Clackamas County Coordinating Committee

C4 I205 Tolling Diversion Subcommittee

Wednesday, December 14, 2022
2:00 PM – 4:00 PM

Meeting Link:
https://clackamascounty.zoom.us/j/83592092035?pwd=M2x0Yk9PaFFwbS9KVlA4WlpycWpGZz09

Agenda

- Workshop: Overview of the Proposed Tolling Mitigations in the I-205 Corridor
  Presented by: WSP Team

Attachments:

- Canby Area Mitigations — Pages 2-4
- Lake Oswego and West Linn Area Mitigations — Pages 5-12
- Oregon City and Gladstone Area Mitigations — Pages 13-19
- Tualatin Area Mitigations — Pages 20-24

Proposed Mitigation for OR 99E/Canby Area

Location	Improvement Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
OR 99E and South End Rd	Signalize intersection; add southbound through lane and northbound right-turn lane. Reduce the lane widths to account for physical constraints and include advanced warning for signal.	None proposed	None proposed	None proposed	X	
OR 99E between South End Rd and Haines Rd	Advance warning signing/ flashers for new signal at South End Rd (northbound)	None proposed	None proposed	None proposed	X	
OR 99E and Haines/New Era Rd	Provide a roundabout; add southbound right-turn lane on New Era Rd approaching Haines Rd so as to not block southbound through movements	Provide the following transit-related improvements: • Landing pads at bus stops (i.e., paved area at the bus stop where passengers board or exit the bus) • Crosswalks with RRFB to facilitate crossing of OR 99E • Extend sidewalks to New Era Rd	Install crosswalks and RRFBs to improve pedestrian access to bus stops and safety for crossing	None proposed	X	
OR 99E and Ivy St	None proposed	None proposed	Provide more prominent crosswalk markings (i.e., zebra stripe pattern)	Add green dashed bike crossing Markings across OR 99E	X	
OR 99E and Lone Elder Rd	Square up existing skewed Approach and provide SB refuge lane for WB left turns	None proposed	None proposed	None proposed	X	

mph = miles per hour; RRFB = rectangular rapid flashing beacon

[1] A tabletop intersection is raised, typically to the level of the adjacent sidewalk, which tends to slow traffic through the intersection and provides more awareness of nonmotorized crossings at the intersection.

OR 99E CANBY

Add Sidewalk and Crosswalk:
Sidewalk between bus stops

Safety Improvements

Proposed New Traffic Signal
(pending signal warrant)

Convert to Roundabout

Bus Stop Improvements

Bike/Ped Improvements:
at OR 99E and S Ivy St

- More prominent crosswalk markings
- Add green dashed bike crossing markings

Intersection Improvements

OR 99E/South End Rd

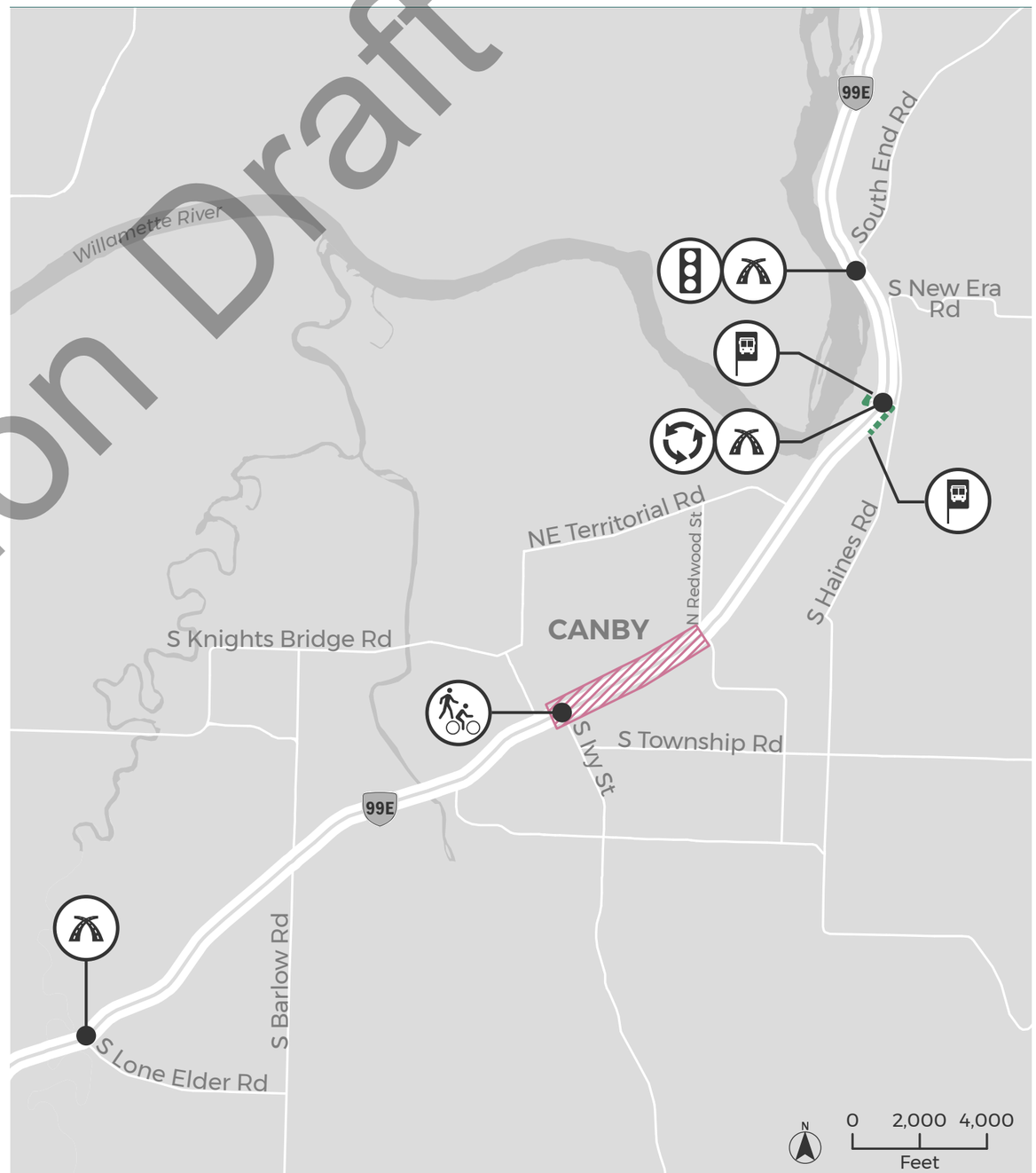
- Add traffic signal *(pending signal warrant)*
- Add SB thru lane
- Add NB right-turn lane

OR 99E/Haines Rd/New Era Rd

- Provide roundabout
- Add SB right-turn lane on New Era Rd approaching Haines Rd

OR 99E/Lone Elder Rd

- Square up existing skewed approach
- Provide SB refuge lane for WB left-turns



Proposed Safety Mitigation - Canby

The following safety-related improvements are proposed in addition to the mitigation identified separately for operational impacts to general traffic, transit and active transportation modes.

