



SUMMARY REPORT

Trolley Trail Safety Audit

*North Clackamas
Parks and Recreation District*

AUGUST 2023
PREPARED BY ALTA

alta

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01

Background Review

Existing Conditions

The Trolley Trail is a 6-mile multi-use path that runs along a historic corridor once used by a streetcar line that operated between Milwaukie and Gladstone from 1893 until 1968. The trail connects Milwaukie, unincorporated Clackamas County and Gladstone—linking schools, parks, commercial districts, and historical sites along the way.

Developed in 2012, the Trolley Trail is a partnership project involving many residents, community groups and agencies. North Clackamas Parks and Recreation District (NCPRD) partnered with Metro to purchase the Trolley Trail right-of-way in 2001.

NCPRD manages the Trolley Trail with the help of Friends of the Trolley Trail and other community volunteers.

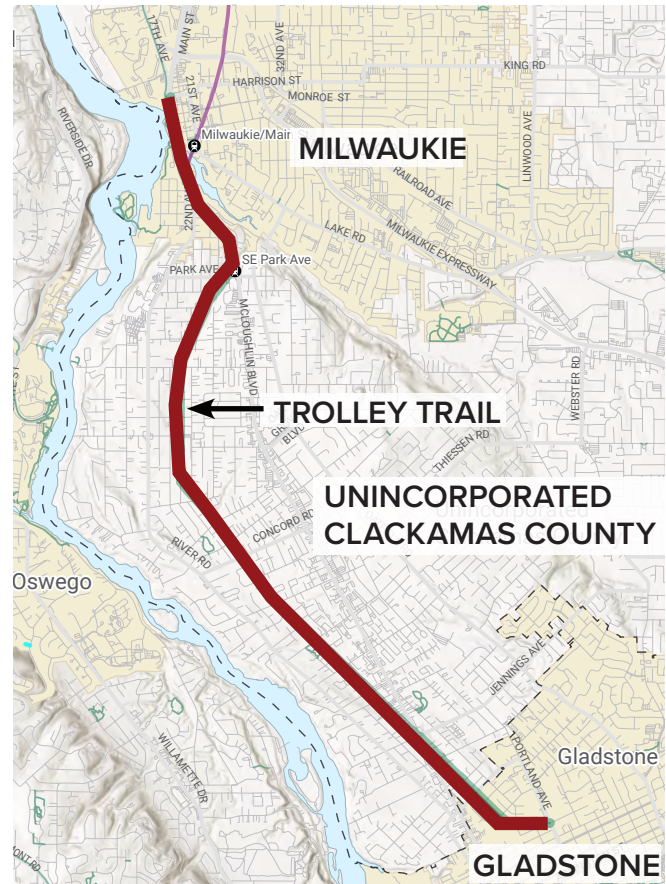
“Provide a safe and inviting trail”
- Project goal in the Trolley Trail Master Plan

Background review

The project team worked with the staff of NCPRD to gather available and pertinent information to understand and assess the existing conditions and challenges along Trolley Trail corridor.

- Trolley Trail Master Plan
- Incident reports from Clackamas County Sheriff Office (2018-2022)
- Crash data (2014-2020)
- Interviews with NCPRD staff and community members
- Trail user count
- Current operations and safety guidelines, rules, regulations and ordinances

CONTEXT MAP



Trolley Trail Master Plan

The purpose of the master plan is to guide the future development and safe use and operation of the Trolley Trail as a non-motorized recreational and commuter trail.

Trail Alignment and Design Features identified in the master plan to promote safety and security include:

- Intersection improvements will ensure safe trail crossings at existing roads.
- Lighting and good definition between the trail and adjacent neighbors (i.e. vegetative buffers).

The following key safety issues were identified in the master plan:

- Unwanted vehicle access on trail
- Privacy of adjacent property owners
- Litter and dumping
- Trespassing
- Crime
- Private use of corridor
- Intersection safety
- Local on-street parking
- Trailhead safety
- Proximity to McLoughlin Blvd
- Vandalism

Incident Reports from Clackamas County Sheriff Office (2018-2022)

According to the incident reports, there were approximately 30 cases recorded by the Clackamas County Sheriff's Office over the course of five years.

The incidents appeared to occur over the years throughout the trail corridor, with a cluster of incidents at or near the MAX station by Park Ave.

The reports included 19 incidents on the trail and 11 where the trail was accessed immediately before or after.

Incident types included: lost and found property (5), disorderly conduct (5), intimidation/threat (4), theft (4), assault (3), drug possession (2), robbery (1), trespassing (1), eluding police (1), hit and run (1), littering (1), welfare check (1).

Crash Data (2014-2020)

Clackamas County examined crash data at intersections and roads along the Trolley Trail, and it appears there have been two crashes involving bicyclists or pedestrians on public right of way along the length of the NCPRD-owned Trolley Trail between 2014 and 2020.

- A crash involving a bicyclist occurred with a northbound vehicle at the intersection of Arista Dr and Risley Ave 8/22/2017 at 4:00am.
- A crash involving a pedestrian occurred with a northeast bound vehicle at the intersection of Arista Dr and Concord Ave 5/9/2014 at 7:00pm.

Interviews with NCPRD Staff and Community Members

CONCERNS FIELD BY NCPRD STAFF INCLUDE:

- Request for a posted speed limit
- Rule sign is too small
- Improve shared use of path
- Lighting request
 - Fog lines were recently added to help address this concern. There was a strategic decision to limit lighting during the planning and design of the Trolley Trail. Property owners adjacent to the trail do not want a lot of lighting on the trail. NCPRD staff mentioned trail users have expressed concern
- Graffiti
 - Trolley Trail Good Neighbor Program (graffiti abatement) offers to paint over graffiti for property owners - most residents have signed up to receive this service.
- Drug use
 - Mostly reported at the restroom near Stringfield Park, but drug activity was also observed during the site assessment near the MAX Station.
- Confusing sections of trail to navigate:
 - Under trestle bridge where River Road and Hwy 99 meet.
 - Jennings Ave crossing to Abernathy Ln
- Trespassing due to lack of fencing along trail.



CONCERNS FIELDIED BY ALTA STAFF FROM COMMUNITY MEMBERS DURING SITE ASSESSMENT INCLUDE:

- Homeless people camping near trail
- Drug use
- Attempted bike theft (near McLoughlin and Jennings)
- Bicyclists speeding
- Motorized vehicles
- Request for a centerline stripe along entire trail

Trail User Count

The trail user counts provided insight into the volume of trail use throughout the day and night at each location. Additionally, it shows that there is a balance of use with very similar number of pedestrians and bicyclists going in each direction on the trail.

ARISTA S OF OAK GROVE BLVD (6/23/22)

Total Southbound:

Pedestrians 93 Bicycles 153

Total Northbound:

Pedestrians 93 Bicycles 174

ARISTA S OF COURTNEY (6/29/22)

Total Southbound:

Pedestrians 149 Bicycles 203

Total Northbound:

Pedestrians 135 Bicycles 202

CONCORD E OF TROLLEY TRAIL (6/23/22)

Total Westbound:

Pedestrians 24 Bicycles 6

Total Eastbound:

Pedestrians 21 Bicycles 9

COURTNEY E OF TROLLEY TRAIL (6/29/22)

Total Westbound:

Pedestrians 116 Bicycles 25

Total Eastbound:

Pedestrians 111 Bicycles 17

OAK GROVE BLVD E OF LINDEN LN (6/29/22)

Total Westbound:

Pedestrians 76 Bicycles 30

Total Eastbound:

Pedestrians 90 Bicycles 26

PARK AVE W OF LRT (6/29/22)

Total Westbound:

Pedestrians 82 Bicycles 14

Total Eastbound:

Pedestrians 101 Bicycles 16

Current Operations and Safety Guidelines, Rules, Regulations and Ordinances

Rules that apply to property owned or maintained by NCPRD include:

- No fires allowed
- No hunting, fireworks, and weapons
- No alcohol
- Respect property:
 - No mutilation, damage, removal, relocation, or defacing of any park assets allowed.
 - No digging, defacing, blasting or removal of any stone, dirt, rock or other material allowed.
 - No tree or shrub planting is allowed without permission from the Director.
 - Outside of designated areas, no temporary signs, markers or inscriptions are allowed in NCPRD parks unless permission is granted by a District employee.
 - No PA systems are allowed in parks without a special use permit in place.
 - No pollution of any water, soils or any park areas allowed.
 - Threatening, abusive language or gestures, public disturbances, rioting or panhandling are not tolerated.
 - Noise-producing machines, vehicles, devices or instruments used in a way that disturbs park area visitors are not allowed.
 - Do not pick, cut, remove or mutilate any flowers, shrubs, foliage, trees, plant life, or products of any type.
- No concessions and solicitations
- Dogs, cats and other animals:
 - Dogs, cats and other animals must be kept on a leash (maximum 6 feet long) except in areas specifically designated as “off-leash.”
 - You must keep control of your pet — pets are not to annoy, molest, bark continuously, attack or injure any person or animal in the park area.
 - Do not leave pets tied up and or/unattended.
 - You must clean up after your pet. Place pet waste in a bag or container and dispose of it in a designated waste receptacle.

EXISTING TROLLEY TRAIL ETIQUETTE SIGN MESSAGE:

- Yield to Pedestrians
- Keep Animals Under Control
- Keep Right and Pass on Left
- Announce Yourself
- Protect Yourself and Others
- Keep the Trail Clean
- Stop at Intersections
- In an Emergency, Dial 911

- Do not exceed 10 miles per hour unless otherwise noted.
- Park only in designated parking areas.
- Use only vehicle/bicycle appropriate paths and trails.
- Put ALL waste in appropriate waste receptacles.
- No dumping allowed.
- No overnight camping is allowed in NCPRD parks.
- You shall not disturb or interfere unreasonably with any person or party occupying or participating in any activity in a park under the authority of a permit.

The Director, District employees, and law enforcement officers have the right to ensure NCPRD rules are followed through issuance of citations or expulsion from parks. Do not obstruct or interfere with the enforcement of these rules. Violation of rules is punishable by a fine set by the Board.

Best Practices

In addition to including the Alta team's extensive resources and experience to determine best practices for safe trail design and maintenance. The project team researched the most current best practices as related to safety improvement recommendations included in this report. The prioritized recommendations found in this summary report are consistent with the standards, operations and rules of the following:

- Metro: Designing Livable Streets and Trails Guide, January 2020
- Oregon Parks and Recreation Department: Trail Design Guidelines for Portland's Park System, 2009
- Tualatin Hills Parks and Rec Department: Trails Functional Plan, 2016
- Eugene Trails Plan (2018): Guiding Principles for Trail Siting and Design
- Portland Parks and Recreation Department: Trail Design Guidelines for Portland's Park System (2009)

02

Safety Audit Process



Safety Audit Process

Alta staff compiled a checklist of safety items to consider during the safety assessment in the field. The project team sought to identify challenges and potential solutions in the field by conducting two field visits to identify safety issues pertaining to trail conditions and user experience.

Safety Audit Materials

The project team assembled safety audit materials to support the site assessment efforts in the field.

Site Map

Data acquired from Metro's Regional Land Information System (RLIS) and OpenStreetMap was used to create the site plan maps that were instrumental in taking accurate notes during the project team's site assessments. The corridor was divided into segments at 1" = 60' to allow for a comprehensive understanding of the site context.

Trail Conditions Site Assessment Checklist

See Appendix C. Checklist items included:

- Visibility issues due to lighting, vegetation, slopes, other
- Surface conditions such as drainage, materials, leaf litter, cracks, tree roots, other
- Signage / striping issues such as messaging, placement of, lack of, other
- Adjacent land uses such as industrial, heavy machinery, noises, odors, other
- Obstacles and constraints

User Experience Site Assessment Checklist

See Appendix C. Checklist items included:

- User conflict concerns (especially between bicyclists and pedestrians, as well as between trail users and vehicles at intersections)
- Crash risk (associated with speed, turning radius, trail width, volume of users, etc.)
- Assess visual guidance and user response.

Trail Conditions Assessment (Field Visit #1)

Date: Monday, May 8th 2023 8:00am-4:00pm

Weather conditions: Low of 65 degrees and cloudy in the morning. High of 78 degrees and sunny in the afternoon.



The first field visit provided thorough documentation of the trail condition and identified potential safety issues along the trail corridor. Both an engineer and a landscape architect walked the entire corridor out and back while conducting a safety audit of the trail at access points, intersections, trailheads and along the trail corridor.

The Trail Conditions Assessment considered the following items:

- Visibility issues (due to lighting, vegetation, slopes, etc.)
- Surface conditions (drainage, materials, leaf litter, cracks, tree roots, etc.)
- Signage / striping (messaging, placement of, lack of, etc.)
- Adjacent land uses (industrial, heavy machinery, noises, odors, etc.)
- Obstacles and constraints

Alta staff documented observations using a detailed site map and checklist in addition to photo documentation to ensure a comprehensive and thorough analysis of the entire corridor.



User Experience Assessment (Field Visit #2)

Date: Thursday, May 25th, 8-10am and 4-6pm

Weather conditions: 63 degrees and cloudy in the morning. 80 degrees and sunny in the afternoon.

The second field visit was scheduled at times that would capture the trail at higher use in order to better understand and observe user experience along the trail corridor, and identify potential user conflicts along the trail corridor. Four Alta staff were situated strategically at specific locations that were identified as potential areas of concern along the corridor. Each observer had a site map and checklist of relevant issues to take notes on and reference to assist with observing trail user behaviors.

The User Experience Assessment considered the following items:

- User conflict concerns (especially between bicyclists and pedestrians, as well as between trail users and vehicles at intersections)
- Crash risk (associated with speed, turning radius, trail width, volume of users, etc.)
- Assess visual guidance and user response.



03

Field Visit Summary

Trail Conditions Assessment

See Appendix A for the complete Trail Conditions Assessment (Field Visit #1) findings. The following provides just the key takeaways or observations of issues to address from the site visit.

Signage

Key Takeaways:

- Use consistent signage (size, type, placement, etc.) at stop-controlled intersections throughout the corridor.
- Add or relocate wayfinding signage in key locations to help users better understand how to navigate the trail.
- Trim vegetation as needed to maintain visibility of signage.
- Remove graffiti from signs.
- Replace faded signs.



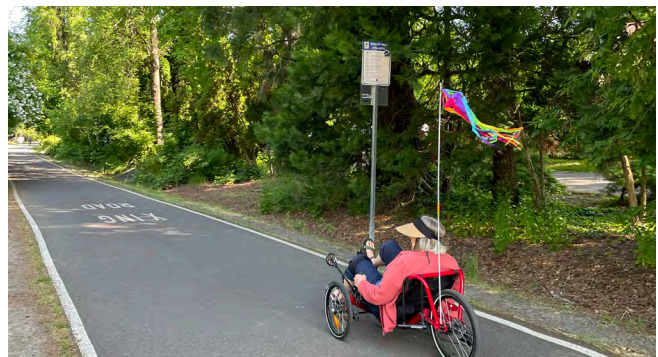
Arrow on sign pointing wrong direction



Inconsistent stop signage at road crossings



Wayfinding sign is leaning



Trail etiquette sign is too small / high



Graffiti on sign



Faded stop sign

Striping

Key Takeaways:

- High visibility continental crosswalks should be applied as a standard crossing treatment.
- Repaint faded striping and pavement markers throughout the corridor to maintain visibility.
- Add pavement markings in key locations to help trail users to navigate the trail safely.
- Add green paint at key locations to improve visibility of bicycle route for both bicyclists and drivers.
- The fog lines used on a majority of the Trolley Trail are a very helpful visual cue for users to stay on the path and anticipate any upcoming changes. Dash the fog line at driveways to indicate vehicle crossings.



