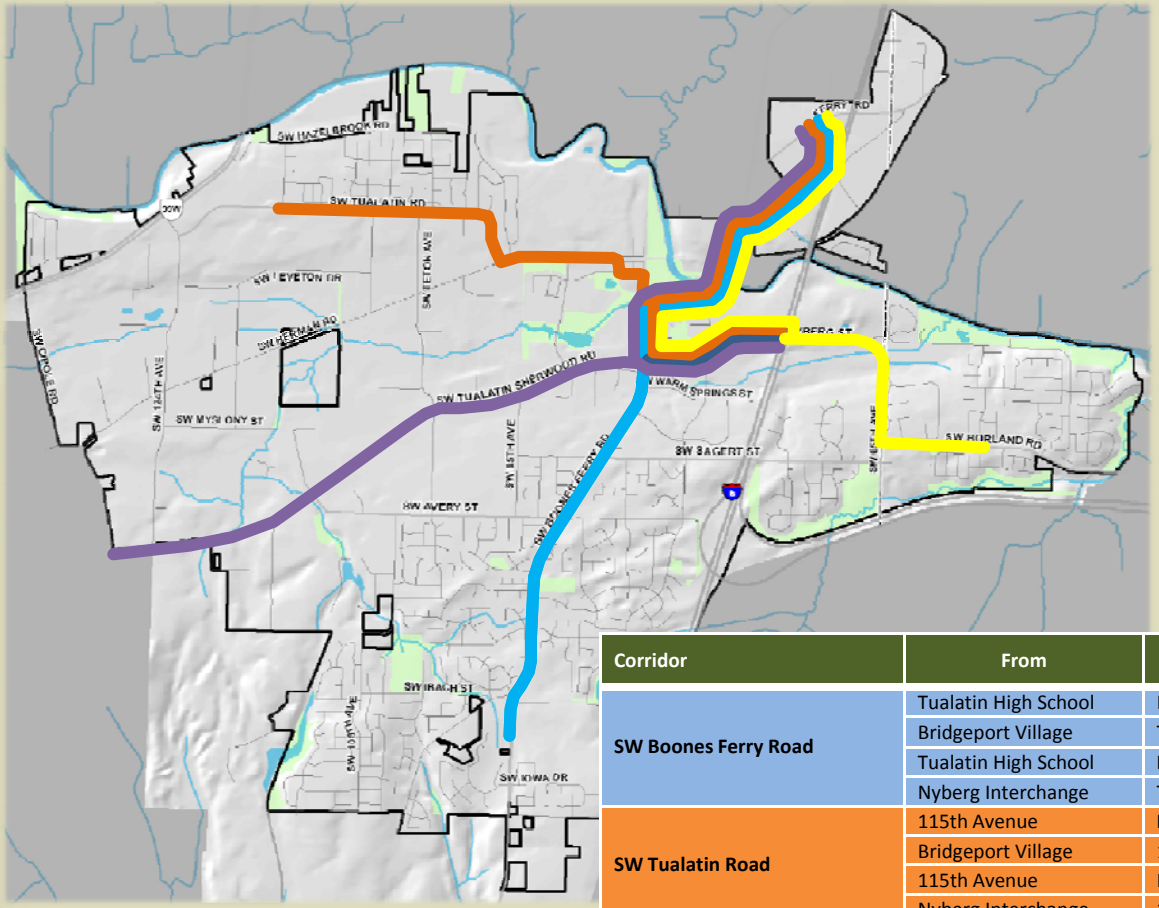
Tualatin TSP

Presentation to
Tualatin Task Force
November 1, 2012

No-build Operations

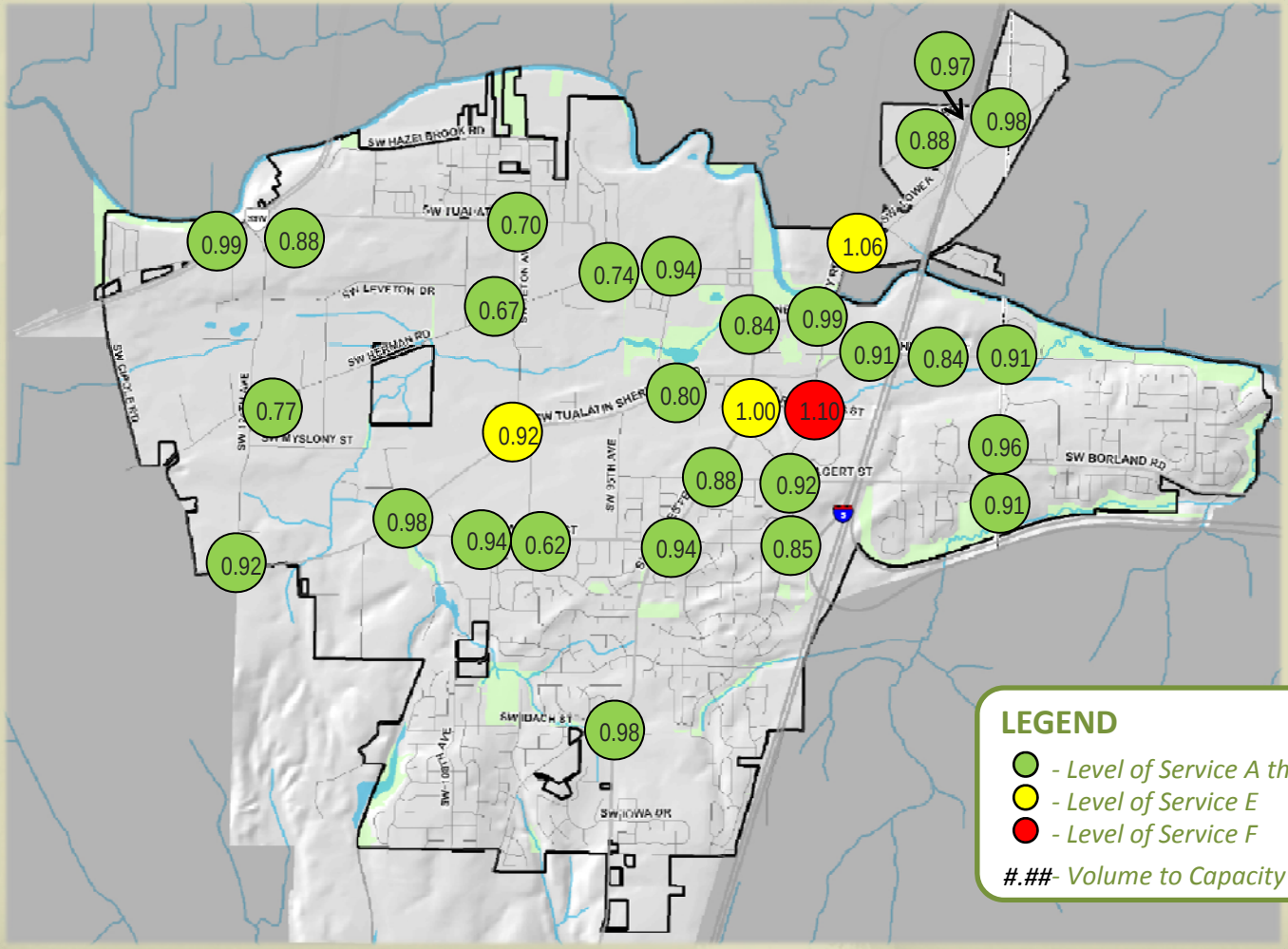


No-build Travel Times

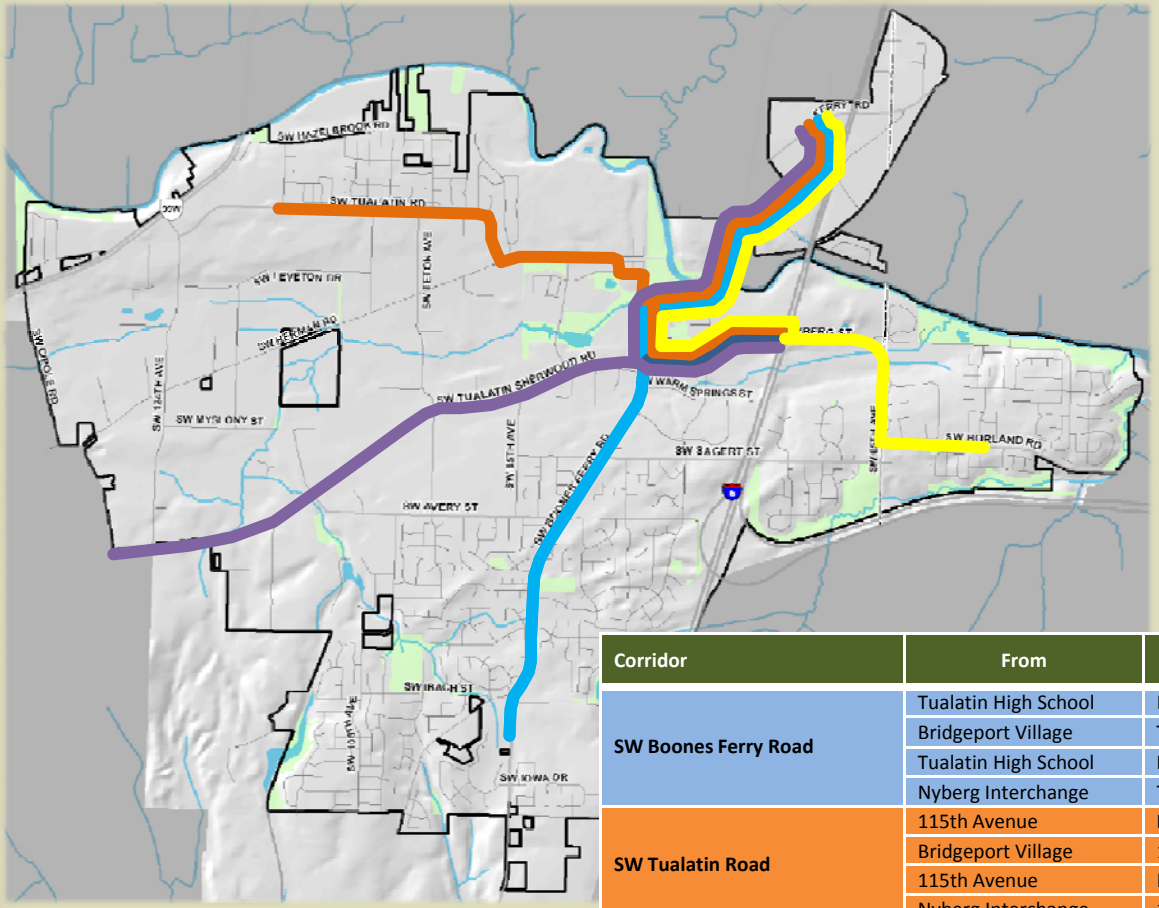


Corridor	From	To	Average Travel Time	Difference from Existing Conditions
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	+4 min, 45 sec
	Bridgeport Village	Tualatin High School	12 min, 10 sec	+3 min
	Tualatin High School	Nyberg Interchange	9 min, 40 sec	+2 min, 15 sec
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	+1 min, 5 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	13 minutes	+4 min, 25 sec
	Bridgeport Village	115th Avenue	11 min, 40 sec	+3 min, 10 sec
	115th Avenue	Nyberg Interchange	10 min, 35 sec	+2 min, 35 sec
	Nyberg Interchange	115th Avenue	10 min, 25 sec	+1 min, 45 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	+5 min, 20 sec
	Bridgeport Village	Cipole Road	17 min, 20 sec	+ 4min, 20 sec
	Cipole Road	Nyberg Interchange	11 minutes 35 sec	+2min, 55 sec
	Nyberg Interchange	Cipole Road	11 min, 50 sec	+1 min, 45 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	+15 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	+1 min, 10 sec
	Bridgeport Elementary	Bridgeport Village	12 min, 55 sec	+3 min, 45 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	+6 min