Intersections

OR 99E and S Ivy Street

- Crashes at this intersection were primarily angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crash by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).
- Left-Turning Traffic Calming Treatments (e.g., Hardened Centerline and Left Turn Wedge) could further reduce all left-turning crashes by an additional 10 percent. This treatment slows down left-turning vehicles by forcing motorist to make a more 90-degree turn (ODOT 2022e).

Segments

OR 99E - N Redwood St to Ivy St

Crash patterns along this segment of the corridor were primarily angle and turning type crashes.

- Installing a speed feedback sign would reduce all crashes of all severities by 10 percent. Speed feedback signs enhance safety by managing speeds and reducing the risk of speed related crashes (ODOT 2022e).
- Adding trees along the roadway could reduce crashes of all severities by 10 percent. Trees provide traffic calming and narrow a driver's visual field, providing distinct roadway edges, which help drivers guide their movements and assess their speed (ODOT 2022e).

Other safety Improvements

Additional safety improvements are being considered at locations that did not meet the primary safety criteria, but mitigation is proposed at these locations to enhance overall safety within a given subarea or corridor. These include the following mitigations:

OR 99E – South End Road to N Redwood Street, and Ivy Street to S Lone Elder Road

- Installing coordination or adaptive signal timing or urban traffic signals could reduce crashes of all severities and types by 17 percent. Coordinated signals produce vehicle platoons keeping traffic at a constant speed, which reduce rear-end conflicts. Vehicle platooning also allows for larger gaps for drivers making permitted turning maneuvers (ODOT 2022e).
- Installing a speed feedback sign would reduce all crashes of all severities by 10 percent. Speed feedback signs enhance safety by managing speeds and reducing the risk of speed related crashes (ODOT 2022e).
- Adding trees along the roadway could reduce crashes of all severities by 10 percent. Trees provide traffic calming and narrow a driver's visual field, providing distinct roadway edges, which help drivers guide their movements and assess their speed (ODOT 2022e).

Proposed Mitigation for OR 43/Lake Oswego Area

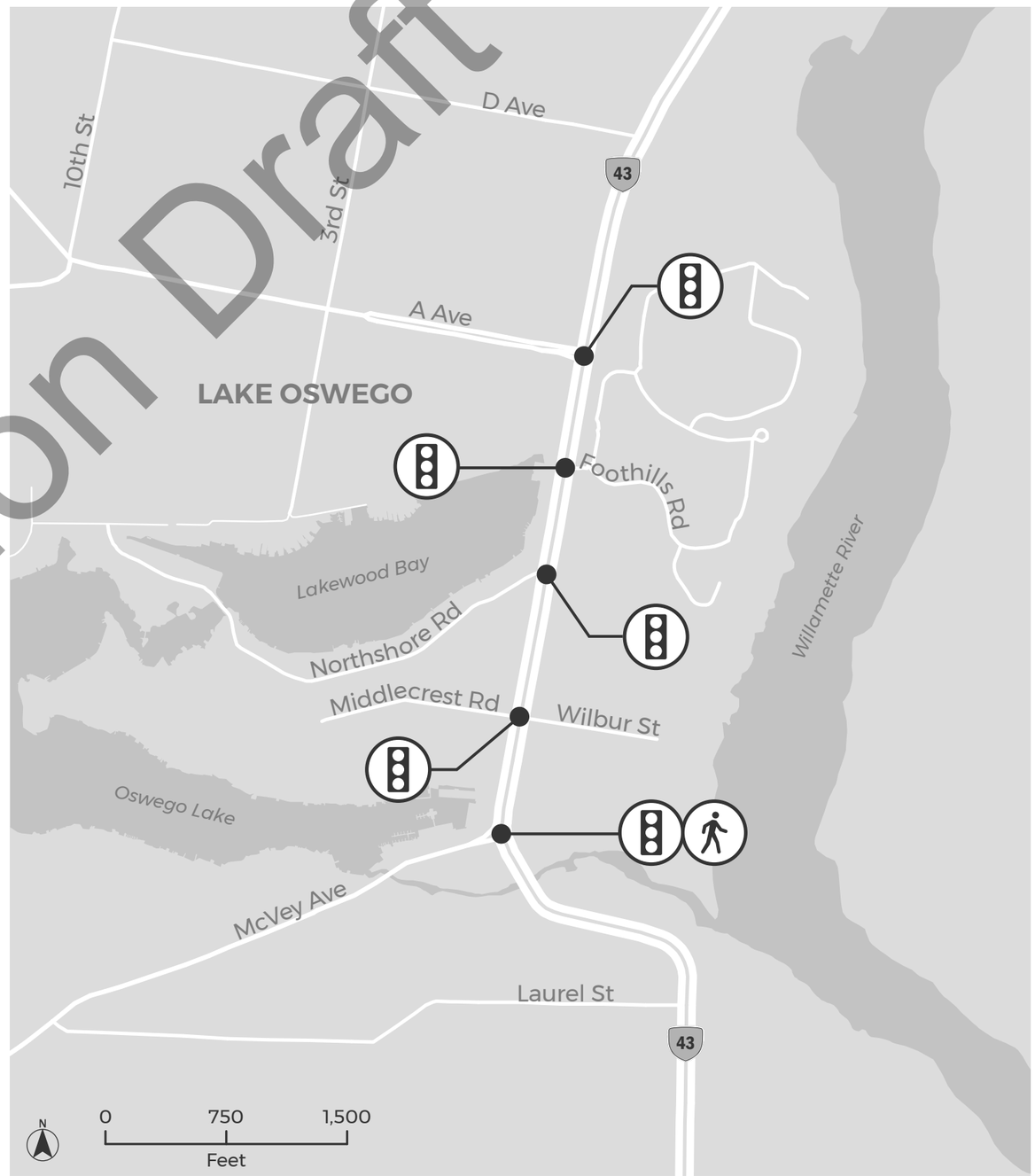
Location	Improvement Type				Analysis Year Impact	
			Active Transportation			
	Traffic	Transit	Pedestrian	Bike	2027	2045
OR 43 between A Ave and McVey Ave, including intersections of OR 43/A Ave and OR 43/ McVey	Signal coordination (or adaptive signal control) on OR 43 at the three signals between and including A Ave and McVey Ave (at Foothills Rd, Northshore Rd, and Middlecrest Rd/Wilbur St)	None proposed	None proposed	None proposed		X
OR 43/ McVey Ave	None proposed	None proposed	Improve pedestrian crossings, including pedestrian signals if feasible, and also adding LPI; enhance signing for motorist awareness of pedestrians at unprotected crossing of the southbound right-turn lane from OR 43 to McVey Ave; install pedestrian actuated signal for this crossing.	None proposed	X	

LPI = leading pedestrian interval; RRFB = rectangular rapid-flashing beacon

OR 43 LAKE OSWEGO

Signal Coordination/Adaptive Signal Control

Ped Improvements: at OR 43 and McVey Ave
- Improved ped crossings
- Leading pedestrian interval (LPI)
- Enhance signing for motorist awareness of pedestrian crossing of SB free right turn