Faded pavement marking



Substandard crosswalk markings



Unclear crossing for trail users (and drivers)



Unlevel surface at turning point



No fog line across driveway



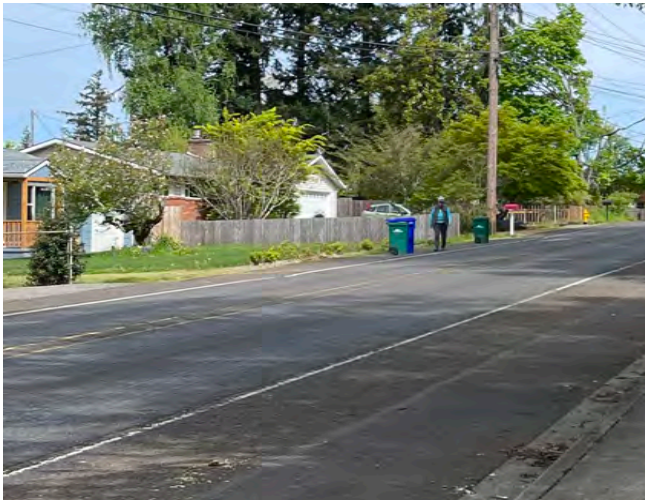
Pinch point near busy road



Tight curve with drop off



Narrow trail with steep slope adjacent



Bicyclist route lacks shared use signage



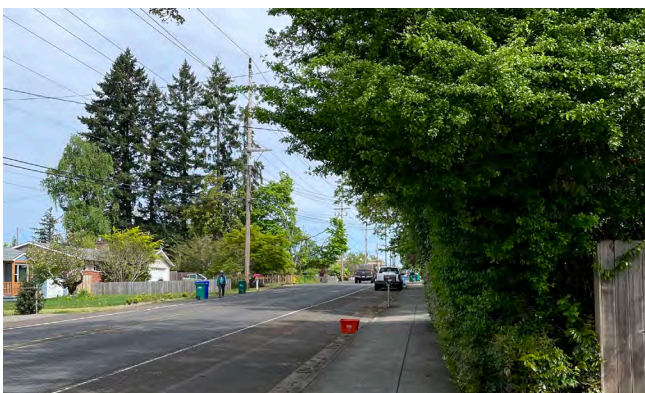
Trail surface uplift from tree roots



Trail edge lacks shoulder



Uneven trail surface - potential trip hazard



Overhanging vegetation on narrow section

Surface Conditions

Key Takeaways:

- Maintain level surface. Reposition utility manhole lids or provide warning paint at locations with unlevel surfaces.
- Add ADA ramps at trailheads and crossings to maintain access.
- Trim vegetation overhanging onto the trail as needed.
- Continue to remove debris.
- Repair asphalt and concrete surface as needed.
- Bolster shoulders to eliminate drop offs from trail edge.
- Add safety barriers in areas with steep drop offs.
- Widen trail to 12' where possible to allow safe passing and cross traffic.



Cracked unlevel trail surface



Uneven manhole cover



Uneven surface at trail edge

Visibility Issues

Key Takeaways:

- Add reflectors to bollards and vertical elements within two feet of trail.
- Repair and add trail lighting at key locations.
- Trim vegetation to maintain visibility at intersections.



Vertical posts within 2' trail clearance



Broken lighting fixture



Bollard without reflectors

Adjacent Land Uses

Key Takeaways:

- Plant trees along sections of the corridor that otherwise have no shade.
- Add landscaping to enhance visual buffer and reduce noise from busy roads and industrial uses.



Adjacent industrial land use



No buffer between trail and busy road



Lack of shade along long sections of trail

Other

Key Takeaways:

- Trail Etiquette signs should be more prominent. Increase size and locate in more visible location.
- Add speed humps and shared lane markings (aka “sharrows”) along portions of the trail that have no designated bike lane, and have bicyclists sharing the road with drivers.
- Continue to enforce no camping rules.
- Add curb stops to parking stalls adjacent to trail to prevent parked cars from overhanging the trail along sidewalks.



Sign not visible at current height/text size



Camping and graffiti adjacent to trail



Adjacent property owners security sign



Vehicles overhang trail



Graffiti cover-up

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User Experience Assessment

See Appendix B for the complete User Experience Assessment (Field Visit #2) Findings Report. The following provides just the key takeaways from the site visits

Corridor-Wide Observations

Key Takeaways:

- The bollard and basalt trailhead markers are effective at forcing trail users to recognize and slow down at intersections.
- Sections of the trail that are adjacent to McLoughlin Blvd are impacted from noise pollution generated from the roadway.
- Some scooters/ebikes moved through the corridor at high speeds.
- Trail users generally self regulate speed, share the path, and slow down to pass.



Observation Sites:

- **SE 17th and McLoughlin Blvd**
(near Milwaukie Bay Park)
- between **SE 22nd and SE River Road**
- **SE Park Ave and SE 27th Ave**
(near MAX Station)
- **SE Torbank Ave to SE Courtney Ave and SE Arista Dr**
- intersection of **SE Concord Rd and SE Arista Dr**
- between **SE Arista Dr to SE Hull Ave**



SE 17th & McLoughlin Blvd (near Milwaukie Bay Park)

Key Takeaways:

- Most pedestrians use the west side path at Milwaukie Bay Park, adjacent to the Trolley Trail, reducing potential for conflict between users.
- Northbound bicyclists were observed traveling at fast speeds when turning at north curb corner.



Between SE 22nd & SE River Road

Key Takeaways:

- Drivers park on rocks adjacent to trail without safe separation measures.
- Multiple bicyclists traveled through the intersection of SE River Rd and SE McLoughlin Blvd against a red light.
- Drivers idle in the crosswalk, blocking trail users from crossing.
- There is limited space to wait in the pedestrian island when crossing at River Rd.



SE Park Ave & SE 27th Ave (near MAX Station)

Key Takeaways:

- Drug use was observed, it was quickly accompanied by a heavy presence of TriMet security staff.
- One individual was seen sleeping on trail, blocking the southbound direction for trail users.
- The plaza the SE Park Ave MAX Station is a high activity area for pedestrians and serves as a popular turnaround area for trail users.
- A driver turned from Park Ave to 27th Ave on a red light, cutting off a bicyclist with a green light at the diagonal crossing.
- Pedestrians often used the diagonal bike signal, although signal is not timed long enough to walk through at a leisurely pace.
- The majority of bicyclists in the evening traveled through the diagonal bike crossing during a red light.



SE Torbank Ave to SE Courtney Ave & SE Arista Dr

Key Takeaways:

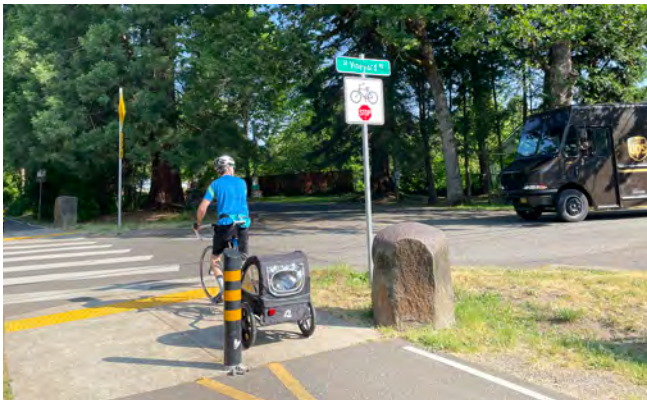
- Many bicyclists do a rolling stop through the crossing at SE Courtney Ave and SE Arista Drive.
- Some parents/caretakers walk students to school along the Trolley Trail using the Torbank Ave trailhead.



Intersection of SE Concord Rd & SE Arista Dr

Key Takeaways:

- Some drivers go through this intersection quickly.
- The intersection is complicated with the Trolley Trail situated between parallel two-way roads, creates potential for vehicles to block trail when turning.
- The bollard and basalt trailhead markers are effective at forcing trail users to slow down at intersections and indicate vehicle crossing.
- Signage at stop-controlled intersections needs to be consistent throughout corridor.



Between SE Arista Dr to SE Hull Ave

Key Takeaways:

- Arista Dr and McLoughlin Blvd seems to be perceived as the “end of trail” for many trail users.
- Drivers speed from McLoughlin Blvd onto Arista Dr. One driver was observed driving up onto the curb.
- The narrow trail and tight turning radius combined with a curb drop off and no separation from vehicles creates a safety challenge for trail users.
- Bicyclists in both directions were observed staying on the sidewalk along McLoughlin Blvd rather than using the marked bike lane on the road.
- Witnessed attempted bike theft at this section of the trail corridor.
- Pedestrians must wait a long time for a “walk” signal across McLoughlin Blvd. The waiting zone conditions can feel uncomfortable, exposed to fast traffic and sun.
- Very short “walk” window across intersection of SE Jennings Ave and SE McLoughlin Blvd.
- Drivers observed driving along dead end and turning around.



04

Toolkit of Solutions

Toolkit of Potential Solutions

This toolkit includes potential safety improvement options that respond directly to the specific safety issues and conditions observed during the Trail Safety Audit.

It is organized into the following categories:

Signage:

Enhance wayfinding signage to promote safety and help trail users to navigate the corridor.

Striping and Pavement Markings:

Improve safety and promote a pleasant user experience.

Maintenance and Operations:

Trail improvements that will improve safety and user experience.

Safety Campaign:

Safety campaign will address trail user behavior and promote safety.

Surface Treatments:

Improve the conditions of the trail surface enhancing safety and user experience.

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Signage



WAYFINDING SIGNS

Wayfinding signage provides information to help trail users to navigate the corridor to preferred destinations.

Use: Wayfinding is placed in advance of decision points along the trail and access locations.

Application: Wayfinding signs should be placed in visible and predictable locations to ensure visibility and provide clear direction and key distances for different user groups.

Cost: \$\$



STOP SIGNS

Stop and advanced warning signage provide for predictable behavior from all users. The signage should be consistent along the corridor at intersections and roadway crossings.

Use: Place signage at stop-controlled intersections throughout the corridor.

Application: Refer to the Manual on Uniform Control Devices for appropriate, consistent signage (size, type and placement. etc.)

Cost: \$



TRAIL ETIQUETTE SIGNS

Trail etiquette signs should address trail user behavior and promote desired safety precautions.

Use: Trail Etiquette signs at trailheads and more prominent locations throughout the corridor.

Application: Increase font size and locate in more visible locations at standard sign height.

Cost: \$



PEDESTRIAN CROSSING SIGNS

Alert drivers to slow down and look out for pedestrians.. The signage should be consistent along the corridor at pedestrian crossings.

Use: Place signage 100' before pedestrian crossings.

Application: Refer to the Manual on Uniform Control Devices for appropriate, consistent signage (size, type and placement. etc.)

Cost: \$



ADD STRIPING

Trail pavements markings are designed to accommodate all users and minimize conflicts. Pavement markings should indicate direction of travel and special consideration should be given to constrained and high traffic trail segments.

Use: Pavement markings are appropriate at narrow or busy segments of the trail, or where other constraints or conflicts occur for trail users.

Application: Pavement markings include fog lines, centerline striping, dashed markings at driveways, and pavement legends such as “SLOW” and “STOP AHEAD” per the Manual on Uniform Traffic Control Devices (MUTCD).

Cost: \$\$



ADD / UPDATE CROSSWALKS

High visibility continental style crosswalks make trail users more visible to drivers from a further distance.

Use: Continental style crosswalks should be applied consistently throughout the trail corridor.

Application: Refer to the Manual on Uniform Control Devices for appropriate marking and placement. Continental style crosswalks may be combined with other visibility enhancements such as lighting, additional signage, and other pavement markings.

Cost: \$\$



ADD SHARED LANE MARKINGS

Shared lane markings, aka “sharrows”, are used in a shared roadway environment to indicate the presence and path of travel of bicyclists.

Use: Add shared lane markings and confirmation signage along portions of the trail that are on road

Application: Refer to the Manual on Uniform Control Devices for appropriate marking and placement.

Cost: \$



ADD GREEN PAINT BIKE FACILITIES

Add green skip striping to indicate where potential conflicts exist between motorists and bicyclists, and to increase drivers’ yielding behavior at these locations. Add bike boxes to facilitate a two-stage left turn across busy intersections where bikes are turning left.

Use: Green paint markings increase visibility at high-traffic intersections, minor street crossings, and driveways.

Application: Refer to the National Association of City Transportation Officials (NACTO) and FHWA Interim Approval 14 for further detail and design guidance.

Cost: \$\$

Striping and Pavement Markings



ADD PAVEMENT MARKINGS

Pavement markings (chevrons, directional arrows, shared lane markings, etc) in strategic locations to help pedestrians and bicyclists to navigate through the corridor. Consider separating trail user types in areas where the path becomes narrow for side by side use.

Use: Add pavement markings in strategic locations to help trail users navigate the path, particularly useful to separate trail user types in areas where the path becomes narrow for side by side use.

Issue/Condition: Narrow or busy sections of the trail

Cost: \$\$



REPAINT / REFRESH PAINT

Identify faded pavement markings. Repaint and refresh all pavement markings as needed or on a routine schedule to maintain high visibility.

Cost: \$\$

Maintenance and Operations



TRIM VEGETATION

Upkeep trail vegetation to increase visibility and safety along the trail corridor and reduce trail obstructions.

Use: Ensure that trees and shrubs are located and maintained so as not to obstruct the line of sight for drivers and trail users at intersections.

Application: Trail maintenance should be prioritized to minimize obstructions, keep signage visible, and maintain appropriate sight lines.

Cost: \$



REPAIR, RELOCATE, & REPLACE SIGNS

Replace signs that are damaged, faded, or do not meet the standard sign design criteria.

Use: Identify and replace signs that are damaged or do not meet current design standards.

Application: Replace damaged signs and sign posts, poor sign location, or inconsistent signage or signs that do not meet current design standards.

Cost: \$\$



REMOVE GRAFFITI

Graffiti on trails can create a negative environment, and removing it in a timely manner will help keep the trail a welcoming place for all.

Use: Photograph, report, and remove graffiti as soon as possible to discourage repeat vandalism. Color-match paint and surfaces to deter new graffiti, power-wash porous surfaces, and remove stickers with a dull blade.

Application: Refer to Crime Prevention Through Environmental Design (CPTED) for further guidance.

Cost: \$



ADD, REPAIR, & REPLACE LIGHTING

Enhance trail lighting and repair existing light fixtures to increase safety and visibility.

Use: Replace lighting fixtures that are damaged, no longer operational, or not optimizing visibility. Add lighting to areas that are high-use during dark hours.

Application: Develop regular maintenance and inspection routine of light fixtures.

Cost: \$\$-\$\$\$\$

Maintenance and Operations



RESURFACE TRAIL

Apply asphalt overlay to trail sections as needed to maintain a smooth surface condition and prevent uplift and cracking. Upkeep of trail surface will prevent surface degradation or unlevel surfaces due to utilities or tree roots.

Use: Evaluate areas of the trails where resurfacing or re-leveling is needed.

Application: Reposition man hole covers to be level as needed. Resurface areas and maintain level surface of trail in areas with uplift due to tree roots. In short term, paint any hazards to increase visibility.

Cost: \$\$\$



REMOVE DEBRIS

Removing debris on a regular basis keeps path safe and clean to ride on so all trail users are less prone to slip or other injuries.

Use: Debris from vegetation and litter should be removed.

Cost: \$



INCREASE TRAIL USER CROSSING TIME AT SIGNALIZED INTERSECTIONS

Leading Pedestrian Intervals (LPIs) give pedestrians the opportunity to cross the street at signalized intersection 3-7 seconds before parallel drivers are able to proceed. LPIs reinforce pedestrian right-of-way and increases pedestrian visibility to turning vehicles.

Use: LPIs should be implemented at signalized intersections where trail users are crossing against turning vehicles. Consideration should be given to the impact on transit performance and vehicular capacity.

Application: Signal timing modifications will need to be reviewed and approved from appropriate jurisdictions before implementation.

Cost: \$



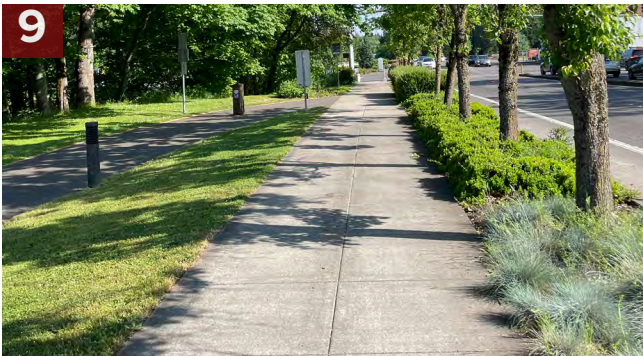
MAINTAIN SHOULDER

Add to or bolster trail shoulder with gravel material to create level surface and eliminate drop off from trail edge.

Use: Evaluate sections where the shoulder is eroding or can be enhanced.

Cost: \$\$

Maintenance and Operations



ADD LANDSCAPE BUFFER

Plant shrubs and low growing plants to create an aesthetically pleasing buffer between busy roads and other unsightly adjacent land uses. Vegetation along the corridor helps to manage stormwater runoff, reduces noise and air pollution, and enhances separation between trail users and drivers.

Use: Landscape buffers should be prioritized where there is sufficient width between the trail and roadway or other land uses.

Cost: \$\$

Safety Campaign



SAFETY CAMPAIGN

Promote key safety messages at strategic locations to encourage trail users to share the path and maintain a safe and comfortable experience for everyone.

Use: Place safety messages along sections where trail conflicts are observed or reported.