Low Build Operations



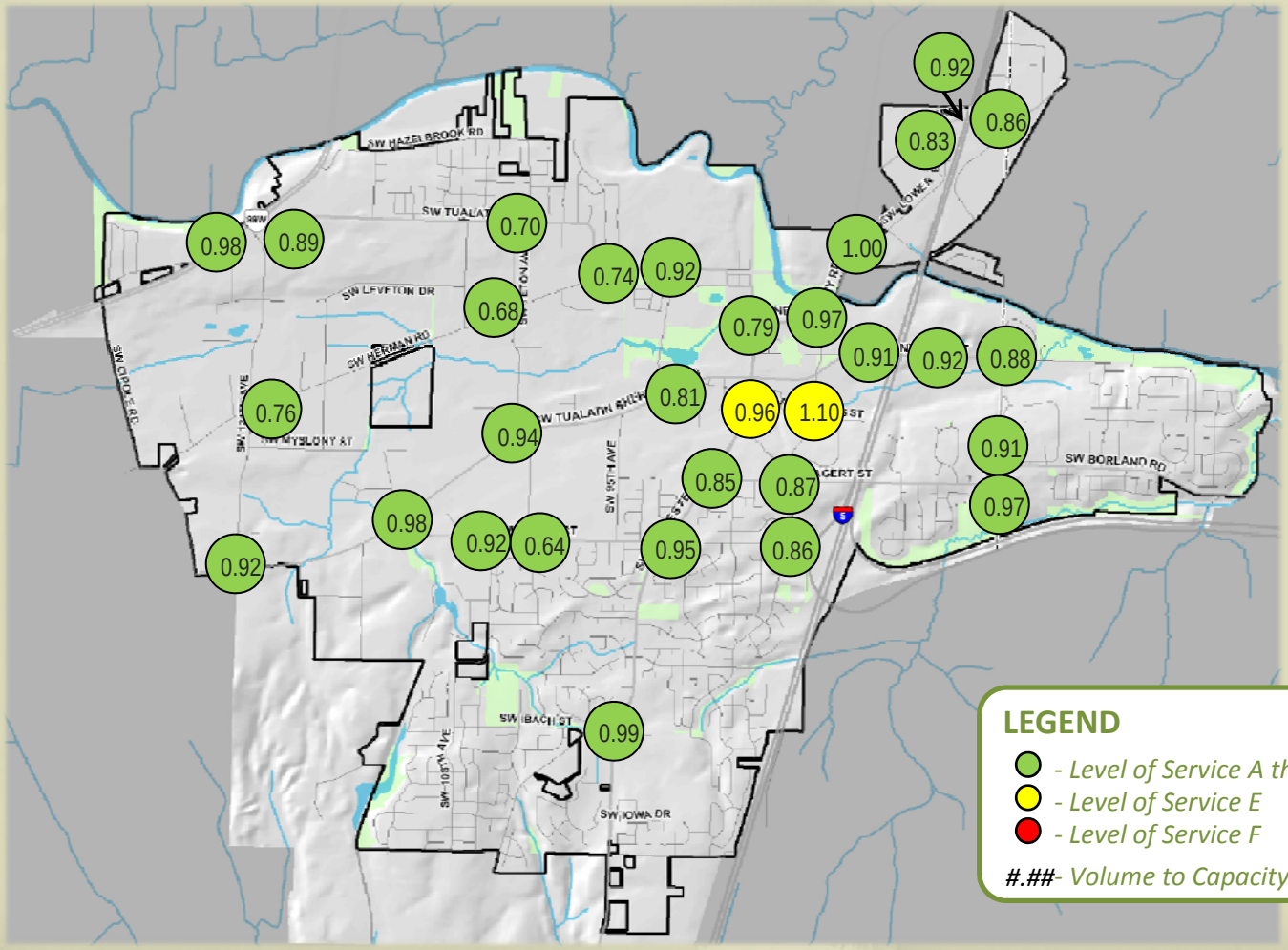
Low Build Travel Times



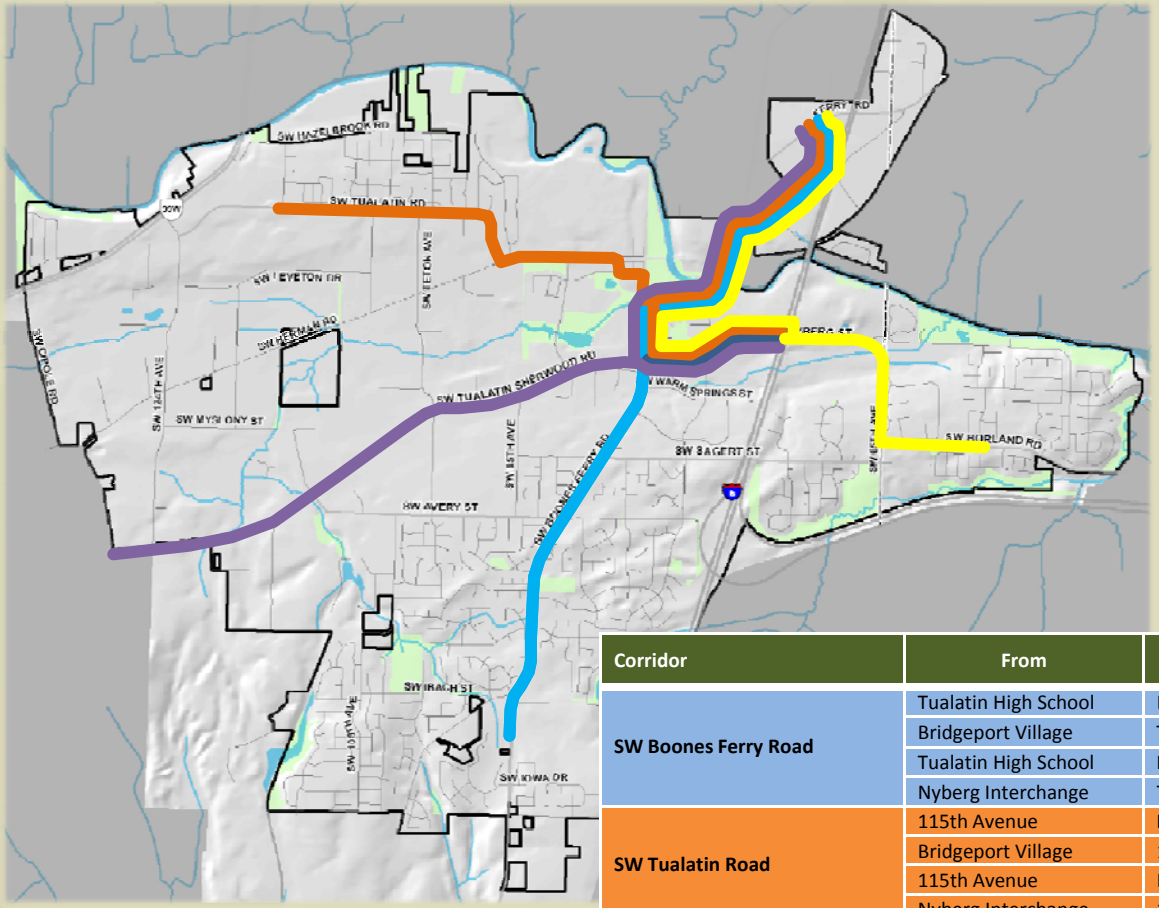
Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	No difference
	Bridgeport Village	Tualatin High School	12 min, 10 sec	No difference
	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	13 min, 30 sec	+30 sec
	Bridgeport Village	115th Avenue	12 minutes	+20 sec
	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 50 sec	+25 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	No difference
	Bridgeport Village	Cipole Road	17 min, 25 sec	+5 sec
	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
	Bridgeport Elementary	Bridgeport Village	12 min, 50 sec	-5 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	No difference