Proposed Mitigation for Willamette Falls Drive/West Linn Area

Location	Improvement Type				Analysis Year Impact	
			Active Transportation			
	Traffic	Transit	Pedestrian	Bike	2027	2045
Willamette Falls Dr/ 12th St	None proposed	None proposed	To improve crosswalk visibility/prominence, install raised crosswalks or a tabletop intersection; solar panel stop signs with red-edge light features	None proposed		X
Willamette Falls Dr between Tualatin River bridge and 16th St	None proposed	None proposed	Fill in sidewalk gaps from Tualatin River to 16th St	None proposed		X
12th St between Willamette Falls Dr and Tualatin Ave	None proposed	None proposed	Potential improvements include add RRFB for crosswalk at school (at 12th St and 5th St.), add "school zone" sign with 20-mph speed limit when flashing (advanced warning); consider speed bumps or chicanes near the school, add another prominent crosswalk (6th Ave), consider raised crosswalks or tabletop intersection at 5th St; extend Willamette Falls Dr streetscape down 12th St to the school, including adding curb extensions	Add bicycle lane along 12th St from Willamette Falls Dr to Tualatin Ave to facilitate safe routes to school as well as access to Willamette Park.		X

Location	Improvement Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
I-205 ramps at 10th St[1]	I-205 off-ramp queues could potentially extend beyond capacity and affect I-205 mainline operations by 2045 at the 10th Street and I-205 southbound off-ramps intersection during the AM peak hour. Monitor this to determine when or if mitigation is needed.	None proposed	None proposed	None proposed		X

mph = miles per hour; RRFB = rectangular rapid flashing beacon

[1] Due to uncertainty regarding the projected traffic volumes, ODOT proposes to monitor this location and only implement the proposed mitigation if the actual conditions warrant it.

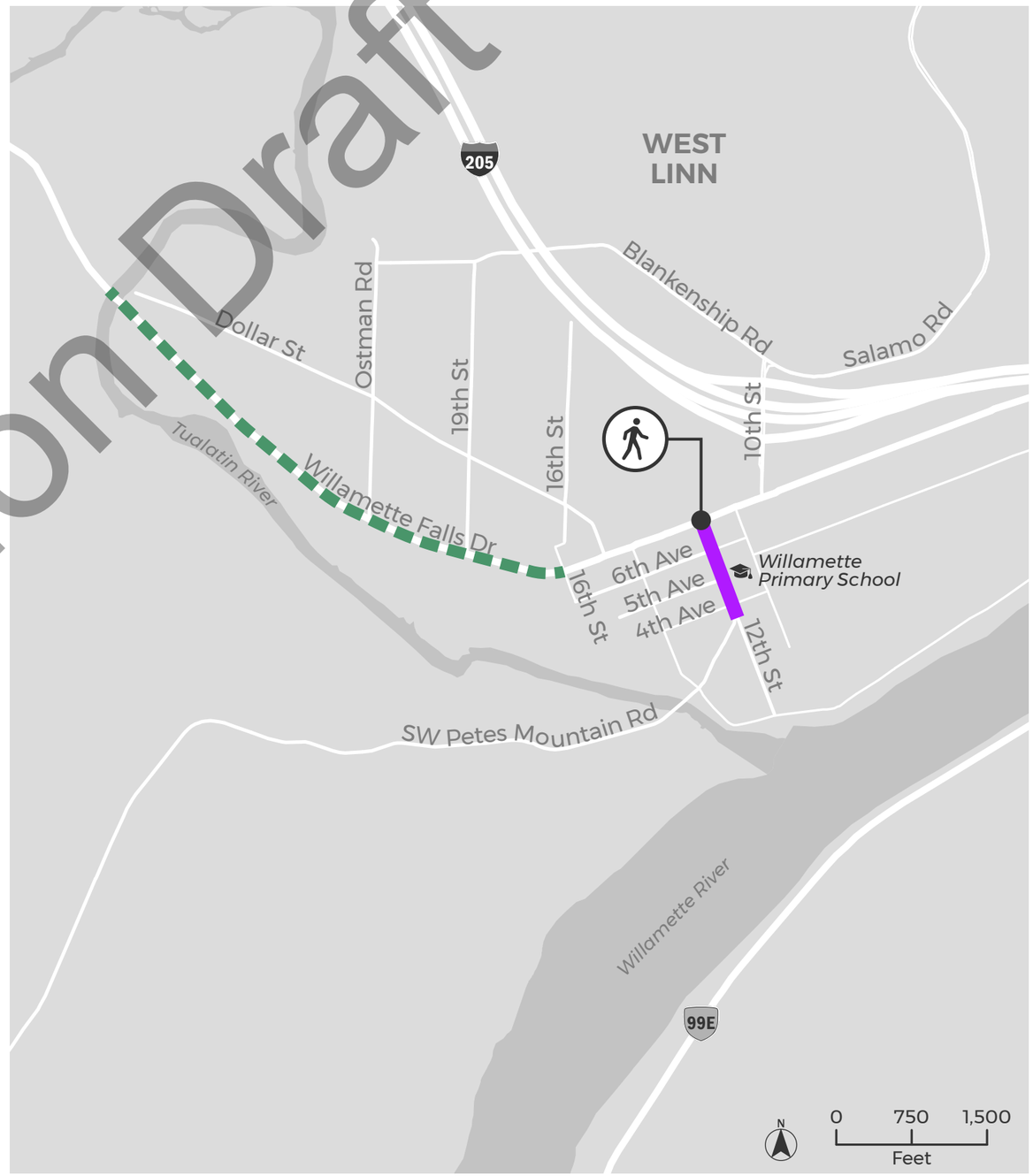
WEST LINN

Fill Sidewalk Gaps: between Tualatin River Bridge and 16th St

Ped Improvements: at Willamette Falls Dr and 12th St
- Improve crosswalk visibility/prominence
- Raised crosswalks or intersection
- Solar panel stop sign with edge red lighting features

12th Street Improvements
- ***12th Street/5th Avenue:*** add RRFB* for crosswalk at school
- ***5th Avenue:*** add raised crosswalks or table intersection
- ***6th Avenue:*** add prominent crosswalk
- Add "School Zone" sign with 20mph speed limit when flashing
- Speed bumps or chicanes near school
- Extend WFD streetscape down 12th to school
- Add bicycle lanes along 12th St from Willamette Falls Dr to Tualatin Ave