Cost: \$\$

Examples of key messages to highlight include:

- Slow Down
- Share the Path
- Yield to Pedestrians
- Keep Right and Pass on Left
- Announce “Passing on Left”
- Keep the Trail Clean
- Stop at Intersections
- Keep Dogs on a Short Leash



1 WIDEN TRAIL

The appropriate trail width should accommodate the environment, volume, and mix of users to enhance safety and promote a comfortable user experience. A narrow trail can increase risk of user conflicts.

Use: The desired trail width is 12 feet, excluding the shoulders on either side, to accommodate peak volume and two-way traffic.

Application: Evaluate narrow or substandard sections of the path to meet current standards. Prioritize widening the trail at heavy traffic locations in constrained environments.

Cost: \$\$\$\$-\$\$\$\$\$



3 ADD SAFETY BARRIER

Safety barriers increase comfort and safety of trail users and prevent users from dropping off of the trail.

Use: Safety barriers should be applied where there is a drop off, steep slope, or high speed traffic adjacent to the trail. Vegetation can also be used as a buffer in certain context on slopes.

Application: Safety barriers can include flexible delineators, concrete barriers, pedestrian railing, or landscaped buffers.

Cost: \$\$\$



2 ADD ADA-COMPLIANT CURB RAMP

ADA-compliant curb ramps are accessible for people using wheelchairs and other wheeled mobility devices, as well as people with low or no vision.

Use: Upgrade existing non-ADA compliant curb ramps or areas with poor pedestrian crossing conditions.

Application: Refer to Public Rights-of-Way Accessibility Guidelines (PROWAG) for further guidance.

Cost: \$\$\$



4 PEDESTRIAN REFUGE ISLAND

A pedestrian refuge island is a raised median with a refuge area that is intended to help protect people crossing a multi-lane road. The refuge area allows them to cross one direction of traffic at a time.

Use: A pedestrian refuge island should be prioritized at pedestrian crossings where there is adequate width for a raised median and multiple lanes of traffic.

Application: Prioritize refuge islands at existing crossing locations.

Cost: \$\$

Surface Treatments



BOLLARDS

Relocate bollard to avoid potential safety issue on narrow path.

Use: Relocate the bollard to alleviate pinch point next to busy road.

Cost: \$



ADD SPEED HUMPS

Speed humps are vertical traffic calming devices that are intended to reduce speeds to 15-20 mph on low-volume roads where bicyclists are present.

Use: Speed humps are effective along portions of the trail that are on the roadway to slow drivers.

Application: Vehicle speeds and other roadway characteristics (traffic volume, curb to curb width, etc.) should be evaluated for speed hump feasibility and placement.

Cost: \$\$



ADD REFLECTORS

Adding reflective markers to objects near or in trail path prevents damage to trail facilities and reduces injuries.

Use: Add reflectors to all bollards and any vertical objects within 2' of trail shoulder.

Cost: \$



ADD CURB STOPS

Curb stops are placed in parking stalls to prevent vehicles from overhanging onto sidewalk.

Use: Vehicles overhang on the sidewalk on Arista Dr between Pinelane St and Maple St which could be prevented with curb stops.

Application: Add curb stops to parking stall.

Cost: \$

05

Priority Recommendations

Recommendations Toolkit

List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
- 2 ADD SHARED LANE MARKINGS
- 3 ADD / UPDATE CROSSWALKS
- 4 ADD GREEN PAINT BIKE FACILITIES
- 5 ADD PAVEMENT MARKINGS
- 6 REPAINT / REFRESH PAINT

Maintenance & Operations

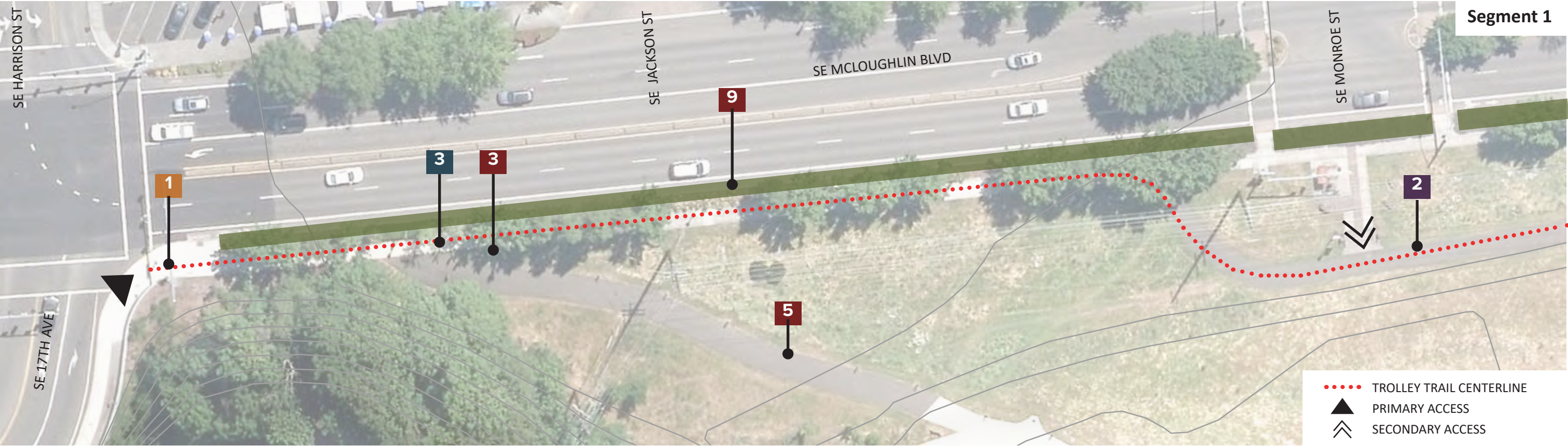
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- 4 ADD, REPAIR, & REPLACE LIGHTING
- 5 MAINTAIN LEVEL TRAIL SURFACE
- 6 INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
- 7 REMOVE DEBRIS
- 8 MAINTAIN SHOULDER
- 9 ADD LANDSCAPE BUFFER

Safety Campaign

- 1 SAFETY CAMPAIGN

Surface Treatments

- 1 WIDEN TRAIL
- 2 ADD ADA COMPLIANT CURB RAMPS
- 3 ADD SAFETY BARRIER
- 4 PEDESTRIAN REFUGE ISLAND
- 5 BOLLARDS
- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
1	Safety campaign to slow bicyclists turning corner	NCPRD
3	Add more prominent trail etiquette sign	NCPRD
3	Remove graffiti from signage *	NCPRD
9	Add / improve vegetative buffer along McLoughlin	NCPRD
5	Resurface asphalt trail	NCPRD
2	Add shared path pavement markings	NCPRD

*COMPLETED SUMMER DURING ROUTINE MAINTENANCE 2023

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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Safety Campaign

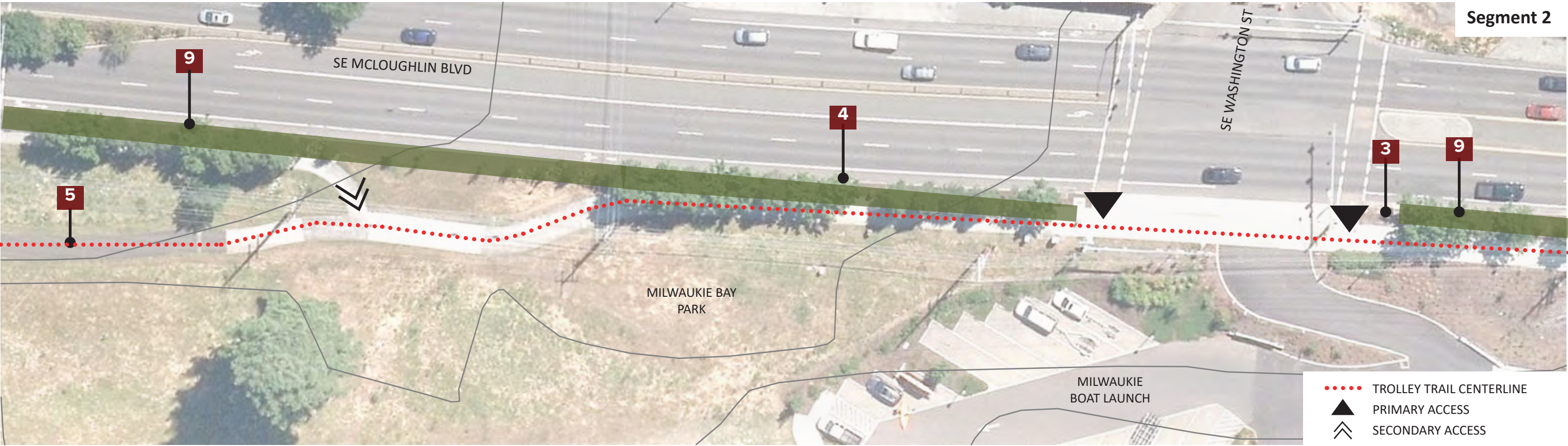
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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

5	Repair asphalt surface / seal cracks	NCPRD
9	Add / improve vegetative buffer along McLoughlin Blvd	NCPRD
4	Repair broken light fixture	NCPRD
3	Remove graffiti from signage *	NCPRD

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RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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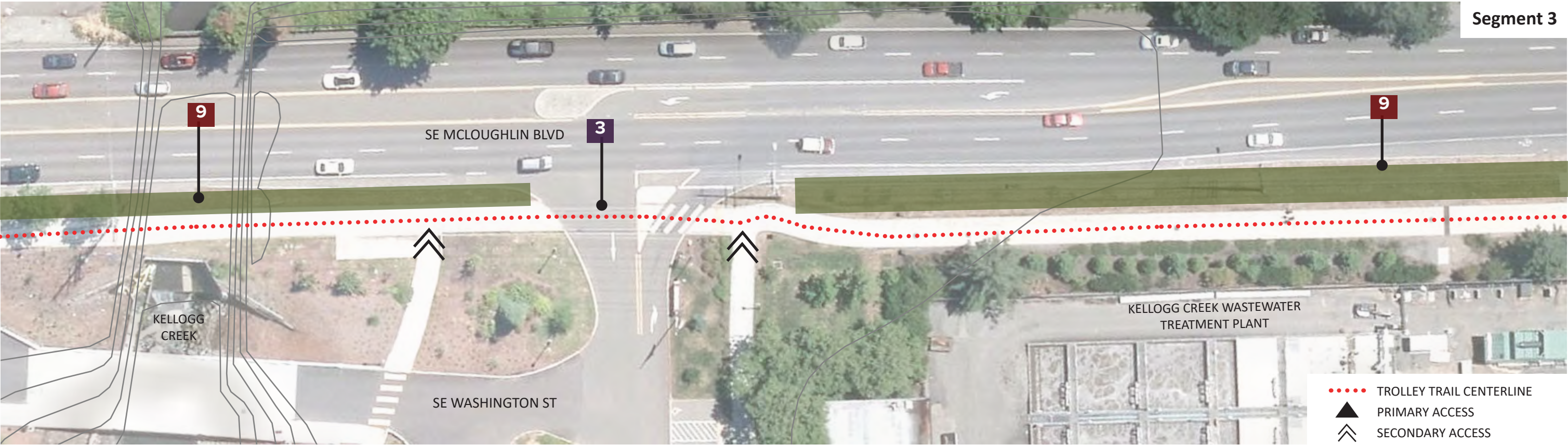
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PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

9	Add / improve vegetative buffer along McLoughlin Blvd	NCPRD
3	Add high visibility continental crosswalk markings	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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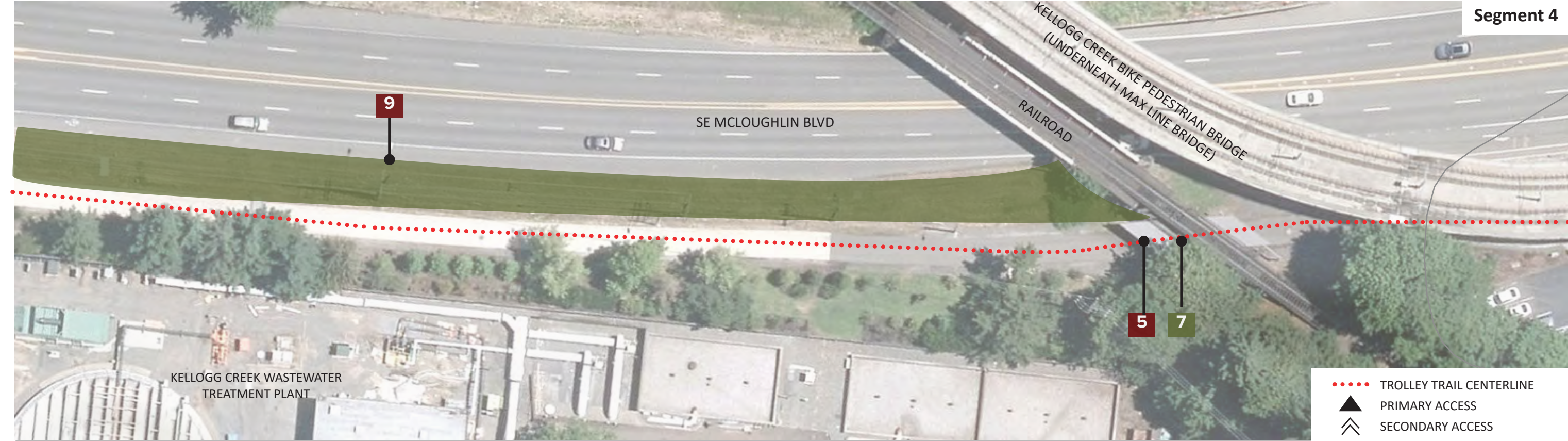
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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
9	Add / improve vegetative buffer along McLoughlin Blvd	NCPRD
5	Adjust manhole utility lid or even out the area around manhole cover to level trail surface	NCPRD
7	Add reflective object markers to bridge posts	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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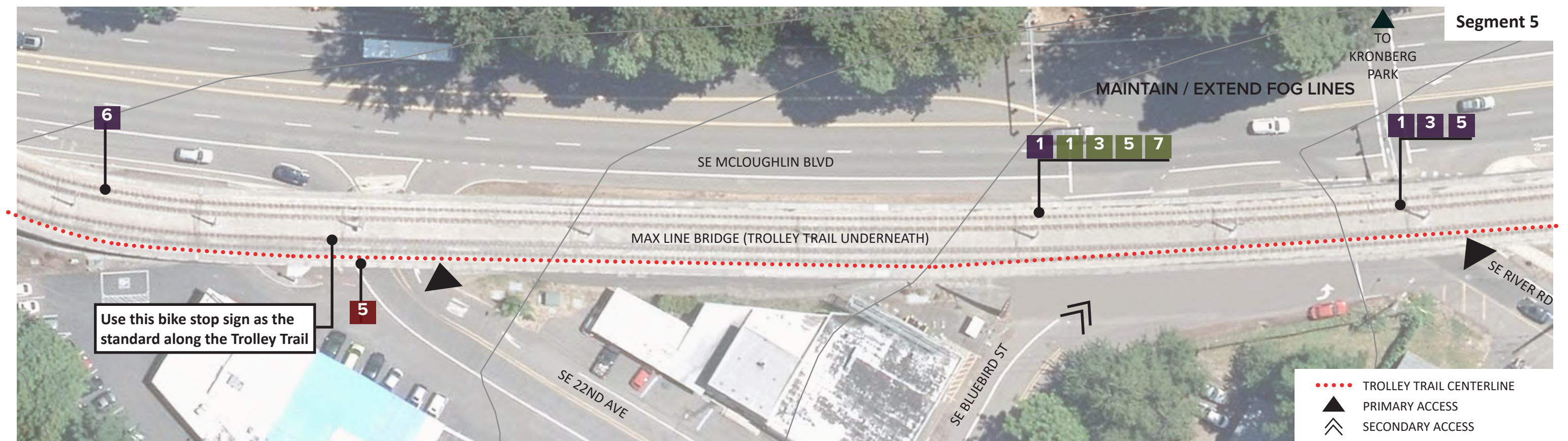
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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
6	Refresh “ROAD XING” pavement marking	NCPRD
5	Regrade to address drainage issue	NCPRD / City of Milwaukie
1 1 3 5 7	Improve pinch point: <ul style="list-style-type: none"> Add fog line Widen path, Add delineators between path and roadway to define space, Relocate bollard away from traffic, Add reflectors to edge of curb. 	ODOT / NCPRD
1 3 5	Improve crossing: <ul style="list-style-type: none"> Continue fog line on trail approach to intersection Use high visibility continental crosswalk markings for consistency Add stop line to right turn slip lane at River Rd Consider a pedestrian path separate route under the bridge by River Rd 	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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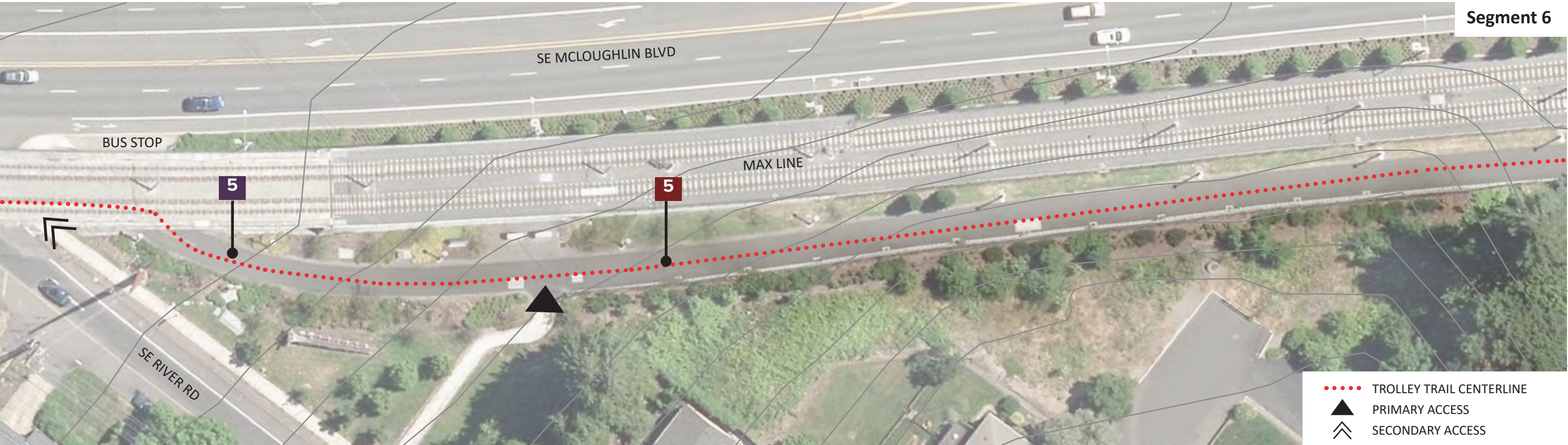
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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