Low Build + 65th Ave Extension Volume Shifts

Low Build + 65th Ave Extension Operations

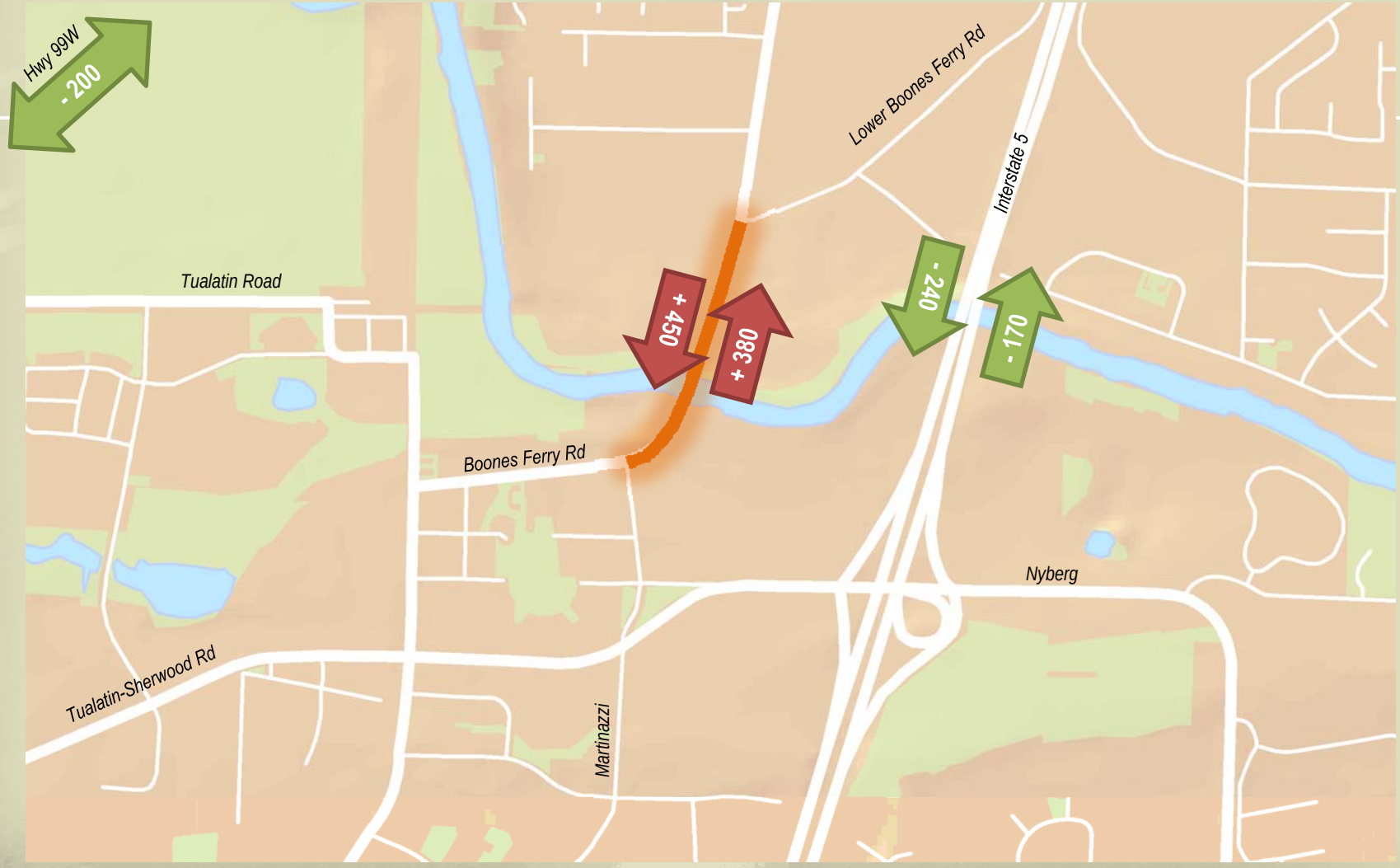


Low Build + 65th Ave Extension Travel Times

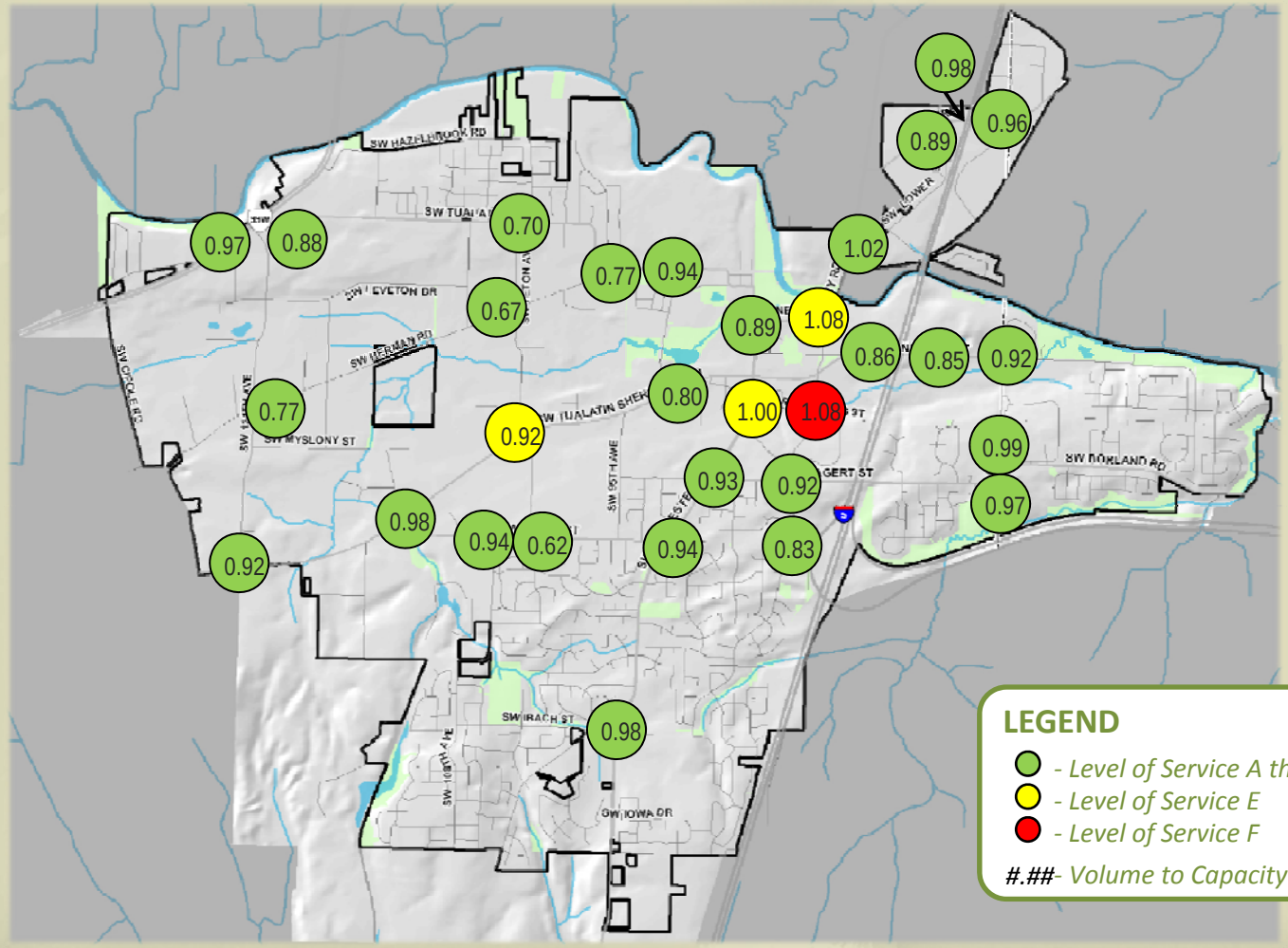


Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 20 sec	-50 sec
	Tualatin High School	Nyberg Interchange	10 min	+20sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 20 sec	-40 sec
	Bridgeport Village	115th Avenue	11 min, 25 sec	-15 sec
	115th Avenue	Nyberg Interchange	11 min, 10 sec	+35 sec