** RRFB = Rectangular Rapid-Flashing Beacon*



Proposed Mitigation for Stafford Road and Borland Road Area

Location	Improvement Type				Analysis Year Impact	
			Active Transportation			
	Traffic	Transit	Pedestrian	Bike	2027	2045
SW Stafford Rd/ SW Rosemont Rd	None proposed	None proposed	Install RRFB on east and north legs of the roundabout, improve lighting for pedestrians, install raised crosswalks around intersection, improve lighting	None proposed	X	
SW Stafford Rd/SW Childs Rd	Illumination and guardrail improvements	None proposed	None proposed	None proposed		X
SW Stafford Rd/ SW Mountain Rd	Convert to a single-lane roundabout	None proposed	None proposed	None proposed	X	
SW Borland Rd between SW 65th Ave and SW Stafford Rd	None proposed	None proposed	Contribute to RTP Constrained Project: *65th Ave, Tualatin River to I-205 (RTP ID 11428):* To improve safety for residents and employees, add a shared use path on one side of this roadway section.	None proposed		X
SW Borland Rd/ Ek Rd	Install an all-way stop	None proposed	None proposed	None proposed		X
SW Borland Rd between SW Stafford Rd and Tualatin River Bridge	None proposed	None proposed	None proposed	Contribute to RTP Strategic/Clackamas County Transportation System Plan*: Borland Rd, Stafford Rd to West Linn city limits (RTP/CC TSP 1082):* Add paved shoulders in accordance with the active transportation plan		X

RRFB = rectangular rapid-flashing beacon; RTP = regional transportation plan

STAFFORD ROAD & BORLAND ROAD

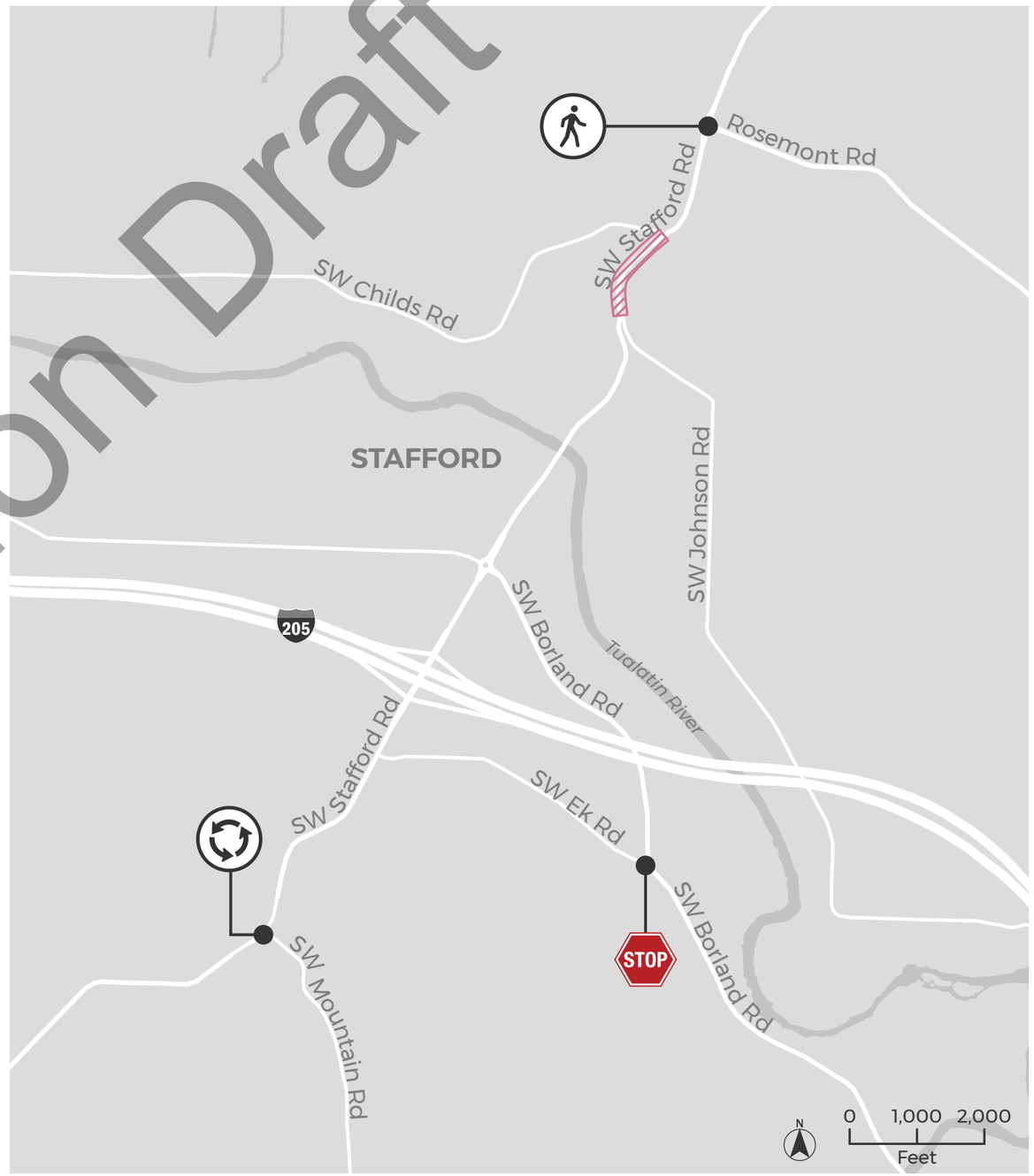
Safety Improvements

Convert to Roundabout: at SW Stafford Rd and SW Mountain Rd

All-way Stop: at SW Borland Rd and SW Ek Rd

Ped Improvements: at SW Stafford Rd and Rosemont Rd
- RRFB* across east and north legs
- Improve lighting for pedestrians and bicycles
- Raised crosswalks around intersection

** RRFB = Rectangular Rapid-Flashing Beacon*



Proposed Safety Mitigation – West Linn/Lake Oswego

No other safety-related improvements are proposed for this subarea beyond the mitigation identified separately for operational impacts to general traffic and active transportation modes.

Proposed Mitigation for OR 99E/Gladstone/Oregon City Area

Impact Location	Mitigation Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
OR 99E/ Arlington St	Reconfigure the east leg approach to include a separate left-turn lane with protected phasing and a shared through-right-turn lane and reconfigure the west leg to be one-way eastbound with right-turn only.	Transit signal priority (pending agreement on acceptable technology)	Modify the signal timing to provide leading pedestrian intervals at all protected pedestrian crossings	None proposed	X	
OR 99E North of Dunes Dr	None proposed	Widen to provide southbound transit queue jump space (i.e., an area that allows transit to "jump" ahead of cars with an advance green light) just north of Dunes Dr	None proposed	Improve signing and striping for cyclists to use northbound ramp from bike lane to sidewalk before it reaches the Clackamas River Bridge	X	
OR 99E/ Dunes Dr	None proposed	Transit signal priority (pending agreement on acceptable technology)	None proposed	None proposed	X	
OR 99E/ I-205 Southbound Ramps	Provide transit lane bypass of on-ramp meter on southbound on-ramp.	Transit signal priority (pending agreement on technology) Provide northbound bus pocket at intersection and implement advance green light	None proposed	None proposed	X	
OR 99E/ I-205 Northbound Ramps	Provide southbound dual left-turn lanes; westbound dual left-turn lanes; northbound dual right-turn lanes (starting at 15th St); allow northbound permitted turns (i.e., allow a left turn on a flashing yellow arrow signal when there is a safe gap in opposing traffic) plus an overlap phase (i.e., allow a left-turn movement from one street at the same time as a right-turn movement from the intersecting street).	Transit signal priority (pending agreement on technology), advance green for southbound transit	None proposed	None proposed	X	