5	Add “ROAD XING” pavement marking	NCPRD
5	Level trail surface at planting areas along trail *	NCPRD

*COMPLETED SUMMER DURING ROUTINE MAINTENANCE 2023

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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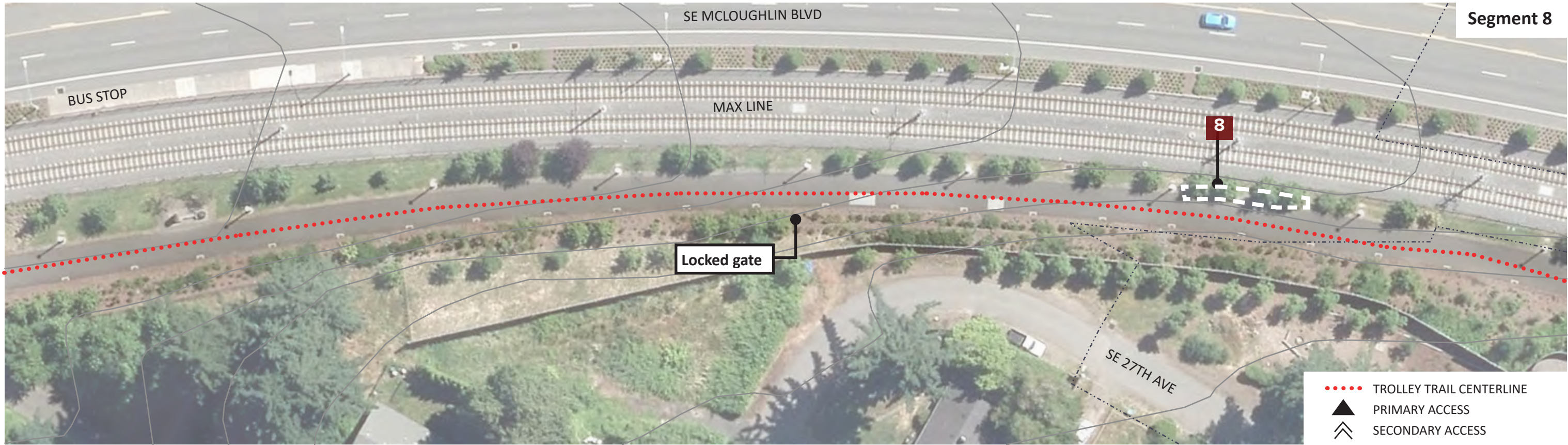
PRIORITY RECOMMENDATIONS (N/A)

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
8	Bolster trail shoulder	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

- Signage
- 1

WAYFINDING SIGNAGE
- 2

STOP SIGNS
- 3

TRAIL ETIQUETTE SIGNAGE
- 4

PEDESTRIAN CROSSING SIGNAGE
- Striping & Pavement Markings
- 1

STRIPING
- 2

ADD SHARED LANE MARKINGS
- 3

ADD / UPDATE CROSSWALKS
- 4

ADD GREEN PAINT BIKE FACILITIES
- 5

ADD PAVEMENT MARKINGS
- 6

REPAINT / REFRESH PAINT

- Safety Campaign
- 1

SAFETY CAMPAIGN
- Maintenance & Operations
- 1

TRIM VEGETATION
- 2

REPAIR, RELOCATE, & REPLACE SIGNS
- 3

REMOVE GRAFFITI
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ADD, REPAIR, & REPLACE LIGHTING
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MAINTAIN LEVEL TRAIL SURFACE
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INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
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REMOVE DEBRIS
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MAINTAIN SHOULDER
- 9

ADD LANDSCAPE BUFFER

- Surface Treatments
- 1

WIDEN TRAIL
- 2

ADD ADA COMPLIANT CURB RAMPS
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ADD SAFETY BARRIER
- 4

PEDESTRIAN REFUGE ISLAND
- 5

BOLLARDS
- 6

ADD SPEED HUMPS
- 7

ADD REFLECTORS
- 8

ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

1	Promote safety campaign near MAX Station	NCPRD
----------	--	-------

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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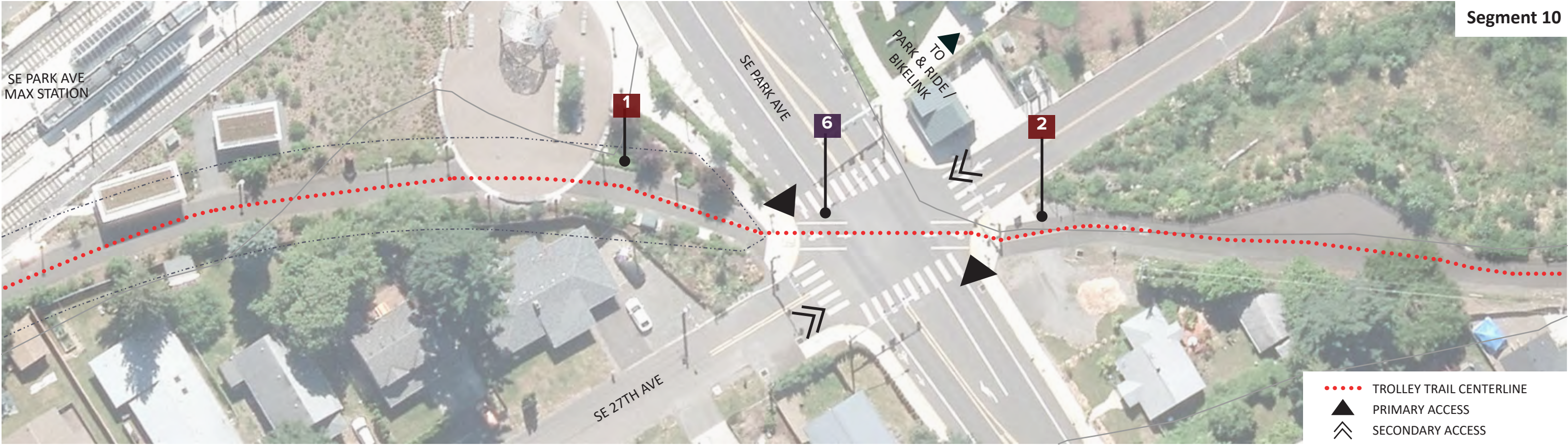
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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
1	Trim tree that is blocking the sign *	NCPRD
6	Repaint faded pavement markings	Clackamas County
2	Relocate 'WAIT ON GREEN' sign to more visible location	NCPRD

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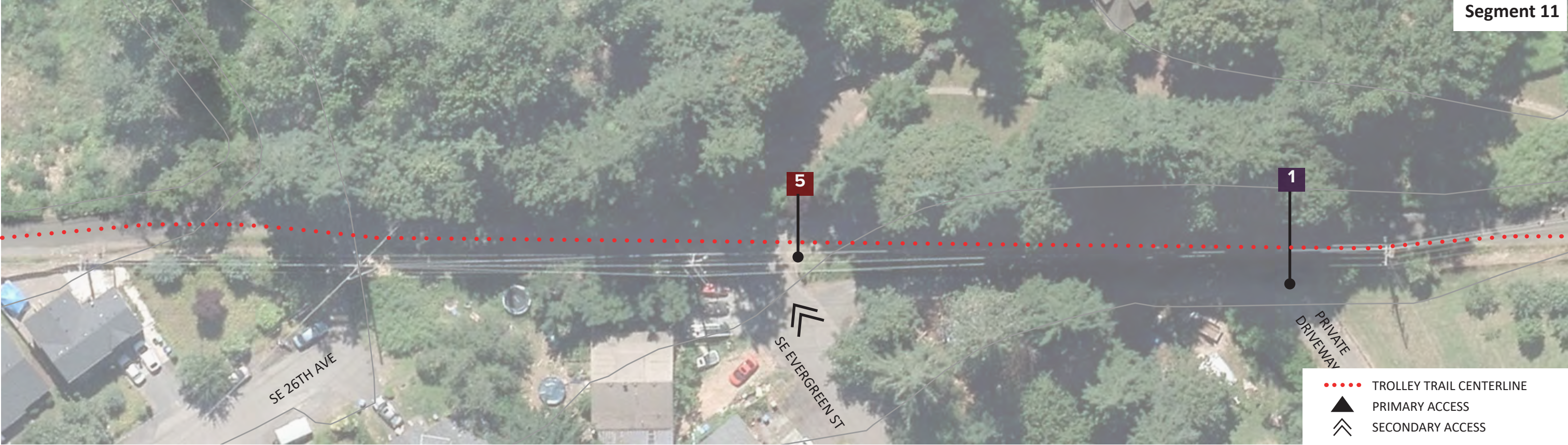
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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

5	Paint perimeter of manhole utility lid at access point for increased visibility	NCPRD
1	Add dashed fog line at driveways	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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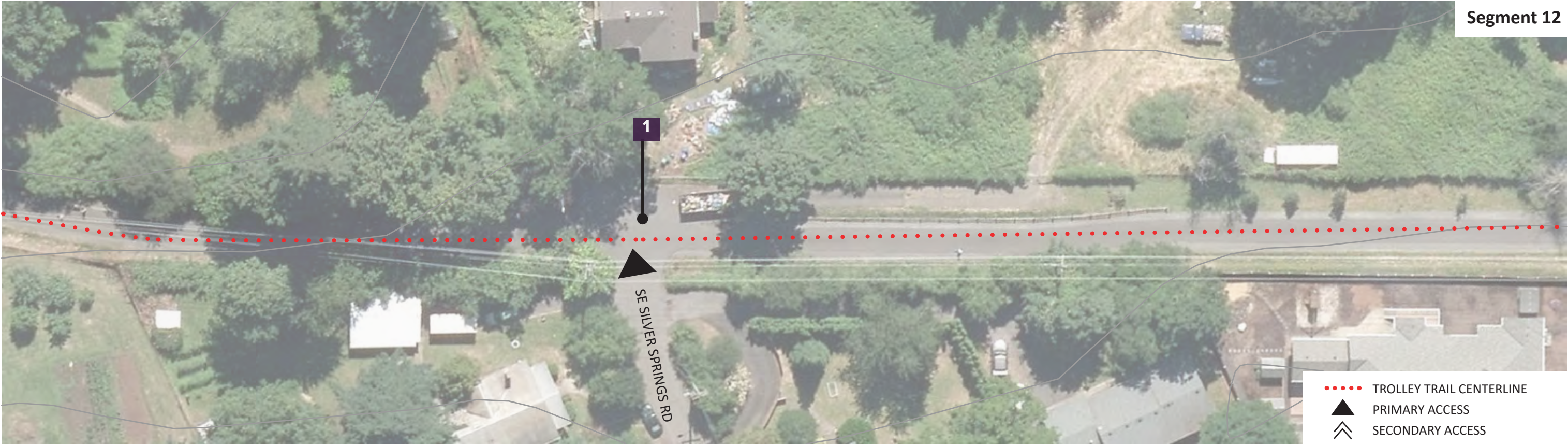
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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
1	Add dashed fog lines at driveways	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

1

WAYFINDING SIGNAGE

2

STOP SIGNS

3

TRAIL ETIQUETTE SIGNAGE

4

PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

1

STRIPING

2

ADD SHARED LANE MARKINGS

3

ADD / UPDATE CROSSWALKS

4

ADD GREEN PAINT BIKE FACILITIES

5

ADD PAVEMENT MARKINGS

6

REPAINT / REFRESH PAINT

Safety Campaign

1

SAFETY CAMPAIGN

Maintenance & Operations

1

TRIM VEGETATION

2

REPAIR, RELOCATE, & REPLACE SIGNS

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REMOVE GRAFFITI

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ADD, REPAIR, & REPLACE LIGHTING

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MAINTAIN LEVEL TRAIL SURFACE

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INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS

7

REMOVE DEBRIS

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MAINTAIN SHOULDER

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ADD LANDSCAPE BUFFER

Surface Treatments

1

WIDEN TRAIL

2

ADD ADA COMPLIANT CURB RAMPS

3

ADD SAFETY BARRIER

4

PEDESTRIAN REFUGE ISLAND

5

BOLLARDS

6

ADD SPEED HUMPS

7

ADD REFLECTORS

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ADD CURB STOPS



PRIORITY RECOMMENDATIONS (N/A)



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REPAINT / REFRESH PAINT

- Safety Campaign
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SAFETY CAMPAIGN
- Maintenance & Operations
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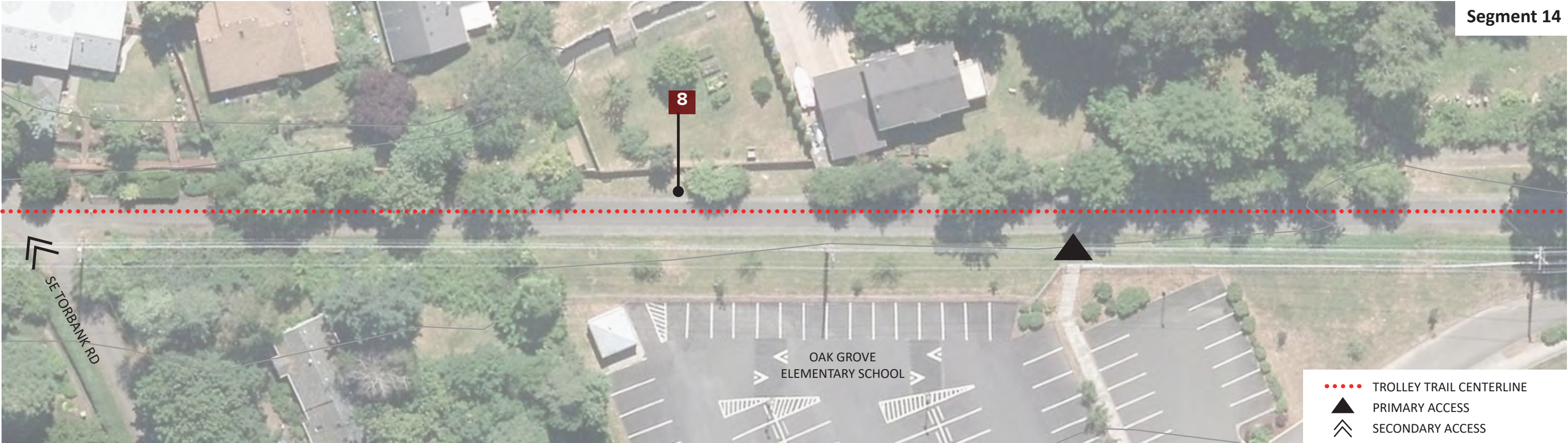
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ADD REFLECTORS
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ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
8	Maintain gravel shoulder on both sides of trail	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
- 2 ADD SHARED LANE MARKINGS
- 3 ADD / UPDATE CROSSWALKS
- 4 ADD GREEN PAINT BIKE FACILITIES
- 5 ADD PAVEMENT MARKINGS
- 6 REPAINT / REFRESH PAINT