	Nyberg Interchange	115th Avenue	11 min	+35 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	16 min	-1 min
	Bridgeport Village	Cipole Road	16 min 25 sec	-55 sec
	Cipole Road	Nyberg Interchange	12 min	+25 sec
	Nyberg Interchange	Cipole Road	12 min, 25 sec	+40 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
	Bridgeport Elementary	Bridgeport Village	10 min, 40 sec	-2 min, 15 sec
	Bridgeport Village	Bridgeport Elementary	12 min, 10 sec	-2 min, 15 sec

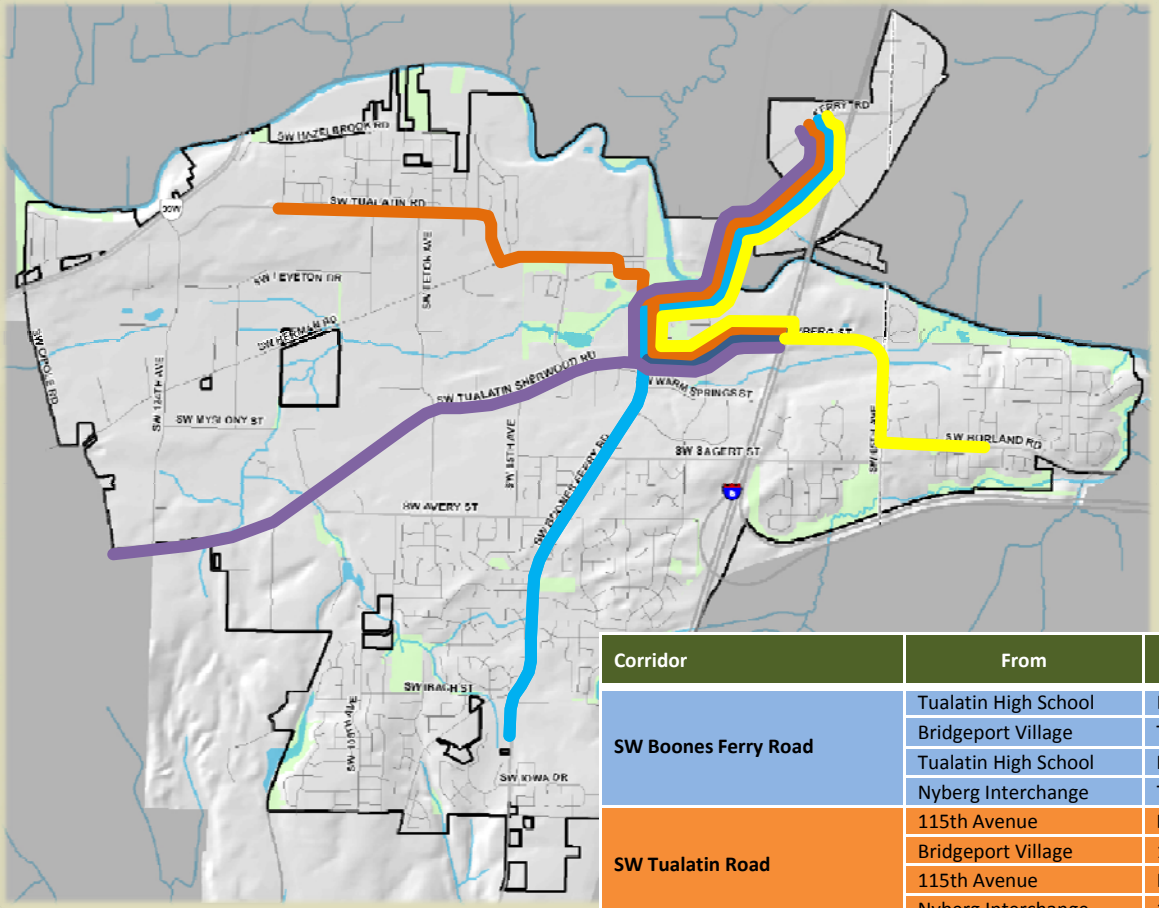
Low Build + Boones Ferry Road Widening Volume Shifts



