

Refinement Area #1: Nyberg Interchange

Concept Package #1: Safety-Focused Solutions

Goal Statement

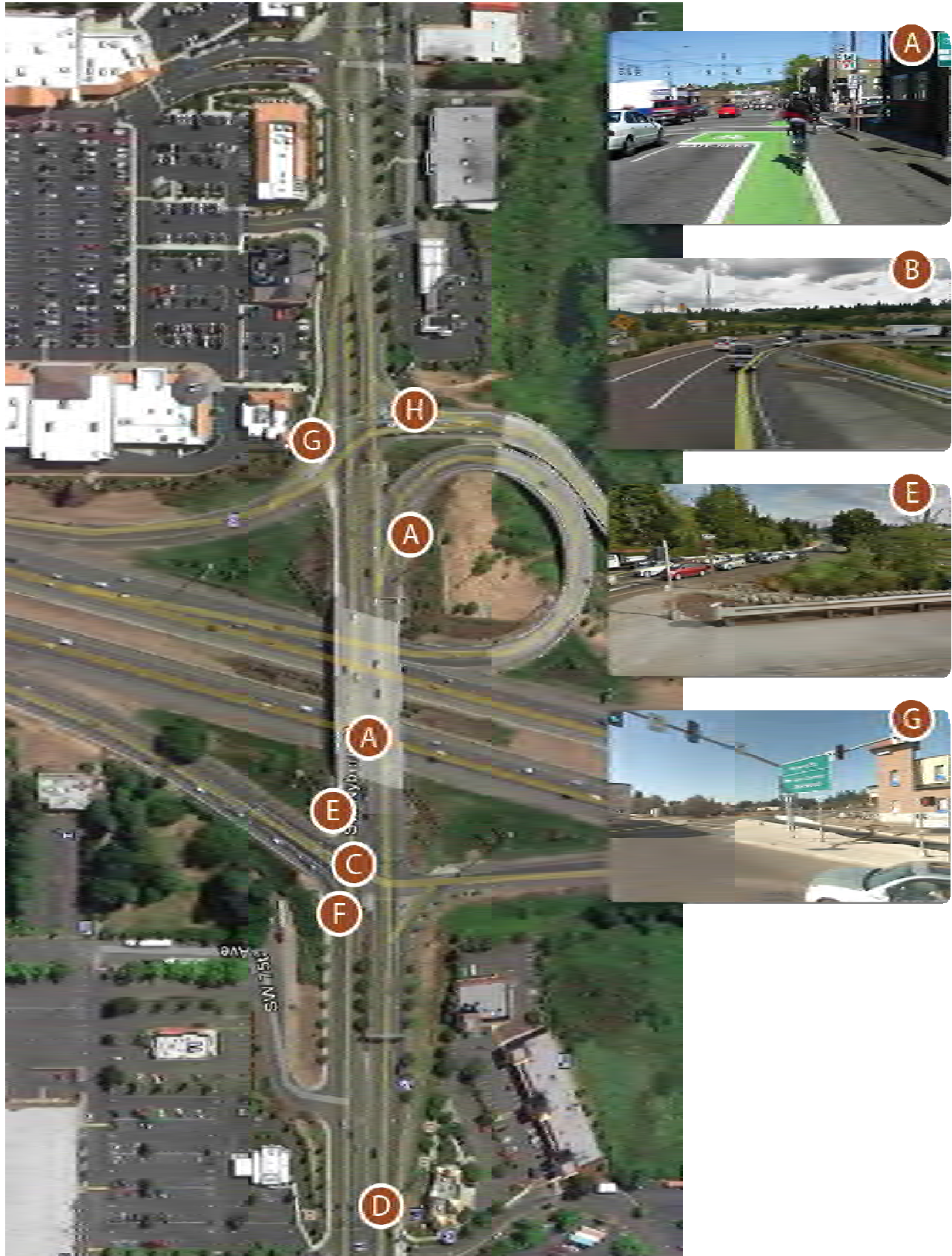
The primary goal for this refinement area is to address safety concerns at the Nyberg interchange, for all modes. The interchange serves as the main connection between Tualatin and the I-5 freeway, but also via Nyberg Road provides a main connection between downtown and east Tualatin. The interchange 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. Disallow right turns on red from southbound off ramp
- G. Redesign westbound-northbound movement to enhance safety
- H. 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