Impact Location	Mitigation Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
OR 99E/ 15th St	Convert 15th St to one-way westbound; start a fourth northbound lane on OR 99E north of 15th St that becomes the second northbound right-turn lane at the intersection of OR 99E and I-205 northbound ramps.	None Proposed	None proposed	None proposed		X
OR 99E/ 14th St	Implement southbound dual left-turn lanes; prohibit westbound left-turns from 14th St to OR 99E. Start third northbound lane just north of 14th St, which becomes one of two right-turn lanes to the I-205 northbound on-ramp.	Transit signal priority (pending agreement on technology)	None proposed	None proposed	X	
OR 99E/ 12th St	None proposed	Transit signal priority (pending agreement on technology)	None proposed	None proposed	X	
OR 99E/ 10th St	Extend southbound left-turn lane to 12th St; monitor to assess the effects of the improvement over time and determine if additional long-term mitigation would be required.	None proposed	Widen/Improve southbound sidewalk on OR 99E between 10th Street and Railroad Avenue	None proposed		X
OR 99E from 10th St. to Railroad Ave	None proposed	None proposed	Coordinate with the City of Oregon City to implement the OR 99E Bike and Pedestrian Improvements Project, which would improve active transportation facilities on the southbound side of OR 99E.			X
Main St/ 7th St[1]	None proposed	None proposed	Implement pedestrian improvements, as noted for OR 99E from 10th St to Railroad Ave above to improve overall mobility in the area.		X	
Main St/ 10th St	Add traffic signal (pending completion of additional analysis)	Transit signal priority for southbound left turns (pending agreement on acceptable technology)	Signal provides protected crossing; include pedestrian signal and leading pedestrian interval	None proposed	X	

Impact Location	Mitigation Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
82nd Drive and I-205 northbound ramps[2]	Add an additional westbound through lane that extends through the 82nd Drive and the I-205 southbound ramps and a left-turn lane on the northbound off-ramp onto 82nd Dr. These lane additions could be accommodated by restriping the westbound approach and widening the roadway onto the shoulder and by restriping the northbound approach.					X

[1] Impact in 2027 only. Impact goes away by 2045.
[2] Due to uncertainty regarding the projected traffic volumes, ODOT proposes to monitor this location and only implement the proposed mitigation if the actual conditions warrant it.

OR 99E OREGON CITY

- **Ramp Meter Transit Bypass Lane:** SB on-ramp
- **Convert to One-way:** 15th St
- **Sidewalk Widening:** OR 99E SB between 10th St and Main St
- **Safety Improvements**
- **Proposed New Traffic Signal** *(pending signal warrant)*
- **Transit Signal Priority** *(pending agreement on technology)*
- **Queue Bypass and Advance Green Signal for Transit**
- **Bike/Ped Improvements:** improve access from bike lane to sidewalk across Clackamas River Bridge

Intersection Improvements

OR 99E/I-205 NB Ramps

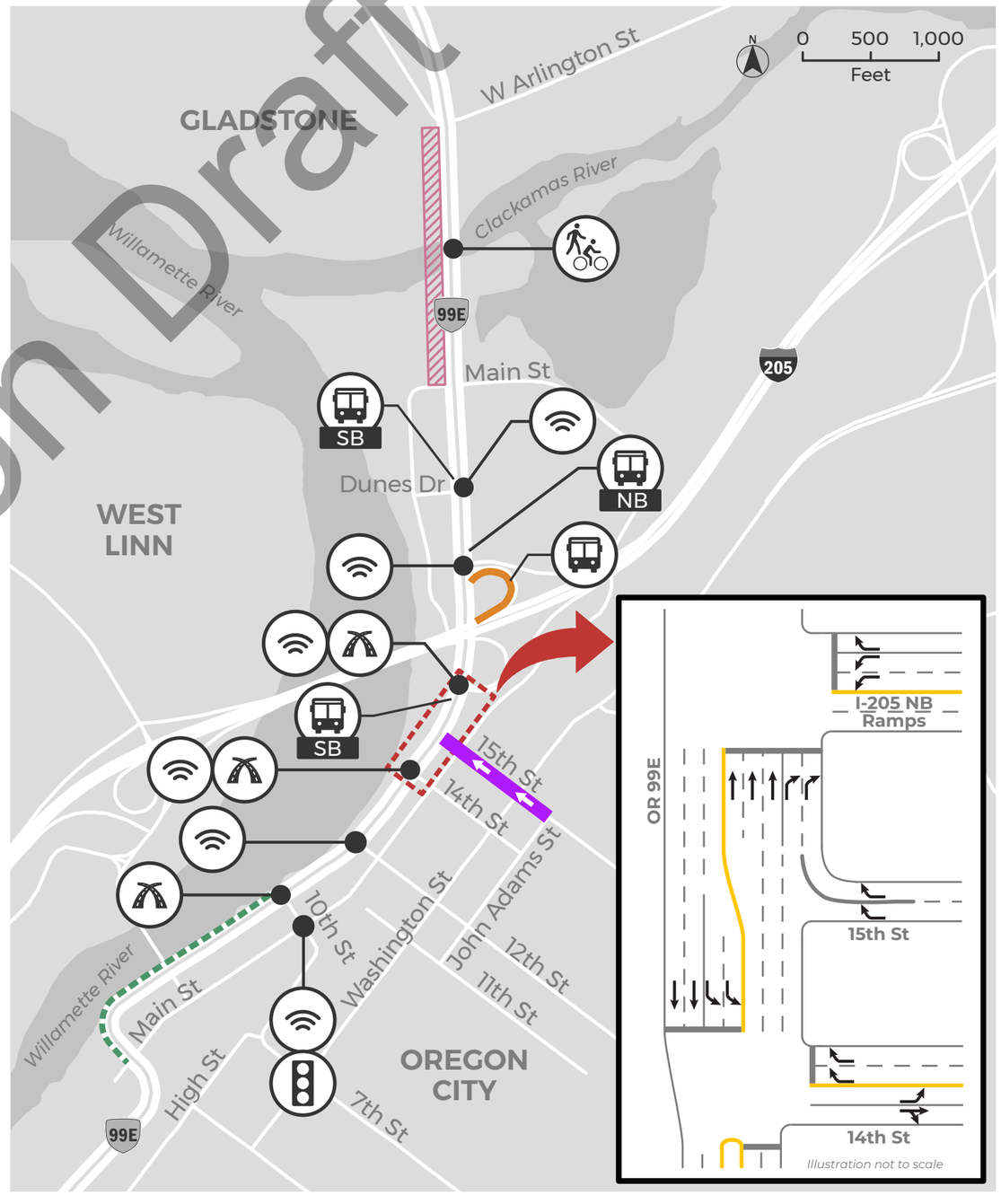
- Add Second left-turn lane to off-ramp
- Add second SB left-turn lane to on-ramp
- Add second NB right-turn lane to on-ramp
- Widen on-ramp to 2 receiving lanes, which taper down to 1