Safety Campaign

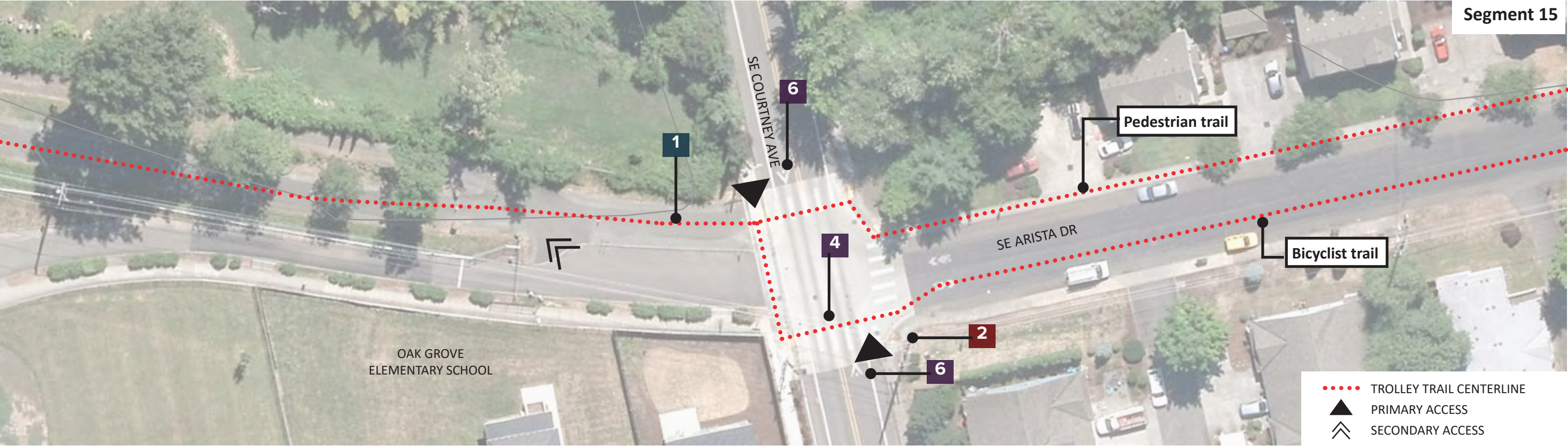
- 1 SAFETY CAMPAIGN

Maintenance & Operations

- 1 TRIM VEGETATION
- 2 REPAIR, RELOCATE, & REPLACE SIGNS
- 3 REMOVE GRAFFITI
- 4 ADD, REPAIR, & REPLACE LIGHTING
- 5 MAINTAIN LEVEL TRAIL SURFACE
- 6 INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
- 7 REMOVE DEBRIS
- 8 MAINTAIN SHOULDER
- 9 ADD LANDSCAPE BUFFER

Surface Treatments

- 1 WIDEN TRAIL
- 2 ADD ADA COMPLIANT CURB RAMPS
- 3 ADD SAFETY BARRIER
- 4 PEDESTRIAN REFUGE ISLAND
- 5 BOLLARDS
- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

1	Review wayfinding signage in this part of the corridor to lead southbound bicyclists and pedestrians along trail	NCPRD
6	Remove chevrons - no raised crosswalks at this location	Clackamas County
4	Add green skip striping to clearly mark where bicyclists should cross through intersection or consider separating user paths	Clackamas County
2	Relocate Trolley Trail wayfinding sign at SW corner of intersection to a more visible location	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

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Safety Campaign

- 1 SAFETY CAMPAIGN

Maintenance & Operations

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- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

6	Add speed humps along Arista Dr to slow down traffic	Clackamas County
1	Improve shared use conditions along Arista Dr for bicyclists	NCPRD
2	<ul style="list-style-type: none">Add confirmation wayfinding signageAdd shared lane markings	

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
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Striping & Pavement Markings

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Safety Campaign

- 1 SAFETY CAMPAIGN

Maintenance & Operations

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- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

3	Add high visibility continental crosswalk on SE Pinelane St	Clackamas County
8	Add curb stops to prevent vehicles from overhanging onto trail	NCPRD
6	Add speed humps along Arista Dr to slow down traffic	Clackamas County
3	Add high visibility continental crosswalk on SE Maple St	Clackamas County



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
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Striping & Pavement Markings

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Safety Campaign

- 1 SAFETY CAMPAIGN

Maintenance & Operations

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- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
6	Add speed humps along Arista Dr to slow down traffic	Clackamas County
4	Add bike boxes on SE Oak Grove Blvd to facilitate a two-stage left turn onto the Trolley Trail	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

1

WAYFINDING SIGNAGE

2

STOP SIGNS

3

TRAIL ETIQUETTE SIGNAGE

4

PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

1

STRIPING

2

ADD SHARED LANE MARKINGS

3

ADD / UPDATE CROSSWALKS

4

ADD GREEN PAINT BIKE FACILITIES

5

ADD PAVEMENT MARKINGS

6

REPAINT / REFRESH PAINT

Safety Campaign

1

SAFETY CAMPAIGN

Maintenance & Operations

1

TRIM VEGETATION

2

REPAIR, RELOCATE, & REPLACE SIGNS

3

REMOVE GRAFFITI

4

ADD, REPAIR, & REPLACE LIGHTING

5

MAINTAIN LEVEL TRAIL SURFACE

6

INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS

7

REMOVE DEBRIS

8

MAINTAIN SHOULDER

9

ADD LANDSCAPE BUFFER

Surface Treatments

1

WIDEN TRAIL

2

ADD ADA COMPLIANT CURB RAMPS

3

ADD SAFETY BARRIER

4

PEDESTRIAN REFUGE ISLAND

5

BOLLARDS

6

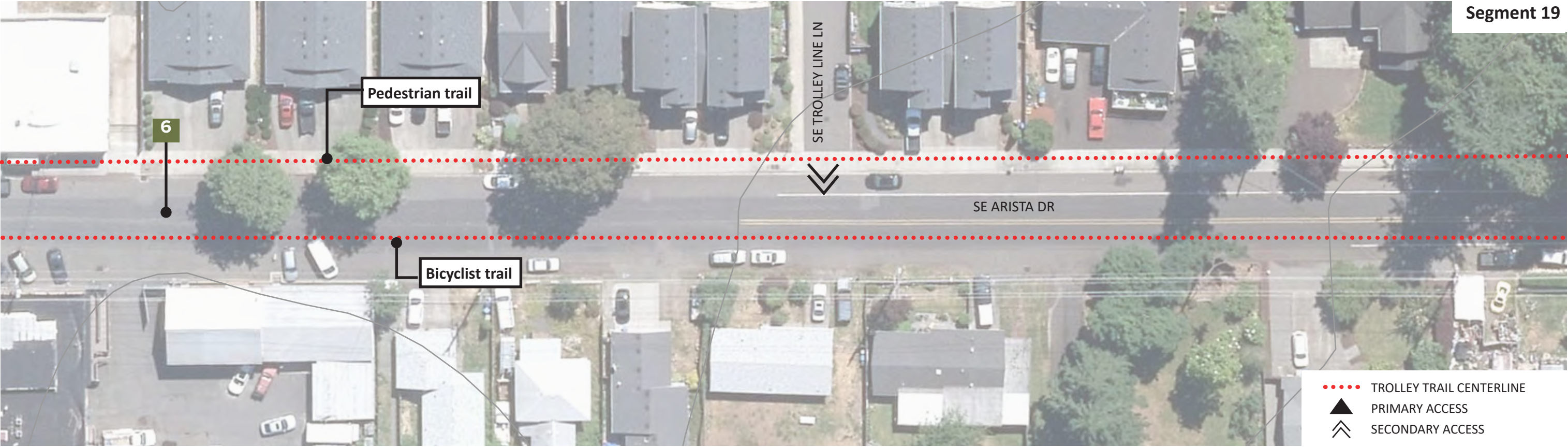
ADD SPEED HUMPS

7

ADD REFLECTORS

8

ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

6	Add speed humps along Arista Dr to slow down traffic	Clackamas County
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RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage <ul style="list-style-type: none">1 WAYFINDING SIGNAGE2 STOP SIGNS3 TRAIL ETIQUETTE SIGNAGE4 PEDESTRIAN CROSSING SIGNAGE Striping & Pavement Markings <ul style="list-style-type: none">1 STRIPING2 ADD SHARED LANE MARKINGS3 ADD / UPDATE CROSSWALKS4 ADD GREEN PAINT BIKE FACILITIES5 ADD PAVEMENT MARKINGS6 REPAINT / REFRESH PAINT	Safety Campaign <ul style="list-style-type: none">1 SAFETY CAMPAIGN Maintenance & Operations <ul style="list-style-type: none">1 TRIM VEGETATION2 REPAIR, RELOCATE, & REPLACE SIGNS3 REMOVE GRAFFITI4 ADD, REPAIR, & REPLACE LIGHTING5 MAINTAIN LEVEL TRAIL SURFACE6 INCREASE TRAIL USER CROSSING TIME AT SIGNED INTERSECTIONS7 REMOVE DEBRIS8 MAINTAIN SHOULDER9 ADD LANDSCAPE BUFFER	Surface Treatments <ul style="list-style-type: none">1 WIDEN TRAIL2 ADD ADA COMPLIANT CURB RAMPS3 ADD SAFETY BARRIER4 PEDESTRIAN REFUGE ISLAND5 BOLLARDS6 ADD SPEED HUMPS7 ADD REFLECTORS8 ADD CURB STOPS
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PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
1	Trim back hedge overhanging trail / sidewalk *	NCPRD
6	Add speed humps along Arista Dr to slow down traffic	Clackamas County



*COMPLETED SUMMER DURING ROUTINE MAINTENANCE 2023

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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Striping & Pavement Markings

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Safety Campaign

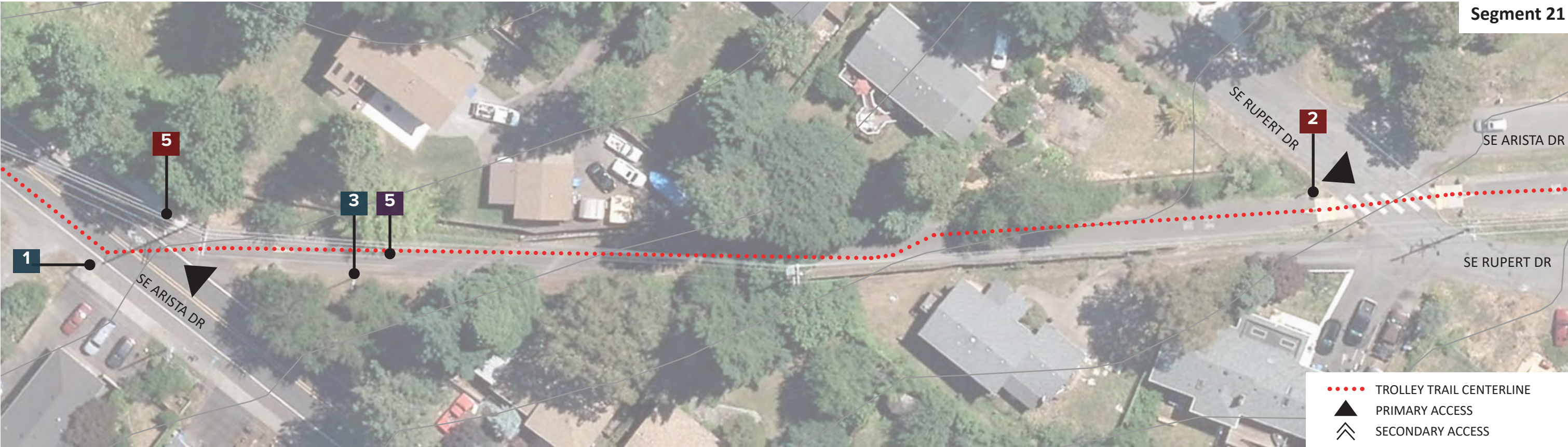
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Surface Treatments

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- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

1	Improve wayfinding signage for bicyclist to navigate trail	NCPRD
5	Level surface around manhole	Clackamas County
3	Post more prominent trail etiquette sign	NCPRD
5	Add “SLOW DOWN” pavement marking for northbound trail users turning onto Arista Dr	Clackamas County
2	Trail crossing sign facing incorrect direction: Downward diagonal facing arrow should be reversed to point to crosswalk	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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Safety Campaign

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PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

4	Add Pedestrian Crossing Ahead signs 100' before trail access from Creighton Ave	NCPRD
4	Add Pedestrian Crossing Ahead signs 100' before trail access from Ada Lane	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
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Striping & Pavement Markings

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Safety Campaign

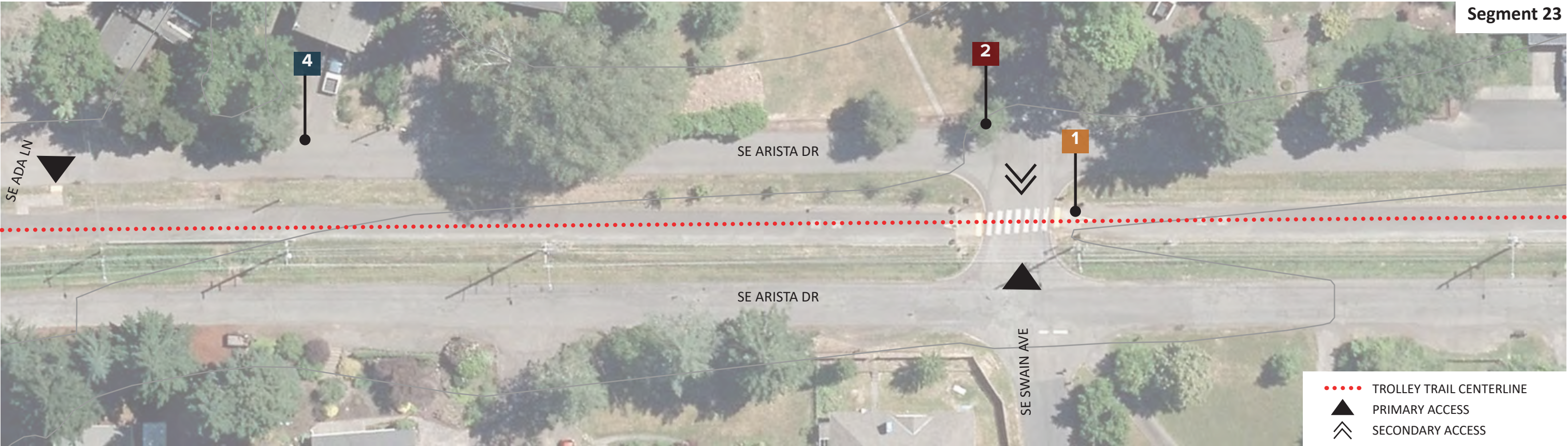
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Surface Treatments

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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

4	Add Pedestrian Crossing Ahead signs 100' before trail access from Ada Lane	NCPRD
2	Add trail crossing sign for westbound drivers	NCPRD
1	Implement safety campaign (pavement marker or sign) to warn drivers of trail crossing and warn trail users of vehicles on road.	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

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Safety Campaign

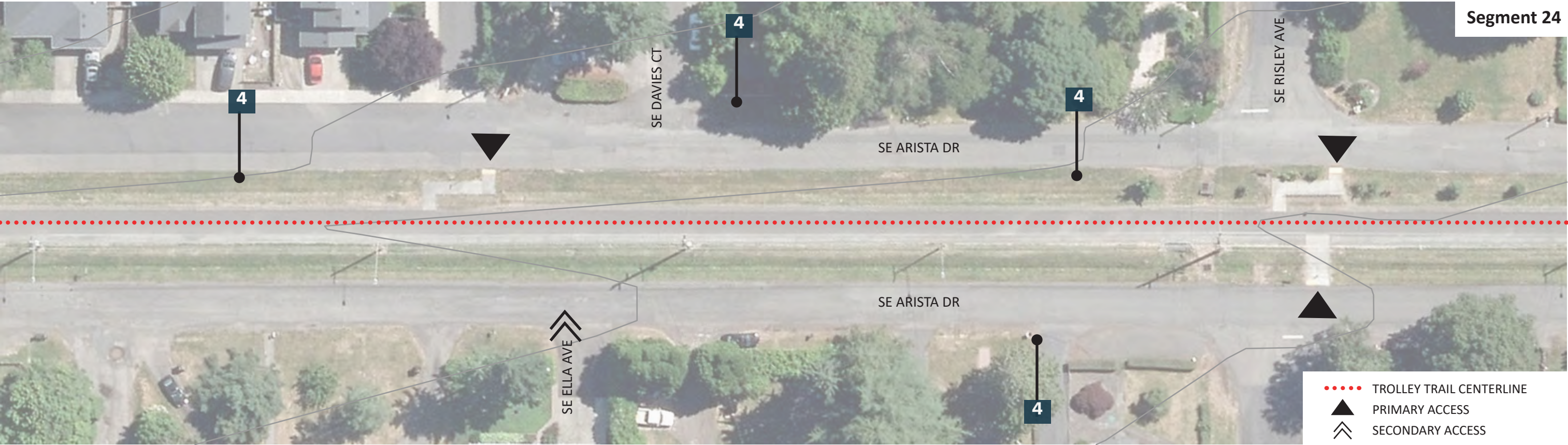
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Maintenance & Operations