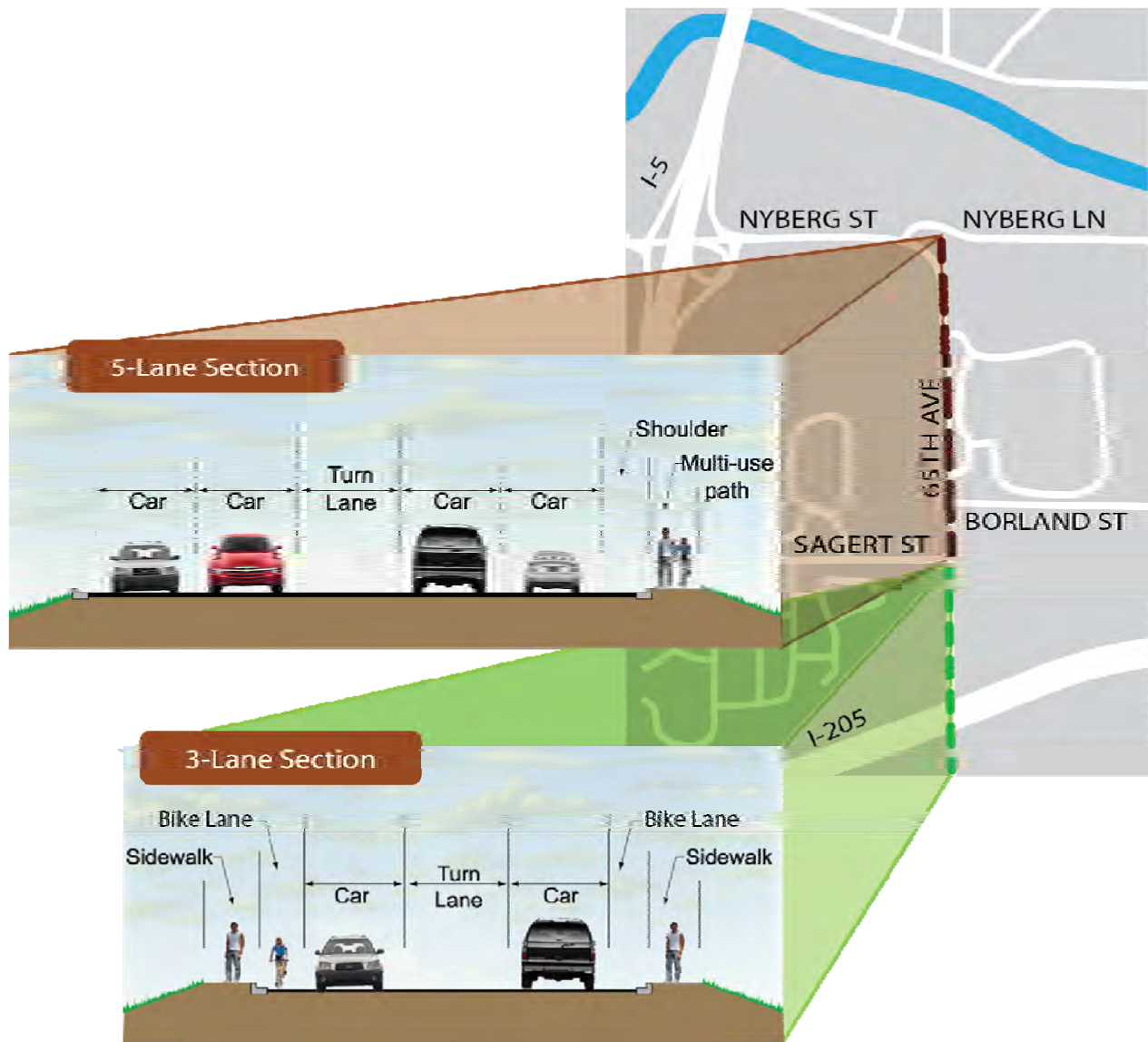
This potential solution consists of the following:

- 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:
 - o A separated bicycle and pedestrian multi-use path located near 65th Avenue, OR
 - o 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

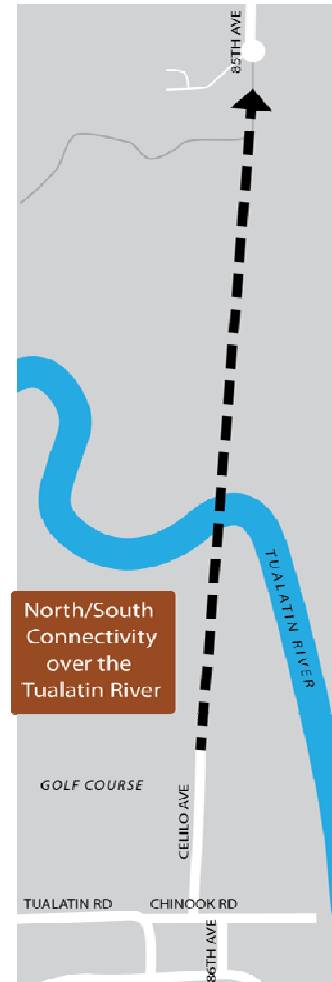
Option 1: Extension East of Country Club and West of Railroad Track

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

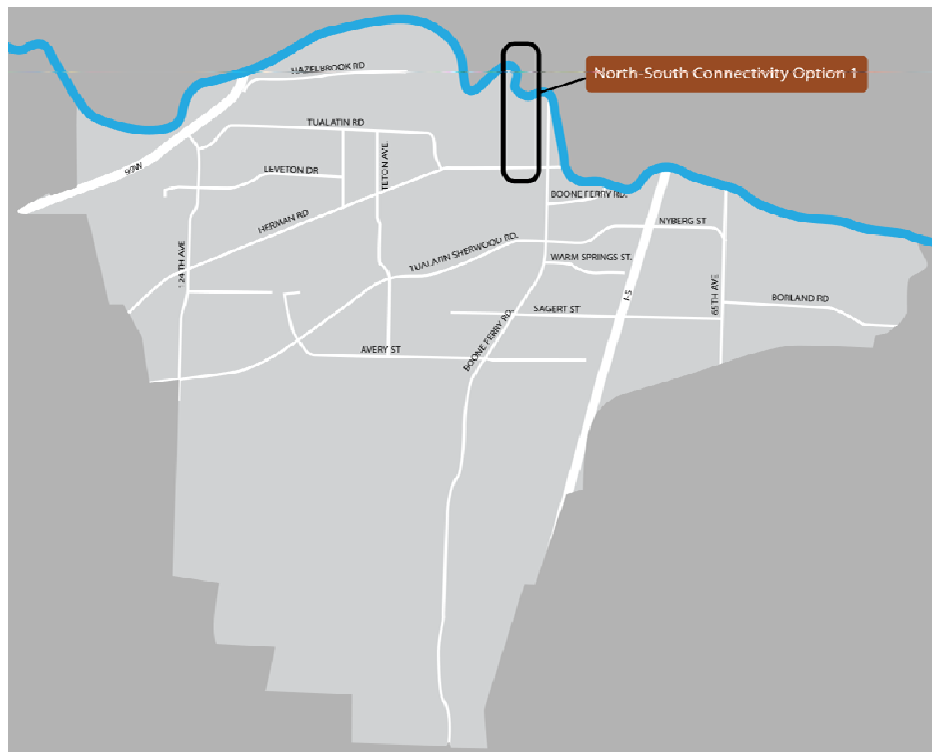
- An extension west of the railroad tracks, in the general vicinity of SW 86th Avenue east of the Country Club appears to be feasible
- Road would extend northward in the vicinity of SW Celilo Road and connect with SW 85th Avenue north of the Tualatin River