OR 99E/14th St

- Add second SB left-turn lane to 14th St
- Prohibit WB left-turns
- Begin 3rd NB lane on OR 99E

OR 99E/10th St

- Extend SB left-turn lane to 12th St



OR 99E GLADSTONE

Safety Improvements

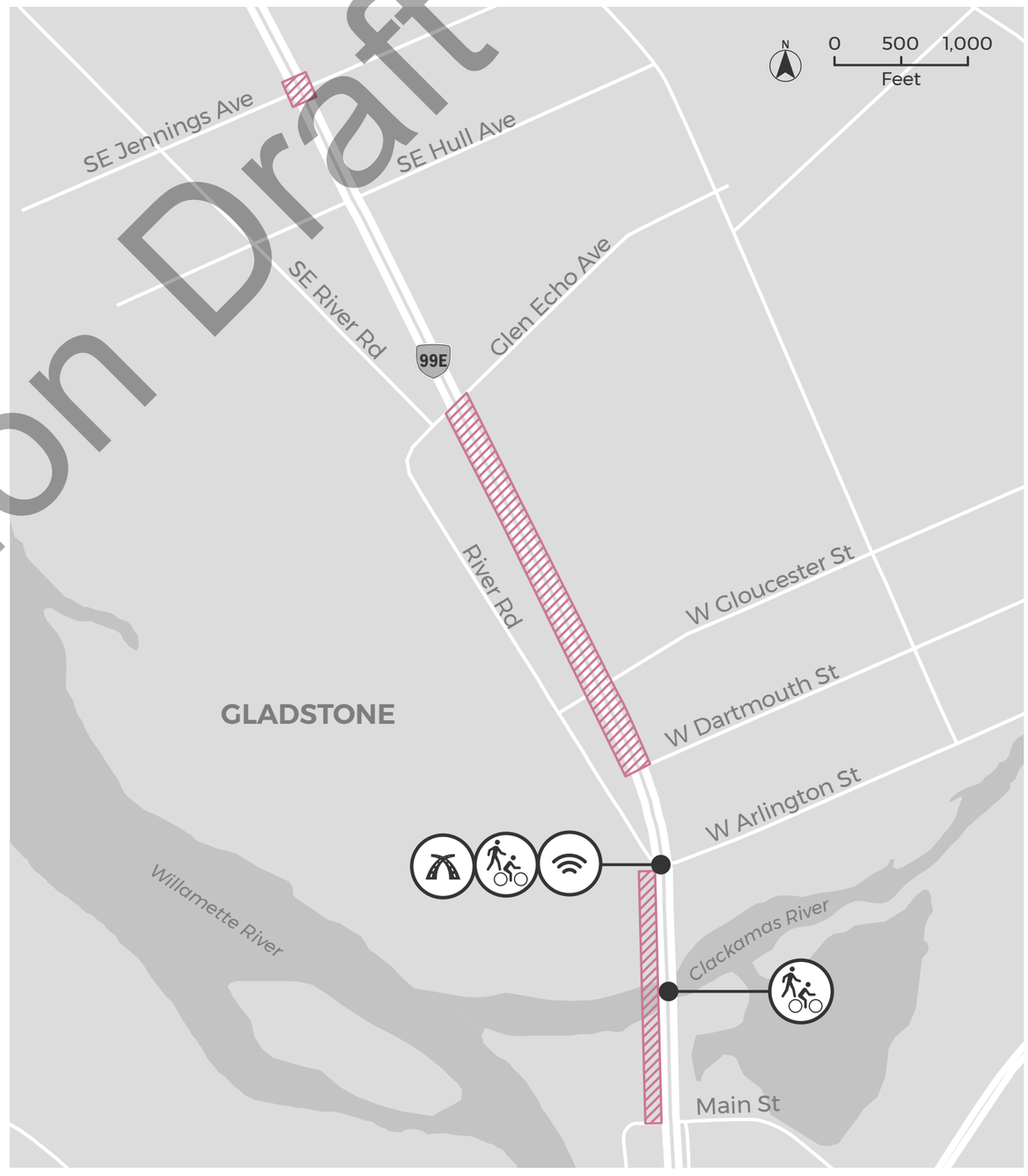
Transit Signal Priority
(pending agreement on technology)

Bike/Ped Improvements

- Improve access from bike lane to sidewalk across Clackamas River Bridge
- at OR 99E and W Arlington St

Intersection Improvements:
at OR 99E and W Arlington St
(in ODOT STIP and to be completed by others)

- Reconfigure the east leg approach to include a separate left-turn lane with protected phasing and a shared through-right-turn lane and reconfigure the west leg to be one-way eastbound right-turn only



Proposed Safety Mitigation - Oregon City/Gladstone

The following safety-related improvements are proposed in addition to the mitigation identified separately for operational impacts to general traffic, transit and active transportation modes.

Intersections

OR 99E and Gloucester Street

- Crashes at this intersection were primarily angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crashes by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

OR 99E and Jennings Avenue

- Crashes at this intersection were primarily rear end and angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crashes by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

Segments

OR 99E – SE Glen Echo Avenue to W Dartmouth Street, and W Arlington Street to Main Street.
Crash patterns along this segment of the corridor involved pedestrians, four pedestrian crashes that resulted in a fatality or severe injury were reported between 2015 and 2019, two of those crashes occurred along OR 99E south of SE Hull Avenue during the dusk/dark. Potential treatments that could be explored to improved safety at these segments include:

- Adding trees alongside the roadway could reduce crashes of all severities by 10 percent. Trees provide traffic calming and narrow a driver's visual field, providing distinct roadway edges, which help drivers guide their movements and assess their speed (ODOT 2022e).
- Installing a mid-block pedestrian crossing with a Rectangular Rapid Flashing Beacon (RRFB) (3-lane or wider roadway) could reduce pedestrian and bicycle crashes of all severities by 10 percent. RRFBs enhance safety by increasing driver awareness of potential pedestrian conflicts (ODOT 2022e)
- Installing lighting on the roadway segment could reduce night crashes of all severities by 28 percent. Lighting allows for greater visibility to the driver of potential conflicts (ODOT 2022e).
- Installing a raised median on an urban multi-lane road could reduce crashes of all severities by 22 percent. Medians can reduce the frequency and magnitude of conflict points at driveways and intersections (ODOT 2022e).

Other safety Improvements

Additional safety improvements are being considered at locations that did not meet the primary safety criteria, but mitigation is proposed at these locations to enhance overall safety within a given subarea or corridor. These include the following mitigations:

OR 99E and I-205 Southbound Ramps

- Crashes at this intersection were primarily angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crash by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

OR 99E and I-205 Northbound Ramps

- Crashes at this intersection were primarily angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crash by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

OR 99E – Main Street (overpass) to 14th Street

- Adding trees along the roadway could reduce crashes of all severities by 10 percent. Trees provide traffic calming and narrow a driver's visual field, providing distinct roadway edges, which help drivers guide their movements and assess their speed (ODOT 2022e).

OR 99E – Main Street (overpass) to Main Street.