Low Build + Boones Ferry Road Widening Operations

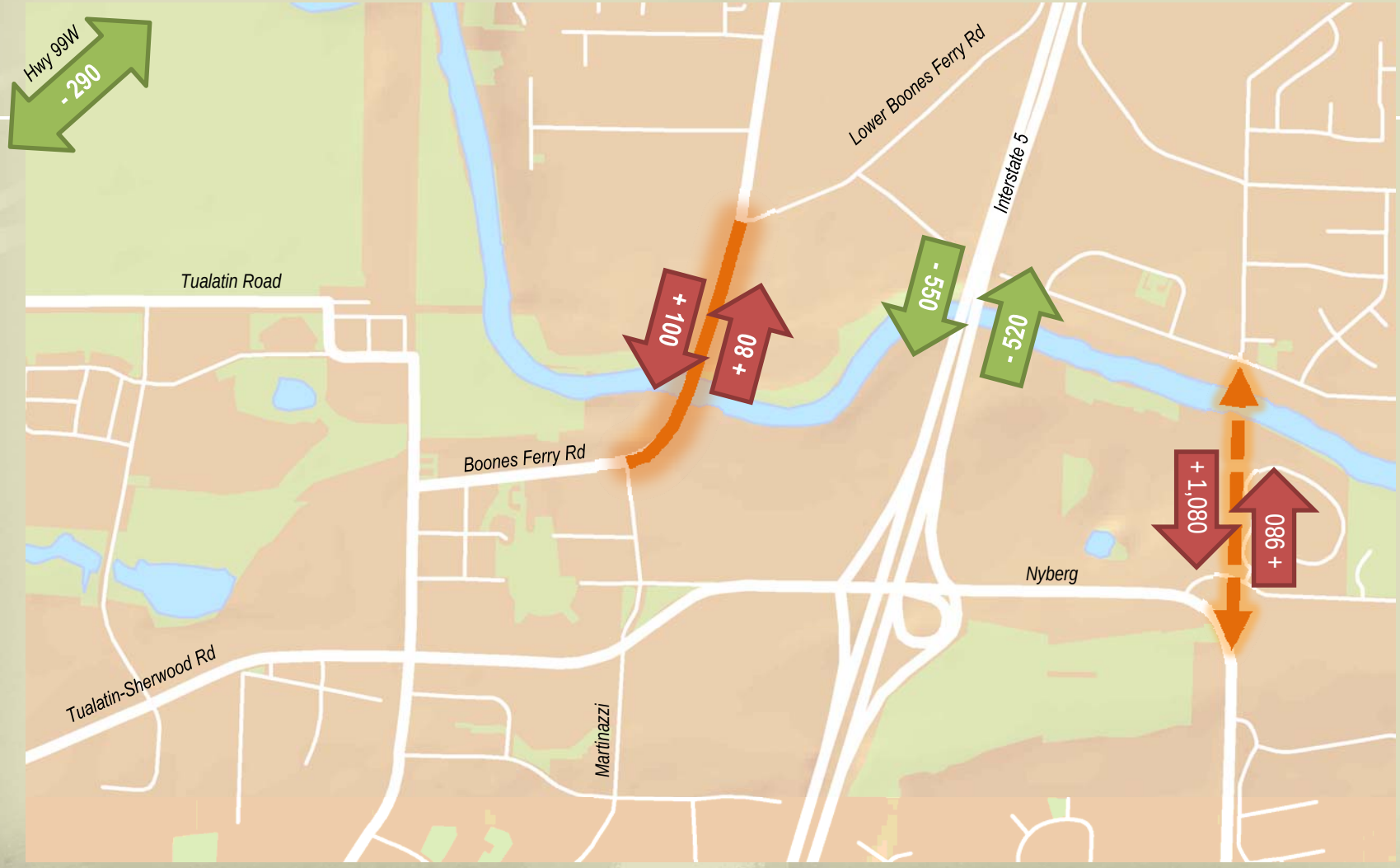


Low Build + Boones Ferry Road Widening Travel Times

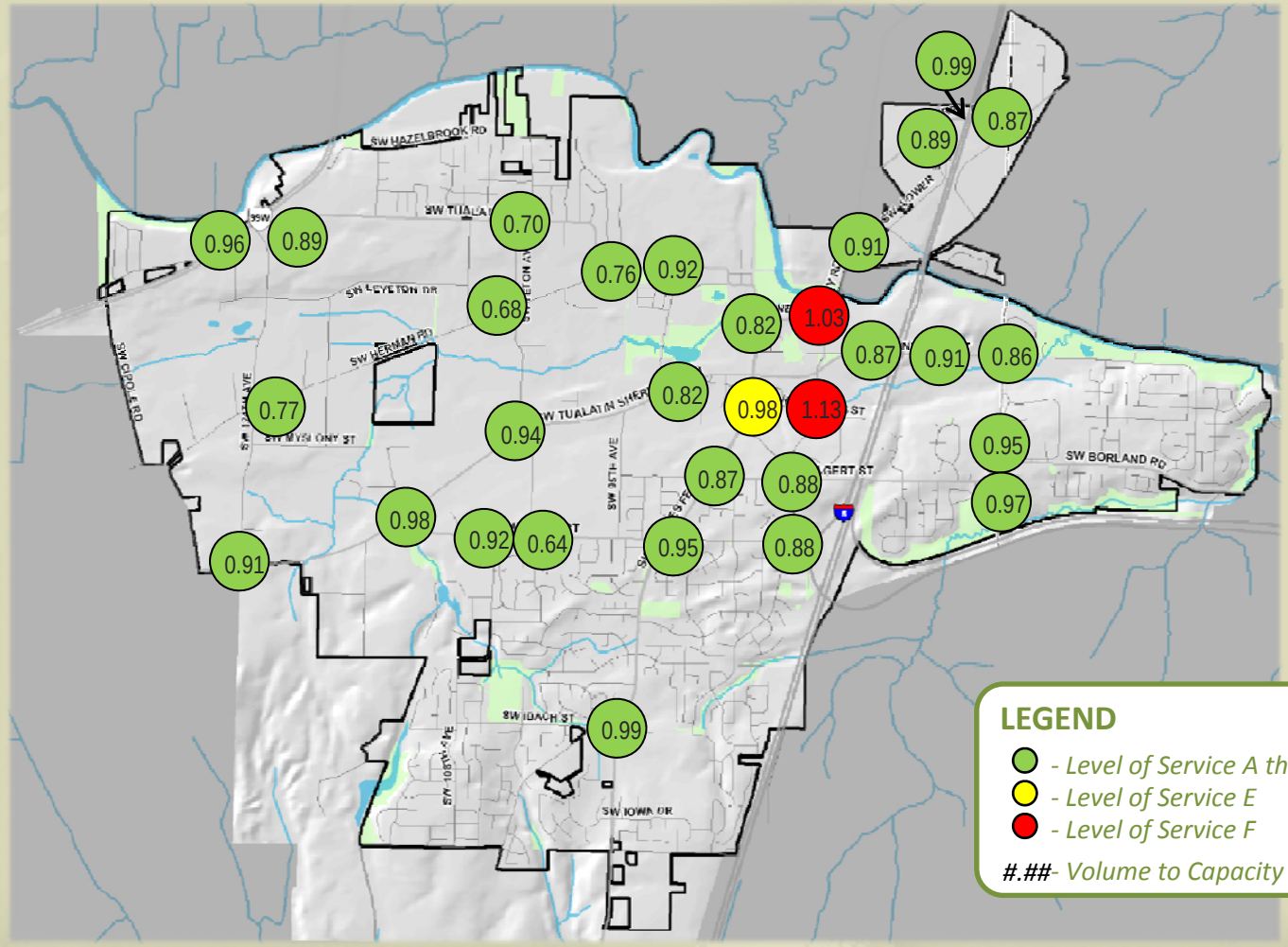


Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 30 sec	-40 sec
	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 30 sec	-30 sec
	Bridgeport Village	115th Avenue	11 min, 20 sec	-20 sec
	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 40 sec	+15 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	15 min, 50 sec	-1 min, 10 sec