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Surface Treatments

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PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

4	Add Pedestrian Crossing Ahead signs 100' before trail access from Davies Ct	NCPRD
4	Add Pedestrian Crossing Ahead signs 100' before trail access from Risley Ave	NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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- 2 STOP SIGNS
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Striping & Pavement Markings

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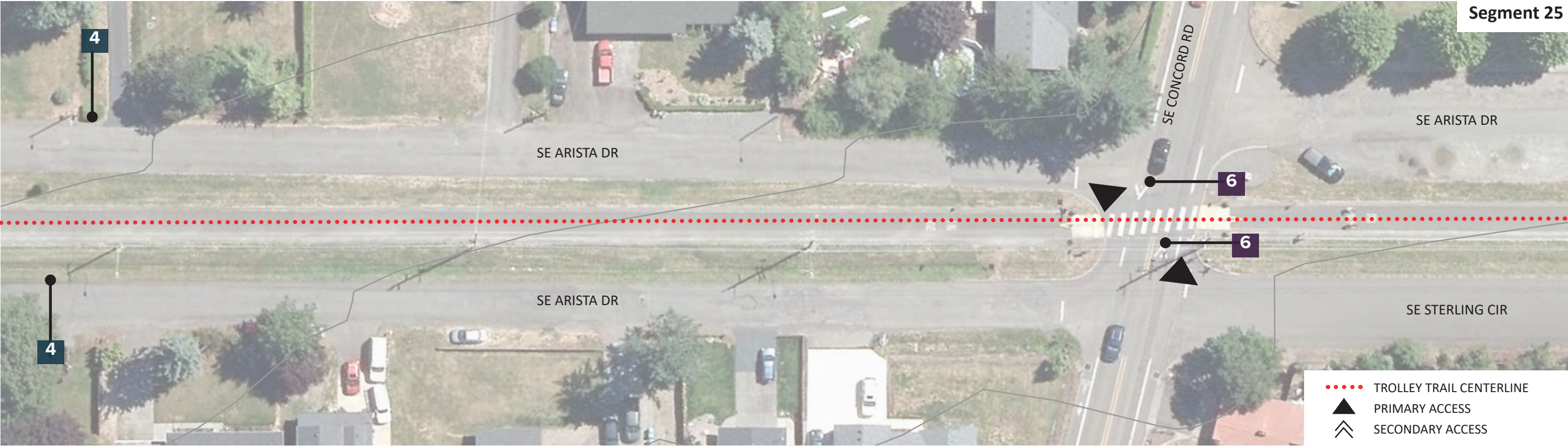
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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

4	Add Pedestrian Crossing Ahead signs 100' before trail access from Risley Ave	NCPRD
6	Repaint / refresh chevrons	Clackamas County



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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Safety Campaign

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Maintenance & Operations

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PRIORITY RECOMMENDATIONS (N/A)



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

- Signage
- 1

WAYFINDING SIGNAGE
- 2

STOP SIGNS
- 3

TRAIL ETIQUETTE SIGNAGE
- 4

PEDESTRIAN CROSSING SIGNAGE
- Striping & Pavement Markings
- 1

STRIPING
- 2

ADD SHARED LANE MARKINGS
- 3

ADD / UPDATE CROSSWALKS
- 4

ADD GREEN PAINT BIKE FACILITIES
- 5

ADD PAVEMENT MARKINGS
- 6

REPAINT / REFRESH PAINT

- Safety Campaign
- 1

SAFETY CAMPAIGN
- Maintenance & Operations
- 1

TRIM VEGETATION
- 2

REPAIR, RELOCATE, & REPLACE SIGNS
- 3

REMOVE GRAFFITI
- 4

ADD, REPAIR, & REPLACE LIGHTING
- 5

MAINTAIN LEVEL TRAIL SURFACE
- 6

INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
- 7

REMOVE DEBRIS
- 8

MAINTAIN SHOULDER
- 9

ADD LANDSCAPE BUFFER

- Surface Treatments
- 1

WIDEN TRAIL
- 2

ADD ADA COMPLIANT CURB RAMPS
- 3

ADD SAFETY BARRIER
- 4

PEDESTRIAN REFUGE ISLAND
- 5

BOLLARDS
- 6

ADD SPEED HUMPS
- 7

ADD REFLECTORS
- 8

ADD CURB STOPS



PRIORITY RECOMMENDATIONS (N/A)



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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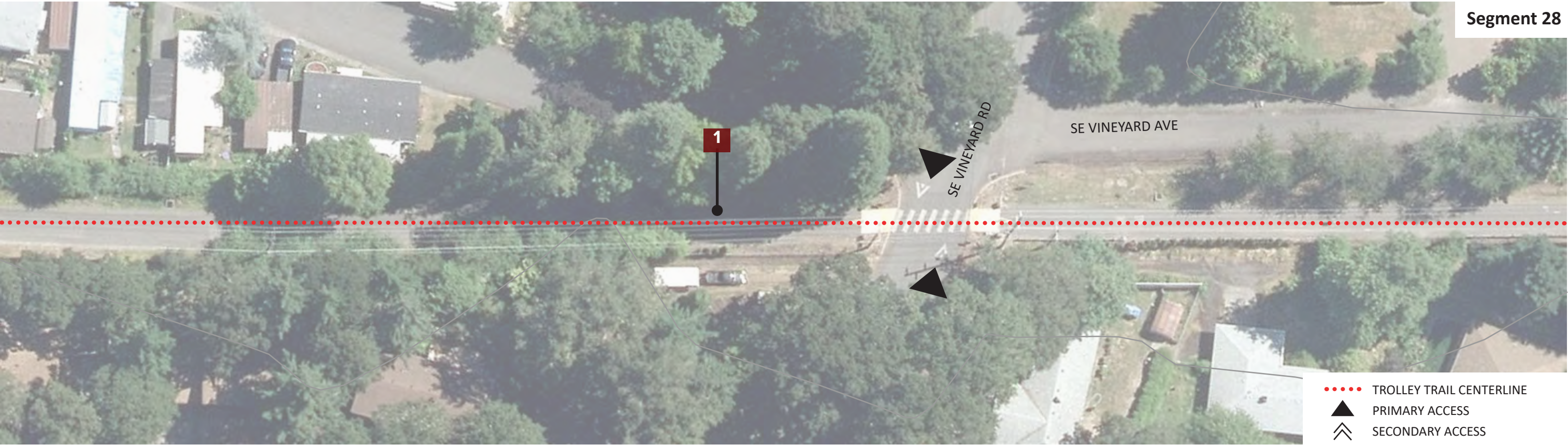
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PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

1	Trim back trees covering wayfinding signage *	NCPRD
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*COMPLETED SUMMER DURING ROUTINE MAINTENANCE 2023

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1** WAYFINDING SIGNAGE
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Striping & Pavement Markings

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Safety Campaign

- 1** SAFETY CAMPAIGN

Maintenance & Operations

- 1** TRIM VEGETATION
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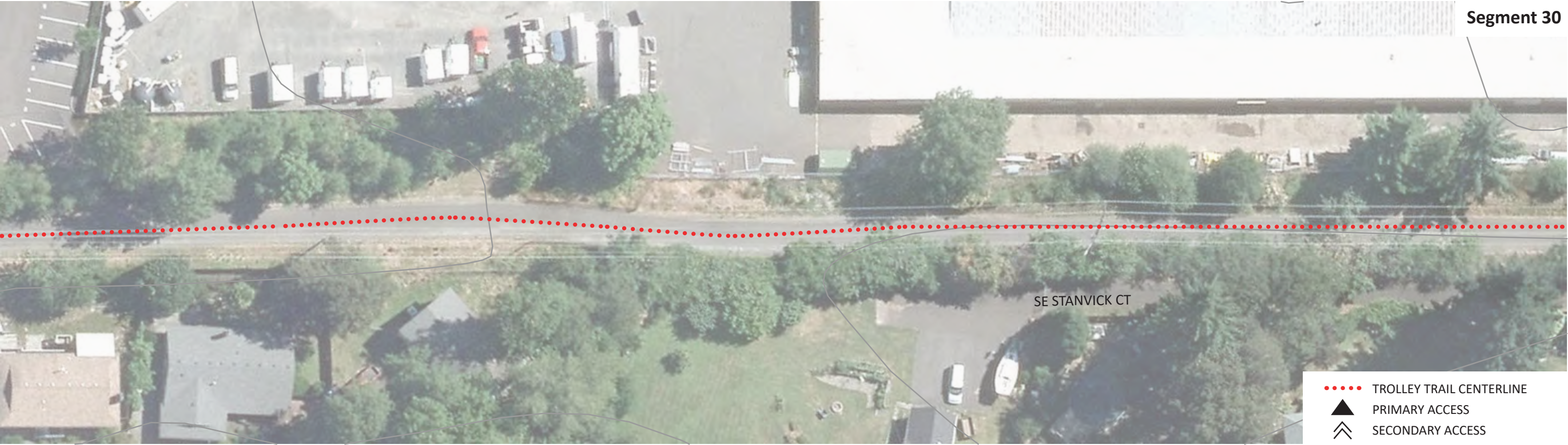


PRIORITY RECOMMENDATIONS (N/A)



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage	Safety Campaign	Surface Treatments
1 WAYFINDING SIGNAGE	1 SAFETY CAMPAIGN	1 WIDEN TRAIL
2 STOP SIGNS		2 ADD ADA COMPLIANT CURB RAMPS
3 TRAIL ETIQUETTE SIGNAGE	Maintenance & Operations	3 ADD SAFETY BARRIER
4 PEDESTRIAN CROSSING SIGNAGE	1 TRIM VEGETATION	4 PEDESTRIAN REFUGE ISLAND
	2 REPAIR, RELOCATE, & REPLACE SIGNS	5 BOLLARDS
Striping & Pavement Markings	3 REMOVE GRAFFITI	6 ADD SPEED HUMPS
1 STRIPING	4 ADD, REPAIR, & REPLACE LIGHTING	7 ADD REFLECTORS
2 ADD SHARED LANE MARKINGS	5 MAINTAIN LEVEL TRAIL SURFACE	8 ADD CURB STOPS
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PRIORITY RECOMMENDATIONS (N/A)



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

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- 1 WAYFINDING SIGNAGE
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- 6 REPAINT / REFRESH PAINT

Safety Campaign

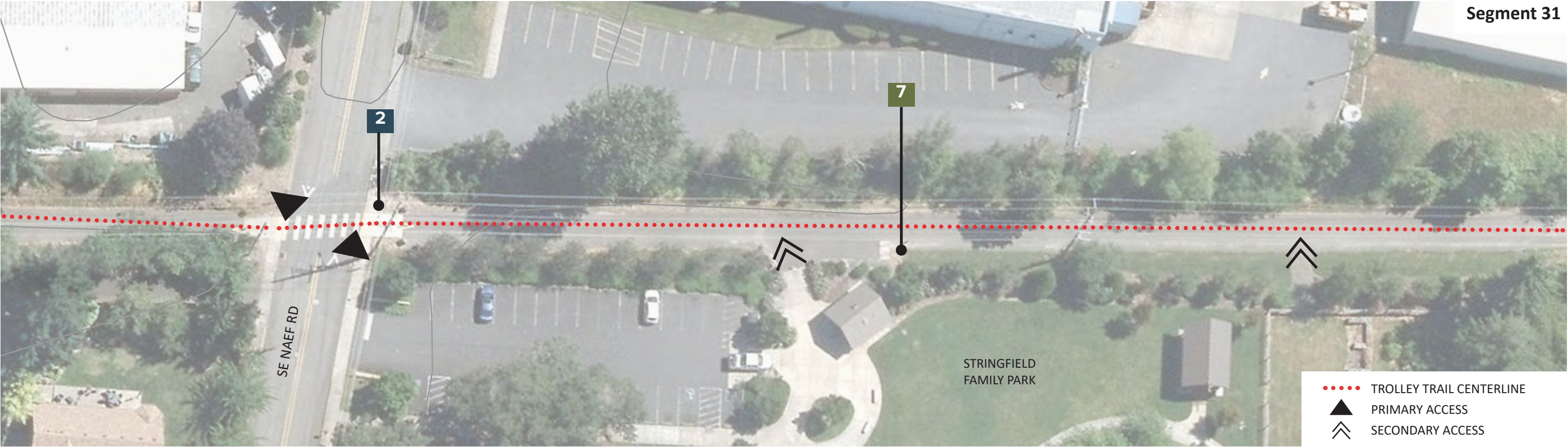
- 1 SAFETY CAMPAIGN

Maintenance & Operations

- 1 TRIM VEGETATION
- 2 REPAIR, RELOCATE, & REPLACE SIGNS
- 3 REMOVE GRAFFITI
- 4 ADD, REPAIR, & REPLACE LIGHTING
- 5 MAINTAIN LEVEL TRAIL SURFACE
- 6 INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
- 7 REMOVE DEBRIS
- 8 MAINTAIN SHOULDER
- 9 ADD LANDSCAPE BUFFER

Surface Treatments

- 1 WIDEN TRAIL
- 2 ADD ADA COMPLIANT CURB RAMPS
- 3 ADD SAFETY BARRIER
- 4 PEDESTRIAN REFUGE ISLAND
- 5 BOLLARDS
- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

2	Use consistent bike stop signs throughout corridor	NCPRD
7	Add reflective object markers to bike counter adjacent to trail	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

1

WAYFINDING SIGNAGE

2

STOP SIGNS

3

TRAIL ETIQUETTE SIGNAGE

4

PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

1

STRIPING

2

ADD SHARED LANE MARKINGS

3

ADD / UPDATE CROSSWALKS

4

ADD GREEN PAINT BIKE FACILITIES

5

ADD PAVEMENT MARKINGS

6

REPAINT / REFRESH PAINT

Safety Campaign

1

SAFETY CAMPAIGN

Maintenance & Operations

1

TRIM VEGETATION

2

REPAIR, RELOCATE, & REPLACE SIGNS

3

REMOVE GRAFFITI

4

ADD, REPAIR, & REPLACE LIGHTING

5

MAINTAIN LEVEL TRAIL SURFACE

6

INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS

7

REMOVE DEBRIS

8

MAINTAIN SHOULDER

9

ADD LANDSCAPE BUFFER

Surface Treatments

1

WIDEN TRAIL

2

ADD ADA COMPLIANT CURB RAMPS

3

ADD SAFETY BARRIER

4

PEDESTRIAN REFUGE ISLAND

5

BOLLARDS

6

ADD SPEED HUMPS

7

ADD REFLECTORS

8

ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

3	Remove graffiti *	NCPRD
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*COMPLETED SUMMER DURING ROUTINE MAINTENANCE 2023

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage	Safety Campaign	Surface Treatments
1 WAYFINDING SIGNAGE	1 SAFETY CAMPAIGN	1 WIDEN TRAIL
2 STOP SIGNS		2 ADD ADA COMPLIANT CURB RAMPS
3 TRAIL ETIQUETTE SIGNAGE	Maintenance & Operations	3 ADD SAFETY BARRIER
4 PEDESTRIAN CROSSING SIGNAGE	1 TRIM VEGETATION	4 PEDESTRIAN REFUGE ISLAND
	2 REPAIR, RELOCATE, & REPLACE SIGNS	5 BOLLARDS
Striping & Pavement Markings	3 REMOVE GRAFFITI	6 ADD SPEED HUMPS
1 STRIPING	4 ADD, REPAIR, & REPLACE LIGHTING	7 ADD REFLECTORS
2 ADD SHARED LANE MARKINGS	5 MAINTAIN LEVEL TRAIL SURFACE	8 ADD CURB STOPS
3 ADD / UPDATE CROSSWALKS	6 INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS	
4 ADD GREEN PAINT BIKE FACILITIES	7 REMOVE DEBRIS	
5 ADD PAVEMENT MARKINGS	8 MAINTAIN SHOULDER	
6 REPAINT / REFRESH PAINT	9 ADD LANDSCAPE BUFFER	