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

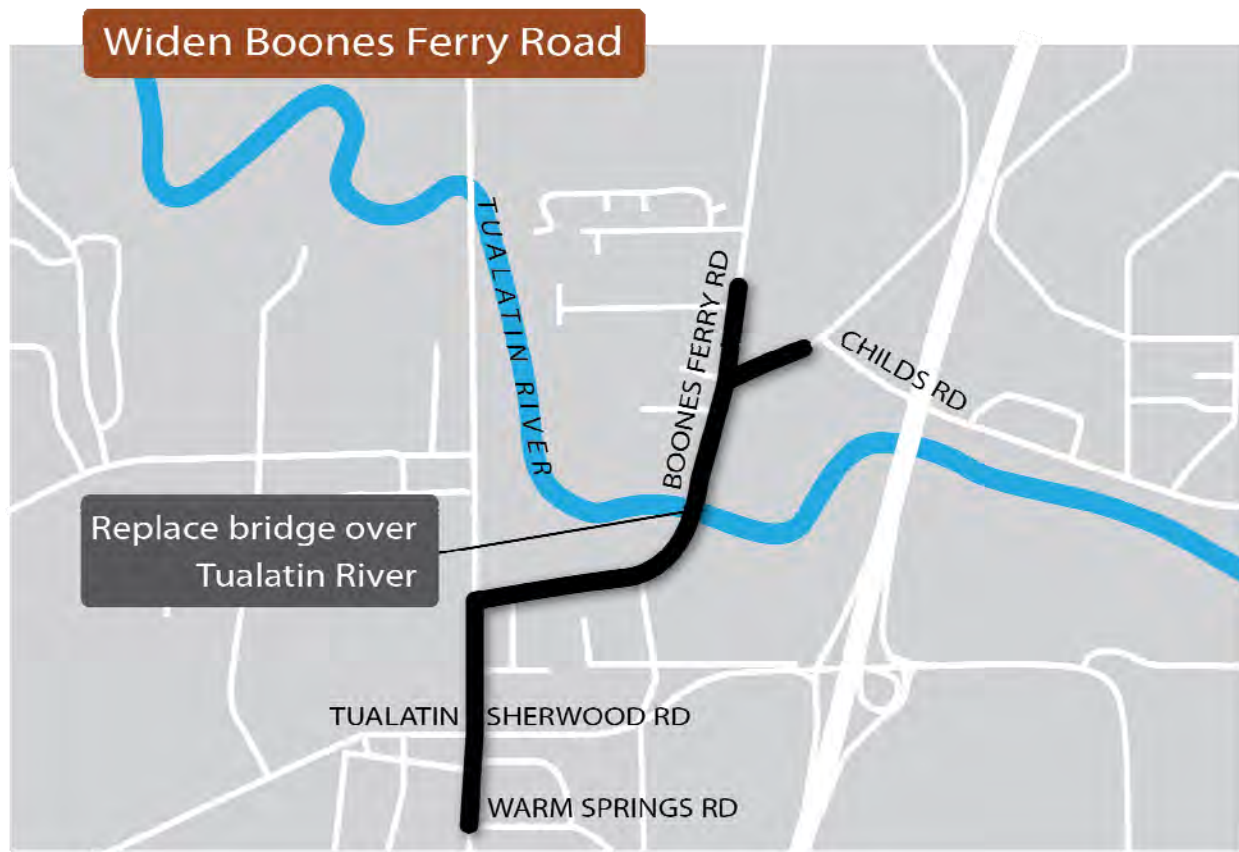
This option improves connectivity in the north-south direction west of I-5, by increasing capacity along the existing Boones Ferry Road between downtown and north of the river, towards the communities of Durham and Tigard. Connections in Tualatin west of I-5 are limited to Boones Ferry Road and 99W in 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:
 - o Retaining a three-lane section with intersection improvements and coordinated signal timing
 - o Widening to four lanes, limiting turning pockets to intersections
 - o 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 #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	◐