	Bridgeport Village	Cipole Road	16 min, 40 sec	-40 sec
	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 25 sec	+5 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
	Bridgeport Elementary	Bridgeport Village	12 min, 10 sec	-45 sec
	Bridgeport Village	Bridgeport Elementary	13 min, 40 sec	-45 sec

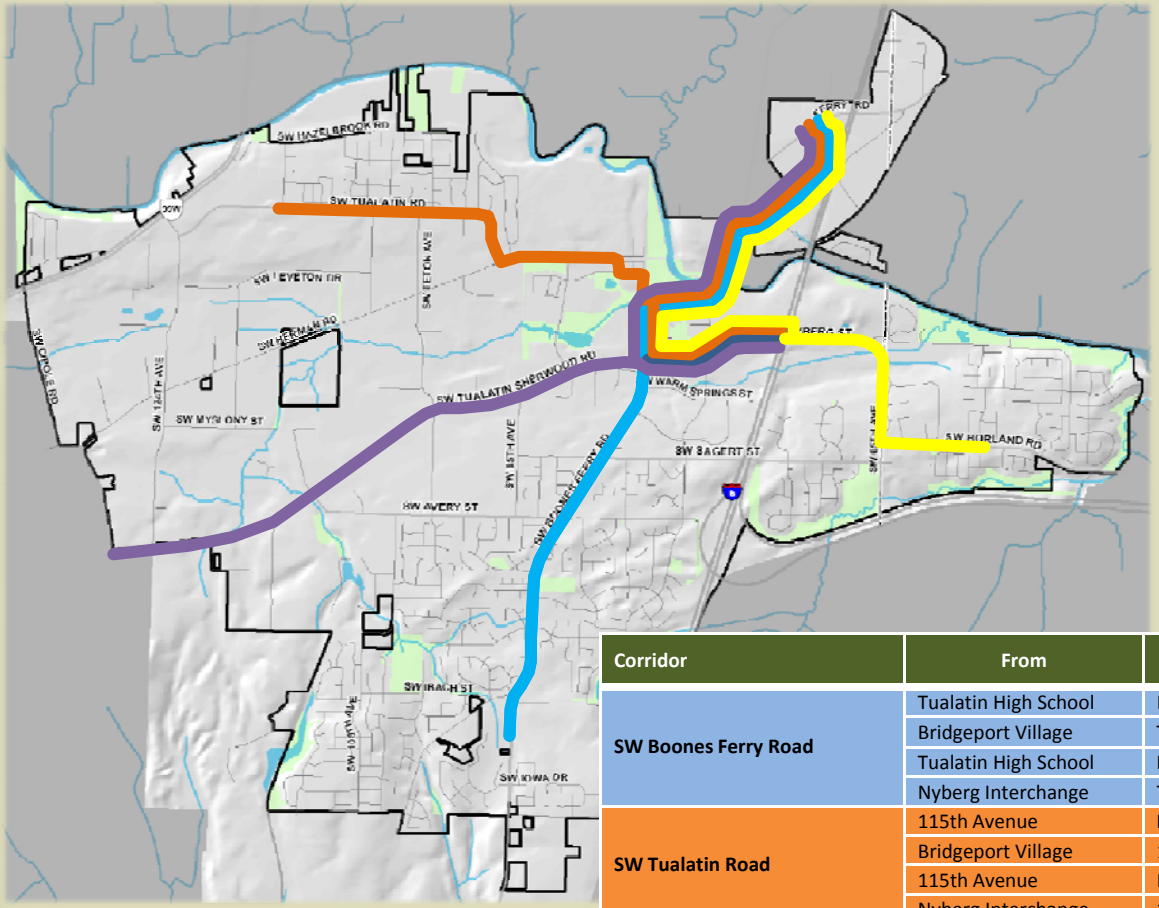
Low Build + 65th Ave + BFR Widening Volume Shifts



Low Build + 65th Ave + BFR Widening Operations



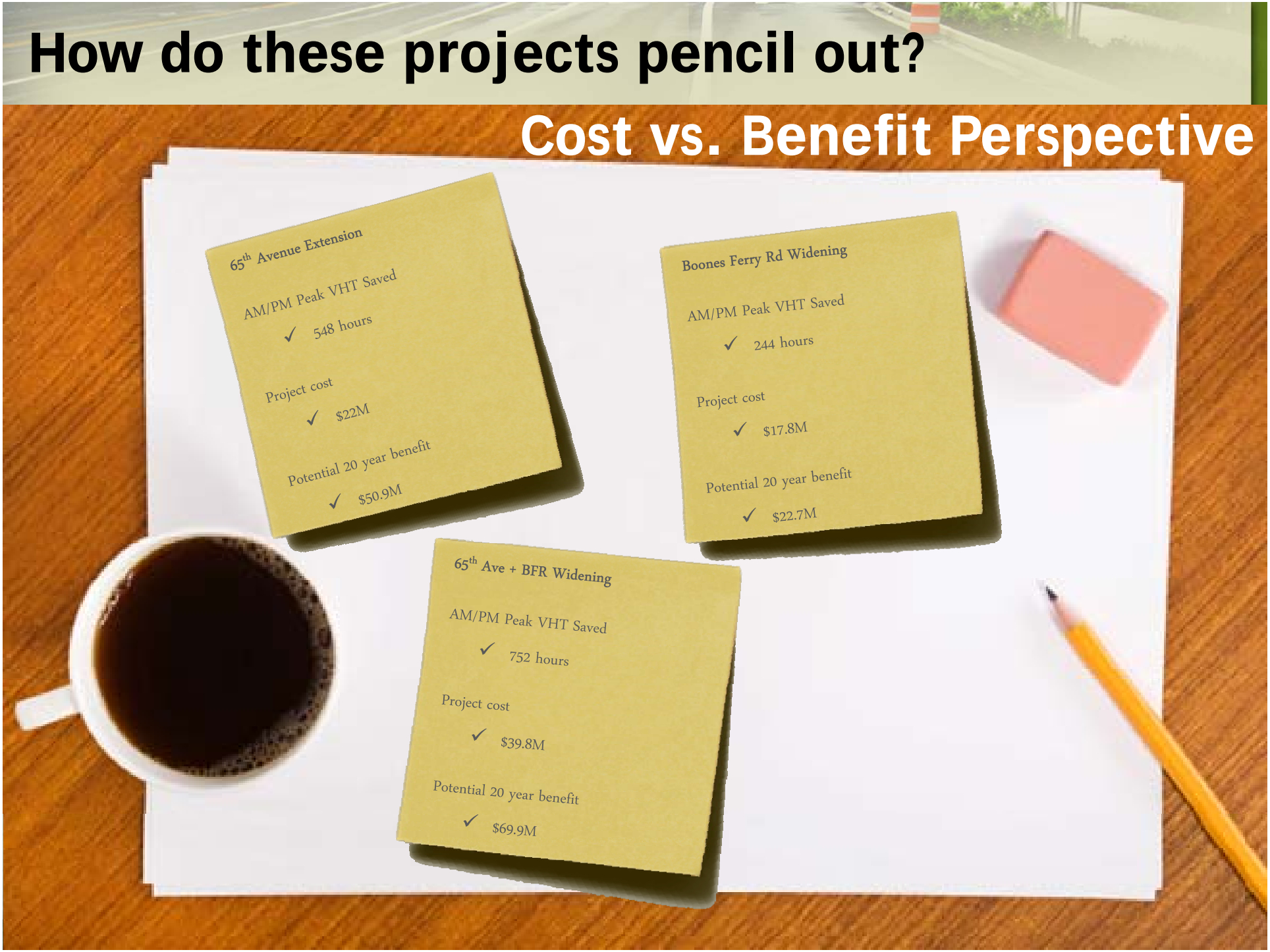
Low Build + 65th Ave + BFR Widening Travel Times



Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	12 min, 35 sec	-2 min, 30 sec
	Bridgeport Village	Tualatin High School	10 min, 35 sec	-1 min, 35 sec
	Tualatin High School	Nyberg Interchange	9 min, 50 sec	+10 sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	11 min, 30 sec	-1 min, 30 sec
	Bridgeport Village	115th Avenue	10 min, 55 sec	-45 sec
	115th Avenue	Nyberg Interchange	11 minutes	+25 sec
	Nyberg Interchange	115th Avenue	10 min, 55 sec	+30 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	14 min, 55 sec	-2 min, 5 sec
	Bridgeport Village	Cipole Road	15 min, 40 sec	-1 min, 40 sec
	Cipole Road	Nyberg Interchange	11 min, 50 sec	+15 sec
	Nyberg Interchange	Cipole Road	12 min, 20 sec	+30 sec
SW Borland Road / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 30 sec	+10 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
	Bridgeport Elementary	Bridgeport Village	10 min, 25 sec	-2 min, 30 sec
	Bridgeport Village	Bridgeport Elementary	11 min, 50 sec	-2 min, 35 sec

How do these projects pencil out?

Cost vs. Benefit Perspective



Summary of Operations and Travel Time Findings

- Tualatin becomes very congested in the future
- Low Build does a fair job of mitigating intersection operations, but minor travel time changes
- 65th Avenue extension pulls traffic from Boones Ferry Road and enhances that travel time
- Boones Ferry Road widening helps enhance travel times, but creates some intersection issues in downtown
- Combination of 65th Avenue and Boones Ferry Road widening enhances travel times in North Tualatin, but has similar downtown intersection issues

Technical Team Recommendation

- In addition to the Low Build projects, include:
  1. Include Boones Ferry Road widening project from Martinazzi to Lower Boones Ferry Road
  2. Include 65th Avenue extension as a **refinement plan** project
     - Establishes and acknowledges the need for improvements and connectivity in the area
     - Acknowledges the need to work collaboratively with surrounding jurisdictions
     - Identifies a project area that goes into deeper planning analysis to determine details

Environmental Justice

The Tualatin TSP considered the needs and impacts of its projects and policies to environmental justice populations as consistent with Executive Order 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), the United States Department of Transportation (US DOT) Order on Environmental Justice (Order 5610.2), and Title VI of the Civil Rights Act. Executive Order 12898 requires that "impacts to low-income and minority populations be evaluated to determine if such populations bear an undue burden of high and adverse impacts caused by the action."[1] The policy of the DOT Order promotes the principles of environmental justice in all DOT programs.[2]

US DOT Order 5610.2 requires that agencies accomplish the following:

- Explicitly consider human health and environmental effects related to transportation projects that may have a disproportionately high and adverse effect on minority or low-income populations.
- Implement procedures to provide "meaningful opportunities for public involvement" by members of those populations during project planning and development (US DOT Order 5610.2, Section [§] 5[b][1]).

The US DOT Guidance defines the term "minority" as a person who is:

- Black (having origins in any of the black racial groups of Africa);
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands);
- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition); or
- Native Hawaiian or Other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands).

The US DOT Guidance defines the terms "low-income" and "low-income population" as:

- Low-Income means a person whose median household income is at or below the Department of Health and Human Services poverty guidelines.

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[1] President Clinton (02/11/1994). *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* Available online at http://www.epa.gov/fedrgstr/eo/eo12898.pdf

[2] Department of Transportation (10/30/1997). *Department of Transportation Order 5610.2(a): Final DOT Environmental Justice Order*. Available online at http://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/order_56102a/

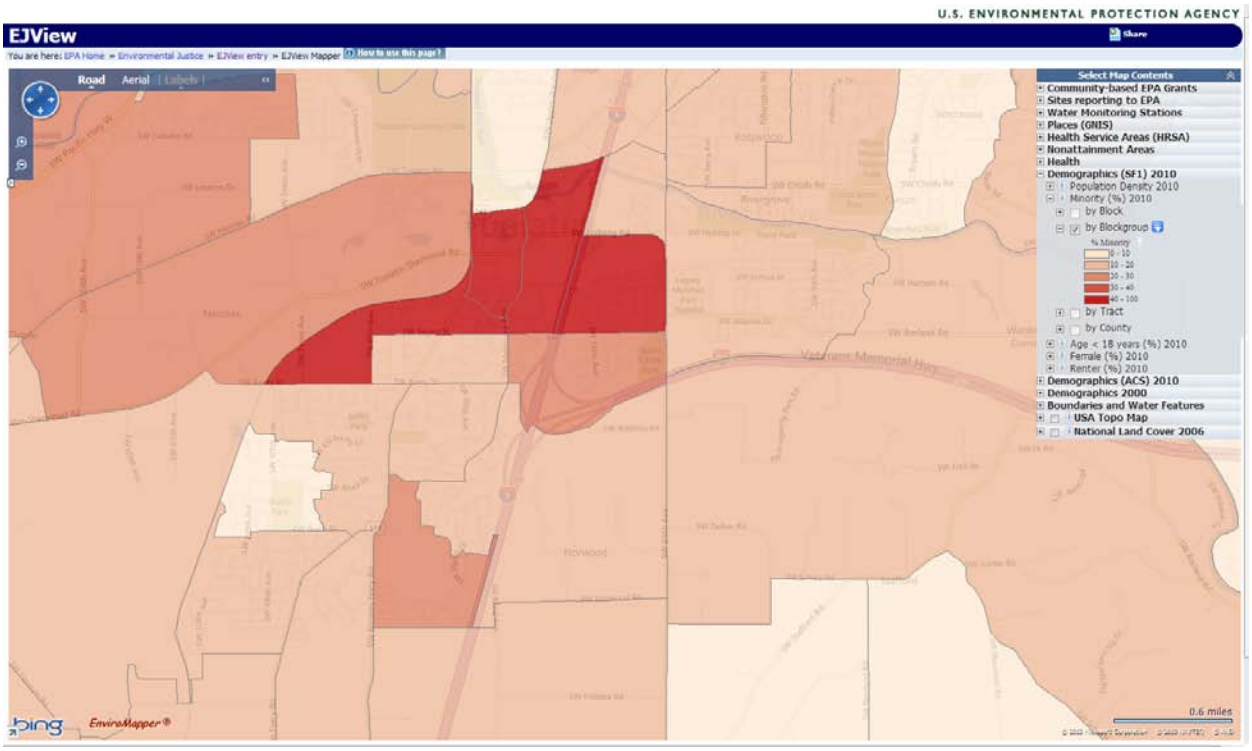
- Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.