- Installing a speed feedback sign would reduce all crashes of all severities by 10 percent. Speed feedback signs enhance safety by managing speeds and reducing the risk of speed related crashes (ODOT 2022e).
- Installing coordination or adaptive signal timing or urban traffic signals could reduce crashes of all severities and types by 17 percent. Coordinated signals produce vehicle platoons keeping traffic at a constant speed, which reduce rear-end conflicts. Vehicle platooning also allows for larger gaps for drivers making permitted turning maneuvers (ODOT 2022e).

OR 99E – SE Jennings Avenue to SE Glen Echo Avenue

- Adding trees alongside the roadway could reduce crashes of all severities by 10 percent. Trees provide traffic calming and narrow a driver's visual field, providing distinct roadway edges, which help drivers guide their movements and assess their speed (ODOT 2022e).
- Installing a raised median on an urban multi-lane road could reduce crashes of all severities by 22 percent. Medians can reduce the frequency and magnitude of conflict points at driveways and intersections (ODOT 2022e).Canby

Proposed Mitigation for the Tualatin Area

Location	Improvement Type				Analysis Year Impact	
	Traffic	Transit	Active Transportation		2027	2045
			Pedestrian	Bike		
Nyberg St/ I-5 Southbound Ramps	Potential traffic impact identified in 2027 but not 2045. City of Tualatin is reconfiguring this intersection. Recommend monitoring subsequently to identify if mitigation is needed.	None proposed	Participate in planned pedestrian/bike improvements and monitor conditions to assess need for future improvements.	None proposed	X	
Nyberg St/ I-5 Northbound Ramps	Potential traffic impact identified in 2027 but not 2045. City of Tualatin is reconfiguring this intersection. Recommend monitoring subsequently to identify if mitigation is needed.	None proposed	Participate in planned Clackamas County pedestrian/bike improvements and monitor conditions to assess need for future improvements.	None proposed	X*	
SW 65th Ave/ SW Borland Rd	Monitor for need for potential long-term mitigation, including restriping the westbound approach as one left-turn lane and one shared through/right-turn lane and adding an exclusive northbound right-turn lane. Additional changes to signal phasing/timings would be required. This improvement would likely require some sliver right-of-way acquisitions.	If transit frequency warrants, add transit signal priority along 65th Ave at SW Borland Rd and Sagart Street (pending agreement between ODOT and TriMet on acceptable technology)	Complete crosswalks and pedestrian signals around the intersection if feasible, and LPI.	None proposed		X

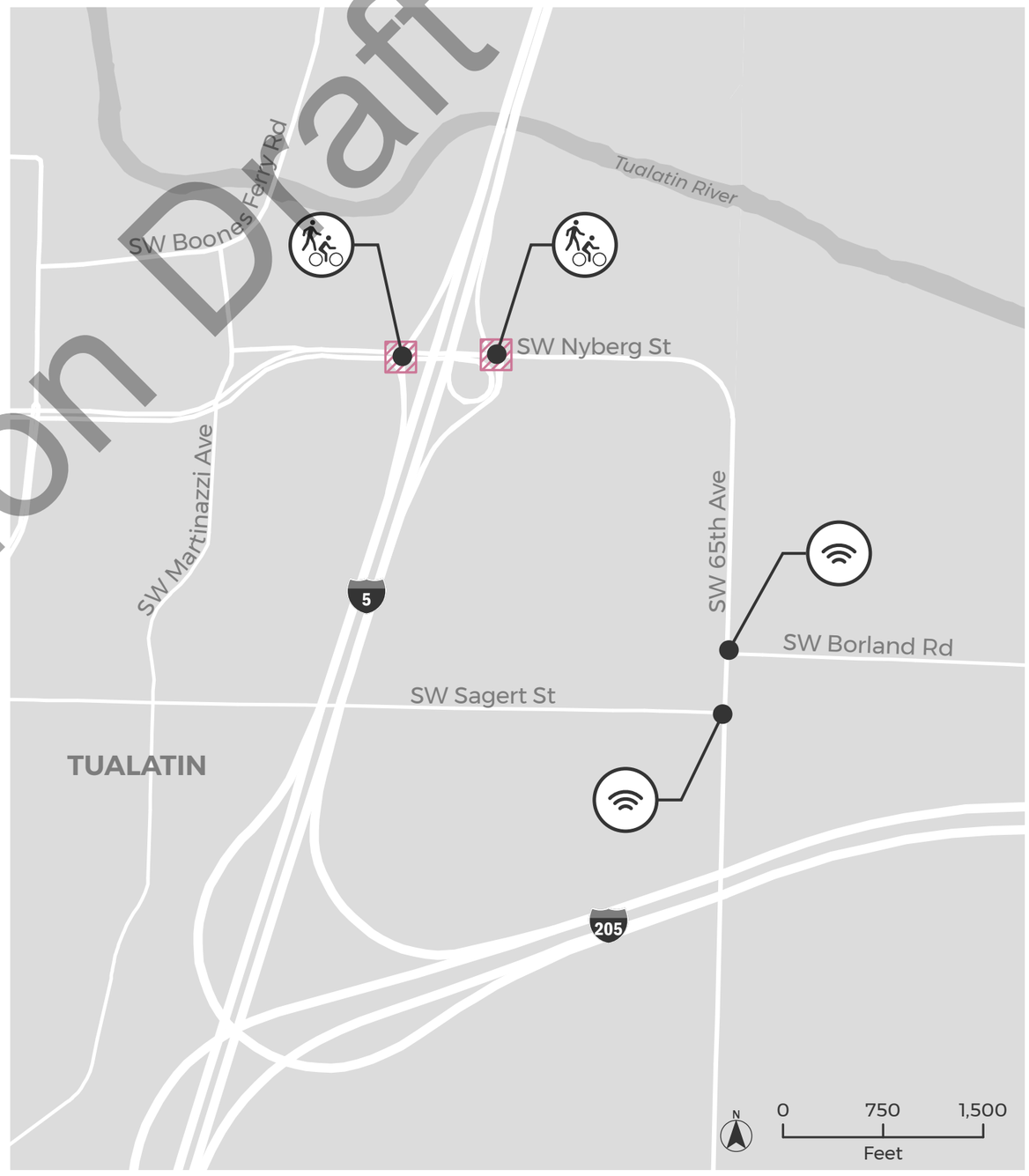
LPI = leading pedestrian interval
*Impact in 2027 only. Impact goes away by 2045.