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

5	Regrade and resurface trail damaged due to tree root	NCPRD
---	--	-------



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
- 2 ADD SHARED LANE MARKINGS
- 3 ADD / UPDATE CROSSWALKS
- 4 ADD GREEN PAINT BIKE FACILITIES
- 5 ADD PAVEMENT MARKINGS
- 6 REPAINT / REFRESH PAINT

Safety Campaign

- 1 SAFETY CAMPAIGN

Maintenance & Operations

- 1 TRIM VEGETATION
- 2 REPAIR, RELOCATE, & REPLACE SIGNS
- 3 REMOVE GRAFFITI
- 4 ADD, REPAIR, & REPLACE LIGHTING
- 5 MAINTAIN LEVEL TRAIL SURFACE
- 6 INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS
- 7 REMOVE DEBRIS
- 8 MAINTAIN SHOULDER
- 9 ADD LANDSCAPE BUFFER

Surface Treatments

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- 2 ADD ADA COMPLIANT CURB RAMPS
- 3 ADD SAFETY BARRIER
- 4 PEDESTRIAN REFUGE ISLAND
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- 7 ADD REFLECTORS
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PRIORITY RECOMMENDATIONS (N/A)

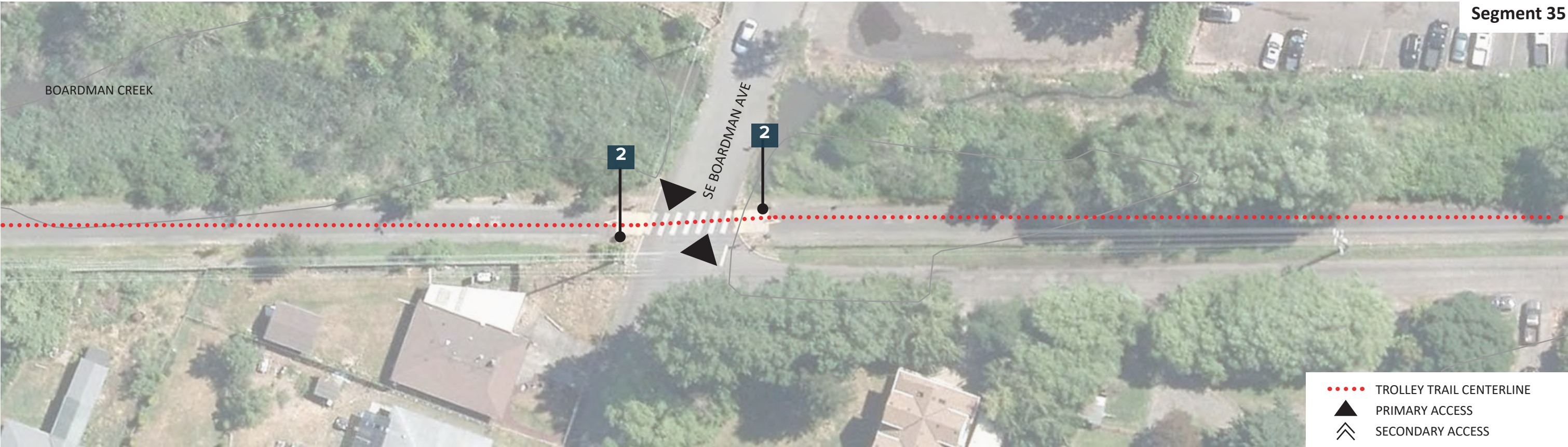


RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

- Signage
- 1 WAYFINDING SIGNAGE
 - 2 STOP SIGNS
 - 3 TRAIL ETIQUETTE SIGNAGE
 - 4 PEDESTRIAN CROSSING SIGNAGE
- Striping & Pavement Markings
- 1 STRIPING
 - 2 ADD SHARED LANE MARKINGS
 - 3 ADD / UPDATE CROSSWALKS
 - 4 ADD GREEN PAINT BIKE FACILITIES
 - 5 ADD PAVEMENT MARKINGS
 - 6 REPAINT / REFRESH PAINT

- Safety Campaign
- 1 SAFETY CAMPAIGN
- Maintenance & Operations
- 1 TRIM VEGETATION
 - 2 REPAIR, RELOCATE, & REPLACE SIGNS
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- Surface Treatments
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 - 3 ADD SAFETY BARRIER
 - 4 PEDESTRIAN REFUGE ISLAND
 - 5 BOLLARDS
 - 6 ADD SPEED HUMPS
 - 7 ADD REFLECTORS
 - 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

2	Use consistent stop signs at trail crossings throughout the corridor	NCPRD
---	--	-------



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
- 2 ADD SHARED LANE MARKINGS
- 3 ADD / UPDATE CROSSWALKS
- 4 ADD GREEN PAINT BIKE FACILITIES
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Safety Campaign

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Maintenance & Operations

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Surface Treatments

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- 5 BOLLARDS
- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (N/A)



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

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- 2 STOP SIGNS
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- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
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Safety Campaign

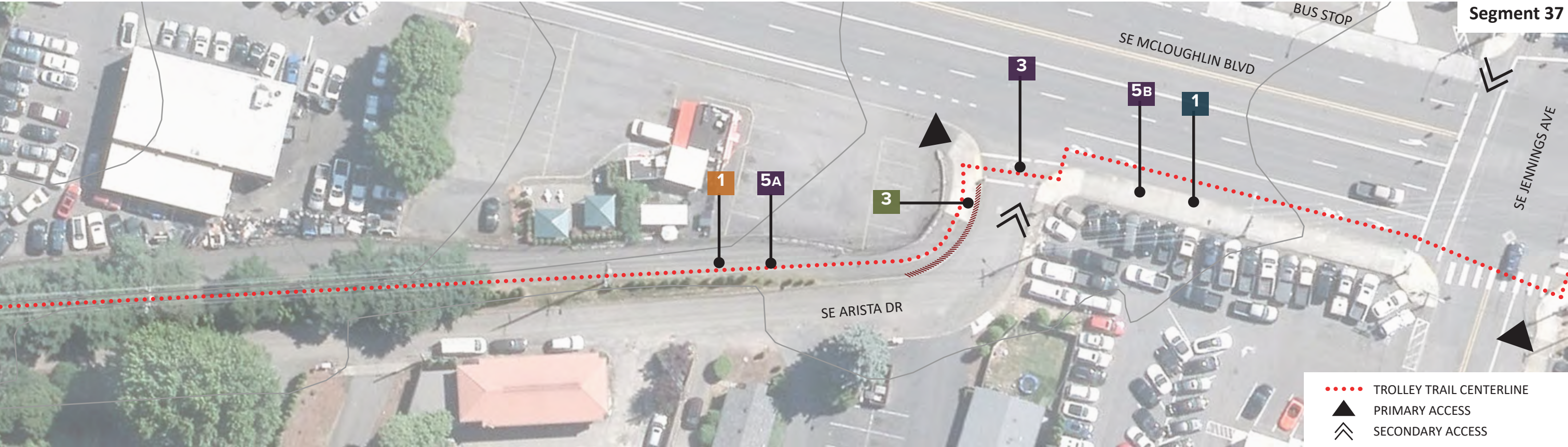
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- 5 BOLLARDS
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- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

1	Add trail safety campaign messaging here	NCPRD
5A	Add “Slow Down” pavement marking for southbound trail users	NCPRD
3	Add flexible delineators	NCPRD
3	Add high visibility continental crosswalk	ODOT
5B	Add pavement markings on sidewalk to lead pedestrians and bicyclists through trail corridor	ODOT
1	Add Trolley Trail wayfinding signage to help users navigate through this section of the corridor	ODOT

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
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Safety Campaign

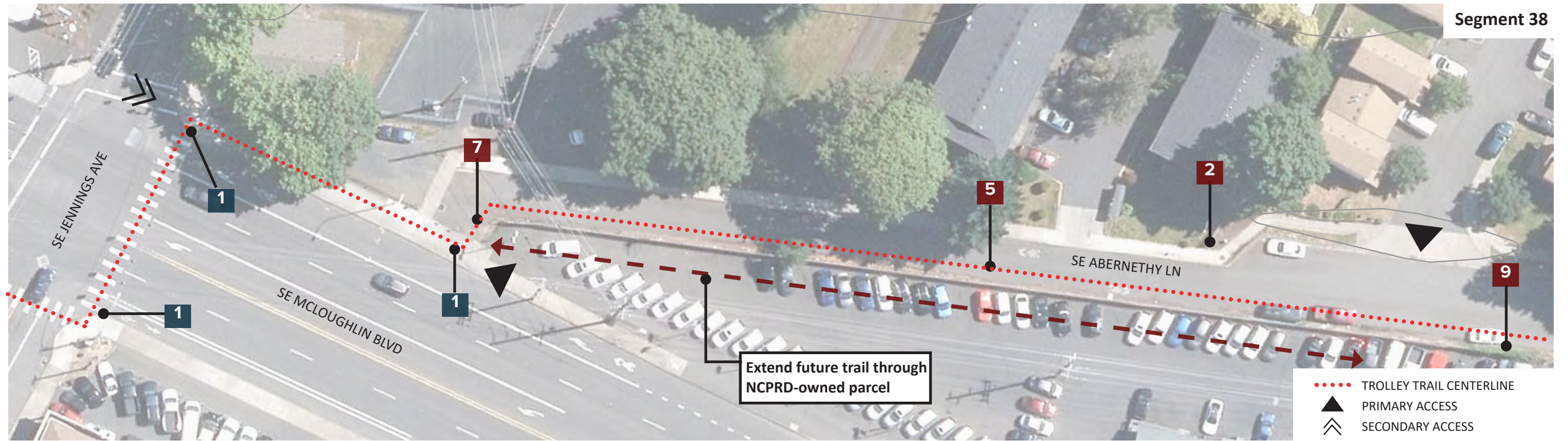
- 1 SAFETY CAMPAIGN

Maintenance & Operations

- 1 TRIM VEGETATION
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- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

1	Add Trolley Trail wayfinding signage to help users navigate through this section of the corridor	NCPRD
7	Keep trail free of debris	NCPRD
5	Repair asphalt as needed	NCPRD
2	Replace Dead End sign with No Outlet sign (MUTCD W14-2) at Hull Ave	NCPRD
9	Add landscaping to buffer from busy road and reduce smell of exhaust	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1** WAYFINDING SIGNAGE
- 2** STOP SIGNS
- 3** TRAIL ETIQUETTE SIGNAGE
- 4** PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1** STRIPING
- 2** ADD SHARED LANE MARKINGS
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Safety Campaign

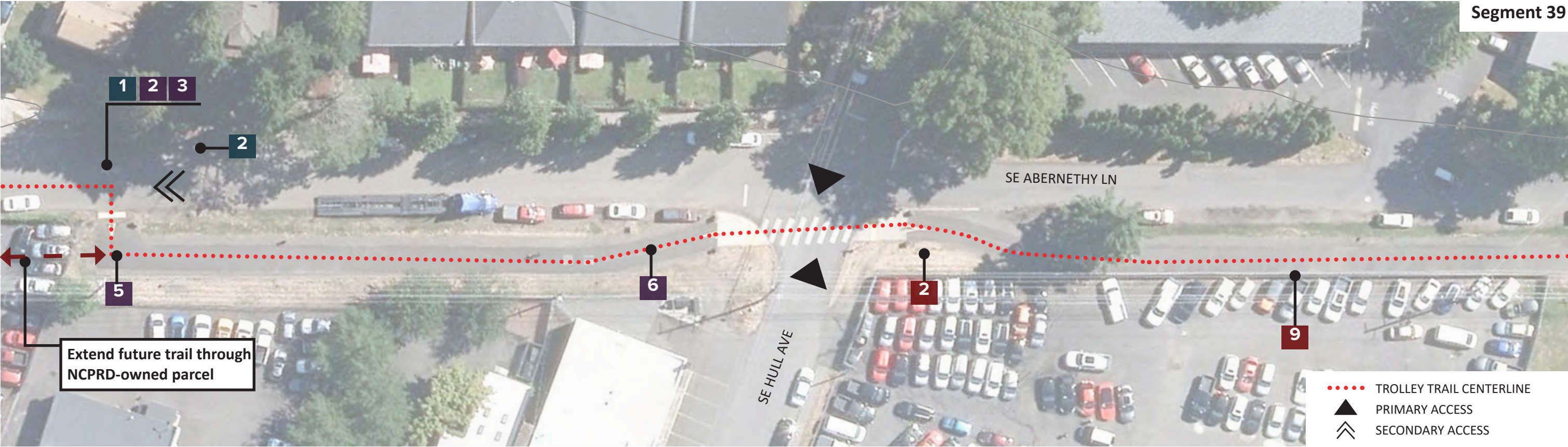
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Maintenance & Operations

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- 7** ADD REFLECTORS
- 8** ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP) RESPONSIBLE AGENCY

1	Improve crossing: <ul style="list-style-type: none">Add shared lane markings along SE Abernathy LnAdd high visibility continental crosswalkAdd Trolley Trail wayfinding signage to help users navigate corridor	NCPRD
2		
3		
5	Extend centerline on path curve	NCPRD
2	Replace faded stop sign	NCPRD
6	Repaint faded centerline	NCPRD
2	Move “NO PARKING” sign closer to the curb.	NCPRD
9	Add landscape buffer between trail and industrial property	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
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Striping & Pavement Markings

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Safety Campaign

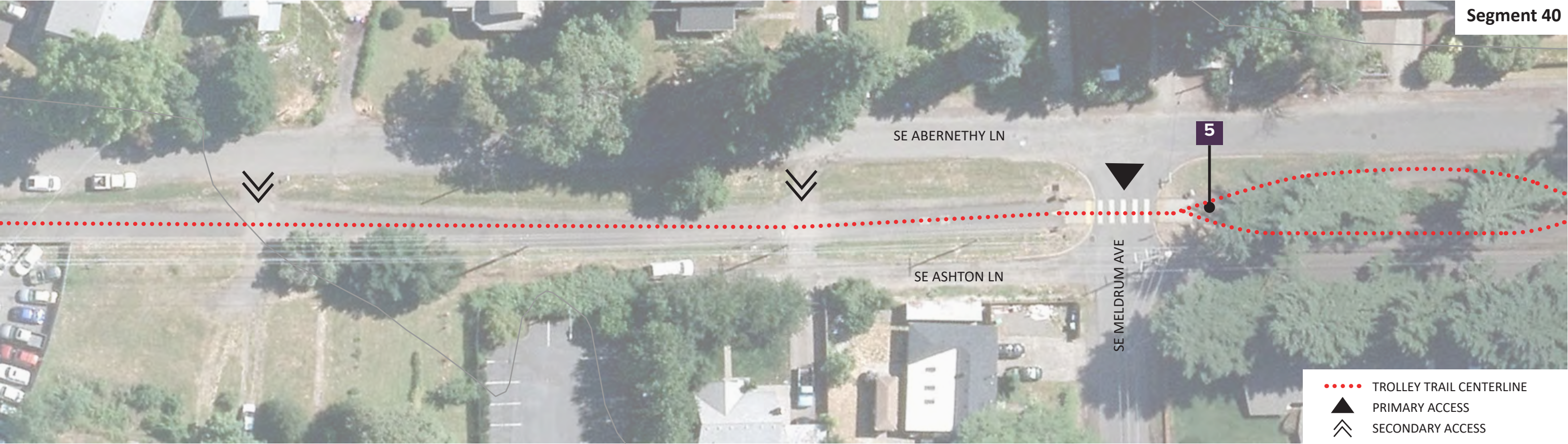
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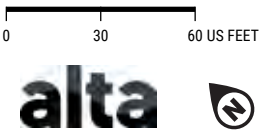
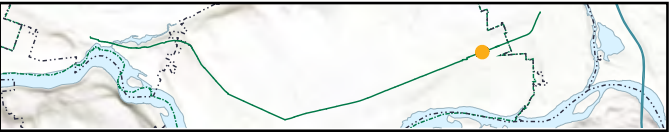


PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

5 Add pavement markers to direct pedestrian and bicyclist use where path splits - Trail users stay on right

NCPRD



RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

- 1 WAYFINDING SIGNAGE
- 2 STOP SIGNS
- 3 TRAIL ETIQUETTE SIGNAGE
- 4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

- 1 STRIPING
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- 3 ADD / UPDATE CROSSWALKS
- 4 ADD GREEN PAINT BIKE FACILITIES
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Safety Campaign

- 1 SAFETY CAMPAIGN

Maintenance & Operations

- 1 TRIM VEGETATION
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- 5 BOLLARDS
- 6 ADD SPEED HUMPS
- 7 ADD REFLECTORS
- 8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)