Title VI of the Civil Rights Act of 1964 requires that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

In addition, Metro's Regional Transportation Functional Plan directs local TSPs to outreach to and identify effects of potential projects to "transit dependent" populations – including households with zero vehicles at home, those under 16 and above 65 years of age, and those with a physical disability that impacts travel.

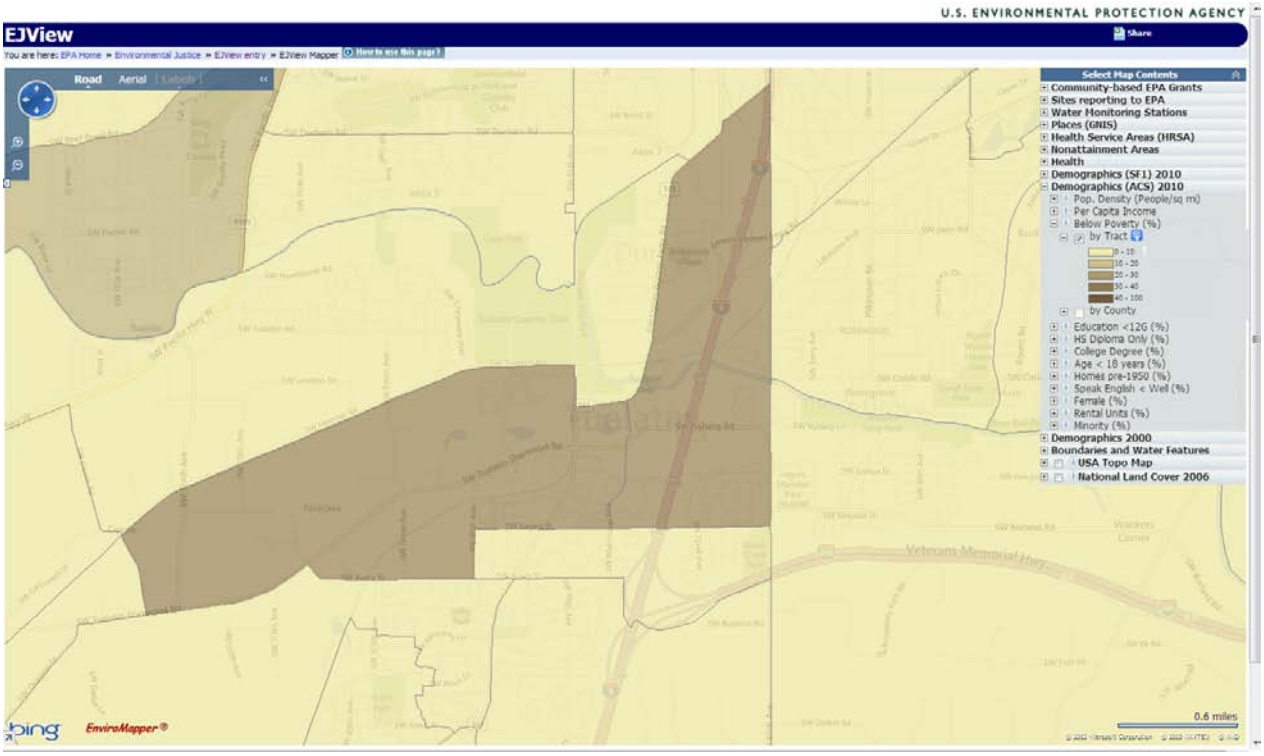
Documentation of Populations and Needs

At the beginning of the TSP process, the public involvement team documented the demographics and character of Tualatin in a memo dated March 2011. This memo documented that approximately 8 percent of families lived below the poverty level in Tualatin. Additionally, the majority (85 percent) of residents in Tualatin identify themselves as white/Caucasian; with 18 percent identifying themselves as Hispanic or Latino, and 15 percent of the population is foreign born. As per the U.S. Census Bureau 2010 Decennial Census approximately 10 percent of the population speaks Spanish at home and speak English less than "very well."



According to the 2010 Census block group data, concentrations of minority populations (40 percent or more) are located near downtown in the area east of I-5 between SW Nyberg Road, SW 65th Avenue, and SW Sagert Street. Other concentrations of minority populations occur west of I-5 between the river and SW Sagert Street, extending west to the railroad. The screen capture from the United States Environmental Protection Agency EJ View mapping tool show the areas of minority concentrations below. These areas of high minority concentrations also have high percentages of renter-occupied housing.

Household poverty data is reported at a larger scale than the minority data in the 2010 American Community Survey (ACS) three year data, and there are two census tracts with higher concentrations of households below the poverty line compared to the rest of the City. These two tracts are located along I-5 between SW Sagert Street and the northern City limits near Bridgeport Village where roughly 28 percent of households are below the poverty line, and the tract encompassing SW Tualatin-Sherwood Road west of SW Martinazzi Avenue and south of SW Herman Road and North of SW Avery Street where around 22 percent of households are below the poverty line. The remainder of the City has between 0 and 10 percent of householders below the poverty line.



Outreach

These environmental justice populations were documented and considered at the outset of the project to ensure the public involvement process provided adequate opportunities for these populations to be involved in the process. Several techniques were used to meet the needs of these identified groups.

- A banner was hung near the center of identified concentration areas at Tualatin Sherwood Road and Martinazzi to announce public events.
- Public meetings were held in locations near the center of the City, near these concentrations, and near bus routes. Meeting locations were ADA accessible.
- Food was provided at meetings.
- Children's activities were provided at meetings.
- Imagery and videos were used to explain project information so it would be accessible for all people.

Interviews with leaders in the Latino community held early in the process suggested several ways to engage the Spanish-speaking population of Tualatin. Following these suggestions, the project team:

- Made materials available in English and Spanish
- Visited bilingual Parent-Teacher organization at Bridgeport Elementary
- Provided materials at the library because families attend library events
- Shared information at local ESL classes
- Contacted local churches (Tualatin Spanish Seventh-day Adventist Church and Esperanza Iglesia)
- Left materials at local Hispanic businesses.

The team conducted interviews with Tualatin's Youth Advisory Council during development of the Public Involvement Plan. During the process or developing the plan, staff provided project updates in several local venues including at the Tualatin Senior Center.

Evaluation

The evaluation framework and the alternatives analysis process included consideration of equity impacts. Goal 4 of the TSP was equity: consider the distribution of benefits and impacts from potential transportation options, and work towards fair access to transportation facilities for all users, all ages, and all abilities. There were two objectives:

1. Promote a fair distribution of benefits to and burdens on different populations within the City (that is, low-income, transit-dependent, minority, age groups) and different neighborhoods and employment areas within the City.
2. Consider access to transit for all users.

All potential transportation investments considered in the Tualatin TSP process were evaluated in relation to this goal and the two objectives. Each project idea was scored in particular against population groups around and within the city, areas with low incomes and/or high minority populations, and the transit dependent population (e.g., zero vehicle households, those under 16 or over 65, and those with a physical disability). The full results of those evaluations are included in the alternatives analysis documentation. The end recommendations were assessed for broad distribution of benefits and effects to all populations including minority, low-income (as identified above) as well as geographic distribution – the conclusions were that the TSP provides multimodal investments throughout all sections of the city. Many of the recommendations will benefit these populations by providing safe walking areas, expanded transit service, intersection safety improvements, and multi-use pathways.