TUALATIN AREA

Safety Improvments:
Add 3-inch yellow retroreflective sheeting to signal backplates

Transit Signal Priority

Bike/Ped Improvements:
Participation in planned pedestrian/bicycle improvements on SW Nyberg St across interchange



Proposed Mitigation for Stafford Road and Borland Road Area

Location	Improvement Type				Analysis Year Impact	
			Active Transportation			
	Traffic	Transit	Pedestrian	Bike	2027	2045
SW Stafford Rd/ SW Rosemont Rd	None proposed	None proposed	Install RRFB on east and north legs of the roundabout, improve lighting for pedestrians, install raised crosswalks around intersection, improve lighting	None proposed	X	
SW Stafford Rd/SW Childs Rd	Illumination and guardrail improvements	None proposed	None proposed	None proposed		X
SW Stafford Rd/ SW Mountain Rd	Convert to a single-lane roundabout	None proposed	None proposed	None proposed	X	
SW Borland Rd between SW 65th Ave and SW Stafford Rd	None proposed	None proposed	Contribute to RTP Constrained Project: *65th Ave, Tualatin River to I-205 (RTP ID 11428):* To improve safety for residents and employees, add a shared use path on one side of this roadway section.	None proposed		X
SW Borland Rd/ Ek Rd	Install an all-way stop	None proposed	None proposed	None proposed		X
SW Borland Rd between SW Stafford Rd and Tualatin River Bridge	None proposed	None proposed	None proposed	Contribute to RTP Strategic/Clackamas County Transportation System Plan*: Borland Rd, Stafford Rd to West Linn city limits (RTP/CC TSP 1082):* Add paved shoulders in accordance with the active transportation plan		X

RRFB = rectangular rapid-flashing beacon; RTP = regional transportation plan

STAFFORD ROAD & BORLAND ROAD

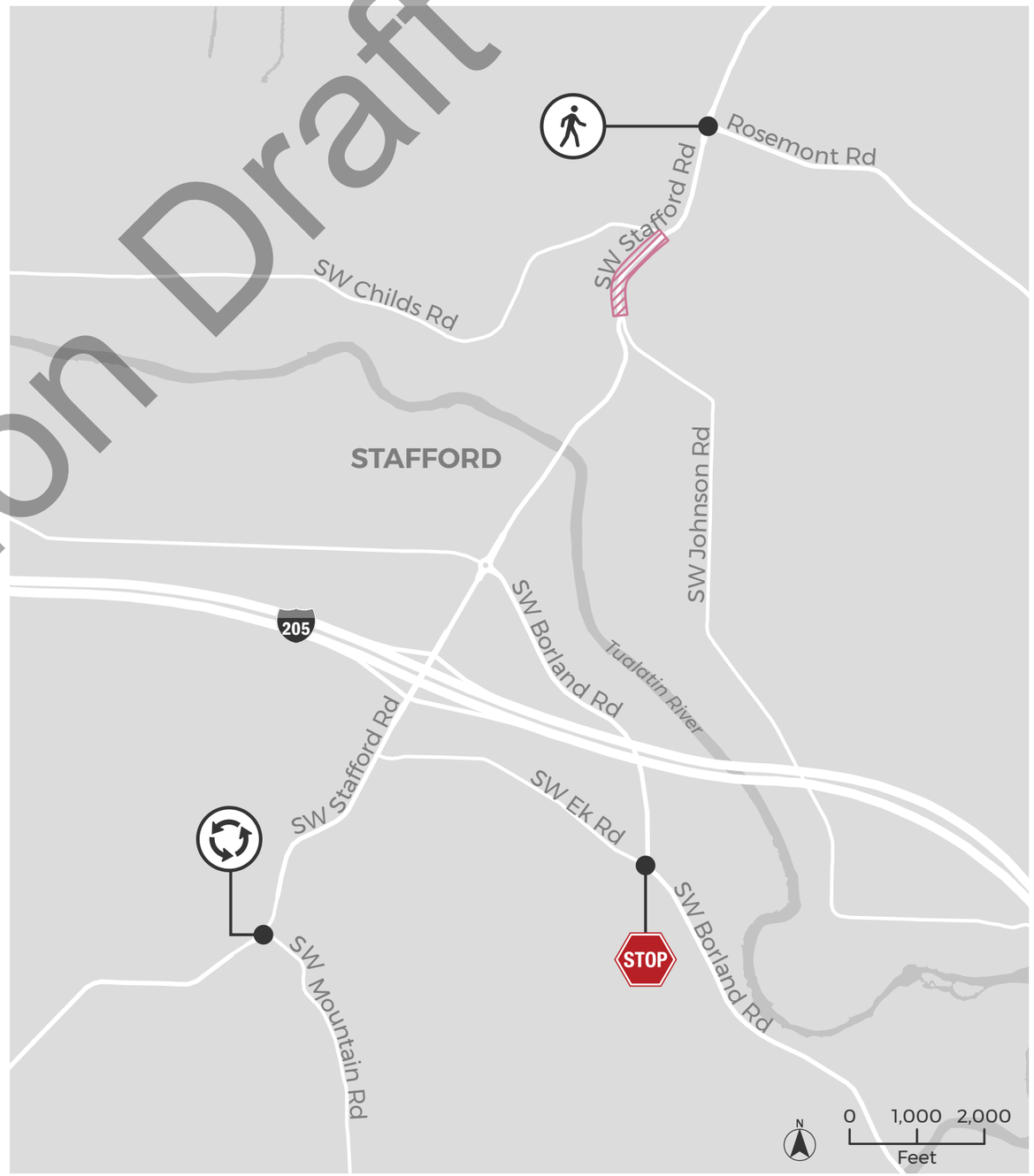
Safety Improvements

Convert to Roundabout: at SW Stafford Rd and SW Mountain Rd

All-way Stop: at SW Borland Rd and SW Ek Rd

Ped Improvements: at SW Stafford Rd and Rosemont Rd
- RRFB* across east and north legs
- Improve lighting for pedestrians and bicycles
- Raised crosswalks around intersection

** RRFB = Rectangular Rapid-Flashing Beacon*



Proposed Safety Mitigation – Tualatin/River Grove

The following safety-related improvements are proposed in addition to the mitigation identified separately for operational impacts to general traffic, transit and active transportation modes.

Intersections

I-5 southbound ramps and SW Nyberg Street

- Crashes at this intersection were primarily rear end and angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crashes by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

Segments

Stafford Road - SW Johnson Rd to Childs Rd

There was no specific crash type or pattern that stood out along this segment. Clackamas County is providing improvements along this corridor which will reduce crashes. This includes installing a roundabout at the currently stop-controlled intersection of Childs Road and Stafford Road; and modifying the Johnson Road and Stafford Road intersection to "square up" the Johnson Road approach and add a southbound left-turn lane. The addition of the southbound left-turn lane creates a median for about half of the length of this segment, which creates some separation between northbound and southbound traffic and improves safety.

- Installing speed feedback signs along this segment can also help reduce all crashes of all severities by 10 percent. Speed feedback signs enhance safety by managing speeds and reducing the risk of speed related crashes (ODOT 2022e).

Other safety Improvements

Additional safety improvements are being considered at locations that did not meet the primary safety criteria, but mitigation is proposed at these locations to enhance overall safety within a given subarea or corridor. These include the following mitigations:

SW Borland Road and SW 65th Avenue

- Crashes at this intersection were primarily angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crash by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).

I-5 Northbound ramps and SW Nyberg Street

- Crashes at this intersection were primarily rear end and angle type crashes, adding 3-inch yellow retroreflective sheeting to signal backplates could reduce all crashes by 15 percent. This treatment enhances signal visibility during daytime and nighttime conditions, and it may alert drivers of the signalized intersection during a power outage (ODOT 2022e).