RESPONSIBLE AGENCY

5	Add pavement markers to direct pedestrian and bicyclist use where path splits - Trail users stay on right	NCPRD
6	Repaint faded crosswalk	NCPRD
2	Northbound trail / Southeast end:	NCPRD
5	<ul style="list-style-type: none">Add stop signAdd bollards	

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

1 WAYFINDING SIGNAGE

2 STOP SIGNS

3 TRAIL ETIQUETTE SIGNAGE

4 PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

1 STRIPING

2 ADD SHARED LANE MARKINGS

3 ADD / UPDATE CROSSWALKS

4 ADD GREEN PAINT BIKE FACILITIES

5 ADD PAVEMENT MARKINGS

6 REPAINT / REFRESH PAINT

Safety Campaign

1 SAFETY CAMPAIGN

Maintenance & Operations

1 TRIM VEGETATION

2 REPAIR, RELOCATE, & REPLACE SIGNS

3 REMOVE GRAFFITI

4 ADD, REPAIR, & REPLACE LIGHTING

5 MAINTAIN LEVEL TRAIL SURFACE

6 INCREASE TRAIL USER CROSSING TIME AT SIGNED INTERSECTIONS

7 REMOVE DEBRIS

8 MAINTAIN SHOULDER

9 ADD LANDSCAPE BUFFER

Surface Treatments

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3 ADD SAFETY BARRIER

4 PEDESTRIAN REFUGE ISLAND

5 BOLLARDS

6 ADD SPEED HUMPS

7 ADD REFLECTORS

8 ADD CURB STOPS



PRIORITY RECOMMENDATIONS (SEE MAP)		RESPONSIBLE AGENCY
1	Add fog lines along this section of the trail	NCPRD

RECOMMENDATIONS TOOLKIT: List of Corridor-Wide Priority Solutions

Signage

1

WAYFINDING SIGNAGE

2

STOP SIGNS

3

TRAIL ETIQUETTE SIGNAGE

4

PEDESTRIAN CROSSING SIGNAGE

Striping & Pavement Markings

1

STRIPING

2

ADD SHARED LANE MARKINGS

3

ADD / UPDATE CROSSWALKS

4

ADD GREEN PAINT BIKE FACILITIES

5

ADD PAVEMENT MARKINGS

6

REPAINT / REFRESH PAINT

Safety Campaign

1

SAFETY CAMPAIGN

Maintenance & Operations

1

TRIM VEGETATION

2

REPAIR, RELOCATE, & REPLACE SIGNS

3

REMOVE GRAFFITI

4

ADD, REPAIR, & REPLACE LIGHTING

5

MAINTAIN LEVEL TRAIL SURFACE

6

INCREASE TRAIL USER CROSSING TIME AT SIGNALLED INTERSECTIONS

7

REMOVE DEBRIS

8

MAINTAIN SHOULDER

9

ADD LANDSCAPE BUFFER

Surface Treatments

1

WIDEN TRAIL

2

ADD ADA COMPLIANT CURB RAMPS

3

ADD SAFETY BARRIER

4

PEDESTRIAN REFUGE ISLAND

5

BOLLARDS

6

ADD SPEED HUMPS

7

ADD REFLECTORS

8

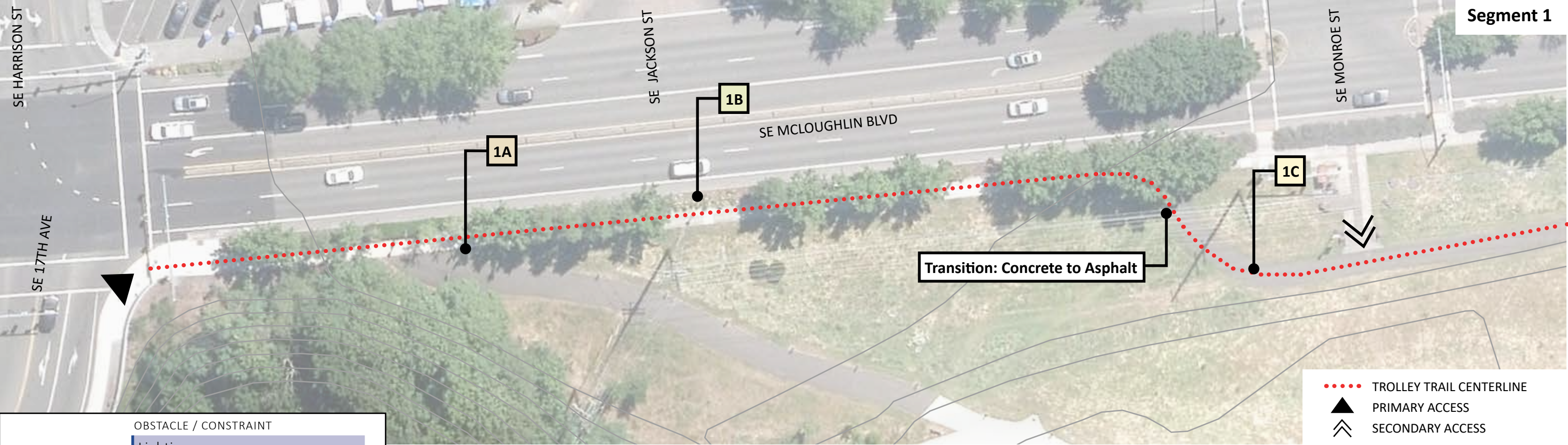
ADD CURB STOPS

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Appendices

Appendix A

Trail Conditions Assessment (Field Visit #1)



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 1 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
1A	Graffiti on sign	Remove graffiti
1B	Busy street with traffic noise	Enhance right-of-way by adding a vegetative buffer
1C	Missing delineation of users on trails (pedestrians vs bikes)	Add shared use pavement marking along trail



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 4 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
4A	Uneven manhole cover creates unsafe surface condition on trail	Adjust manhole cover or even out the area around manhole cover to provide a seamless travel surface
4B	Railroad bridge not marked	Add reflective markers to bridge posts





	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

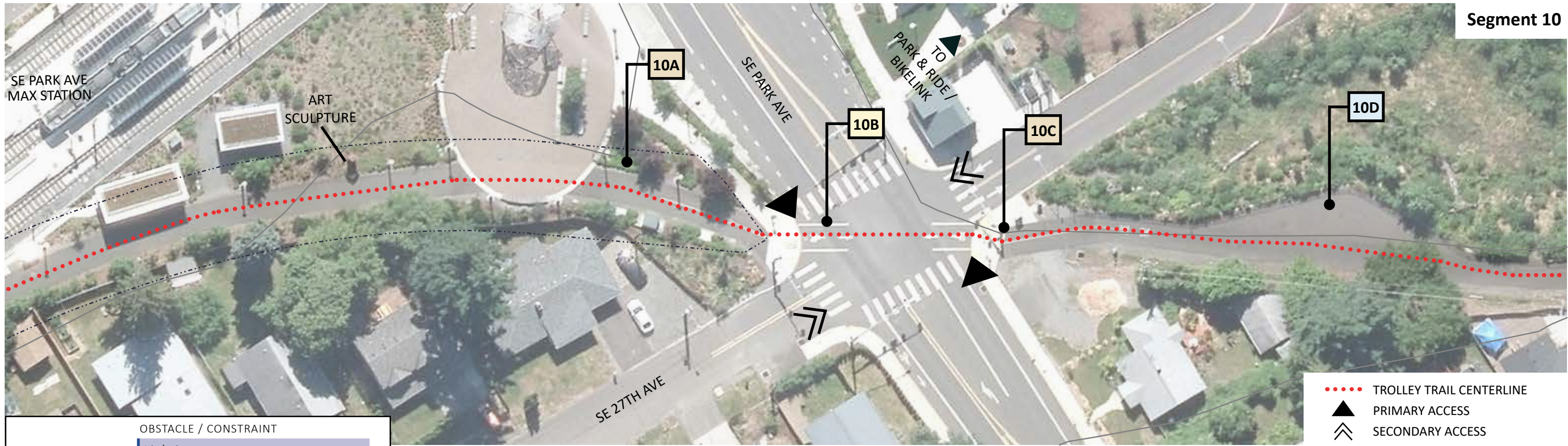
SEGMENT 5 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
5A	Partial 'ROAD XING' marking	Repaint missing marking
5B	Pinch point	<ul style="list-style-type: none">• Add fog line• Add reflectors• Relocate bollard away from traffic• Add delineators between path and roadway to define the space
5C	Inconsistent/missing striping	<ul style="list-style-type: none">• Use high visibility continental crosswalk markings for consistency• Add stop line to right turn slip lane at River Rd• Consider a pedestrian path separate route under the bridge by River Rd• Continue fog line
5D	Drainage issue	Regrade to address drainage issue



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

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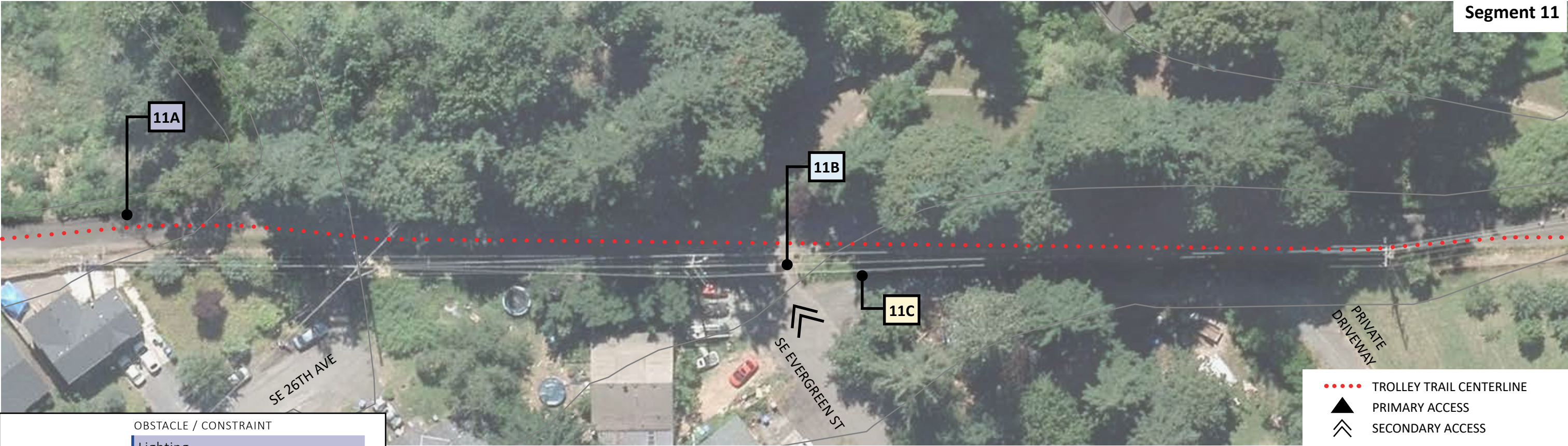


	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 10 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
10A	Sign blocked by tree	Trim back tree blocking the sign
10B	Pavement marking faded	Repaint pavement marking
10C	'WAIT ON GREEN' sign not in visible location	Relocate 'WAIT ON GREEN'
10D	Underutilized space	Add benches and/or public art





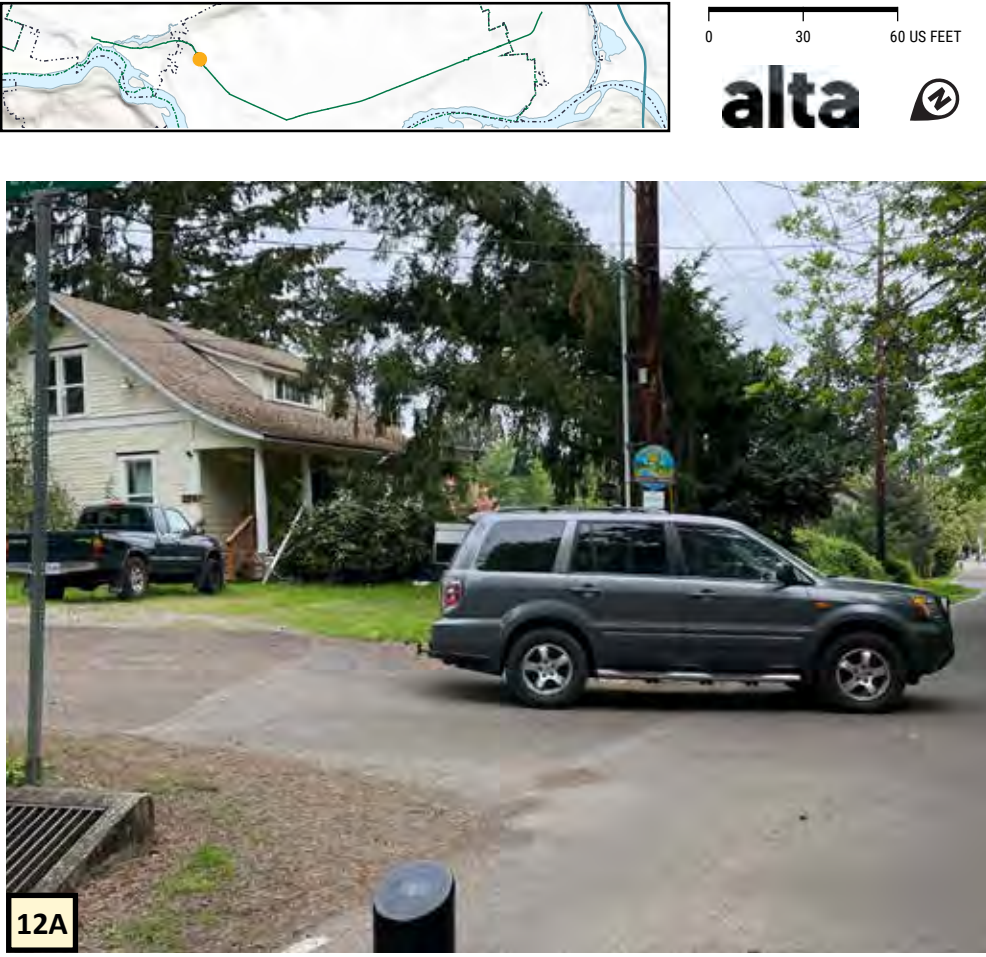
	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 11 TRAIL CONDITION ASSESSMENT

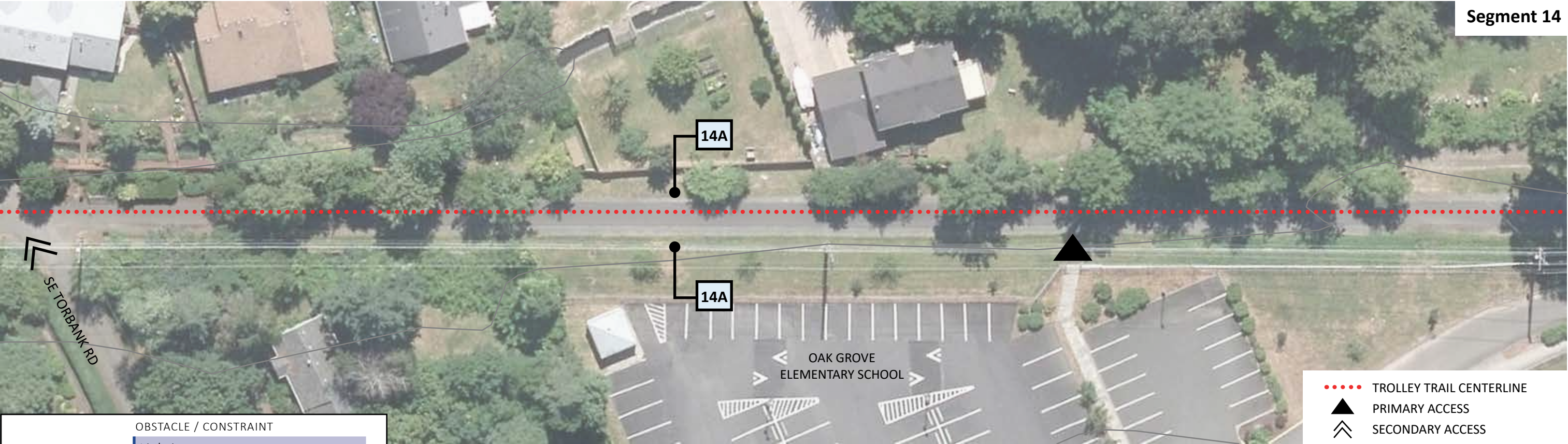
	ISSUE	RECOMMENDATION
11A	Lighting ends	Add consistent lighting throughout trail
11B	Manhole hazard near residential access point	Paint for increased visibility
11C	Fog line missing at driveway crossings	Add dashed fog line at driveways



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

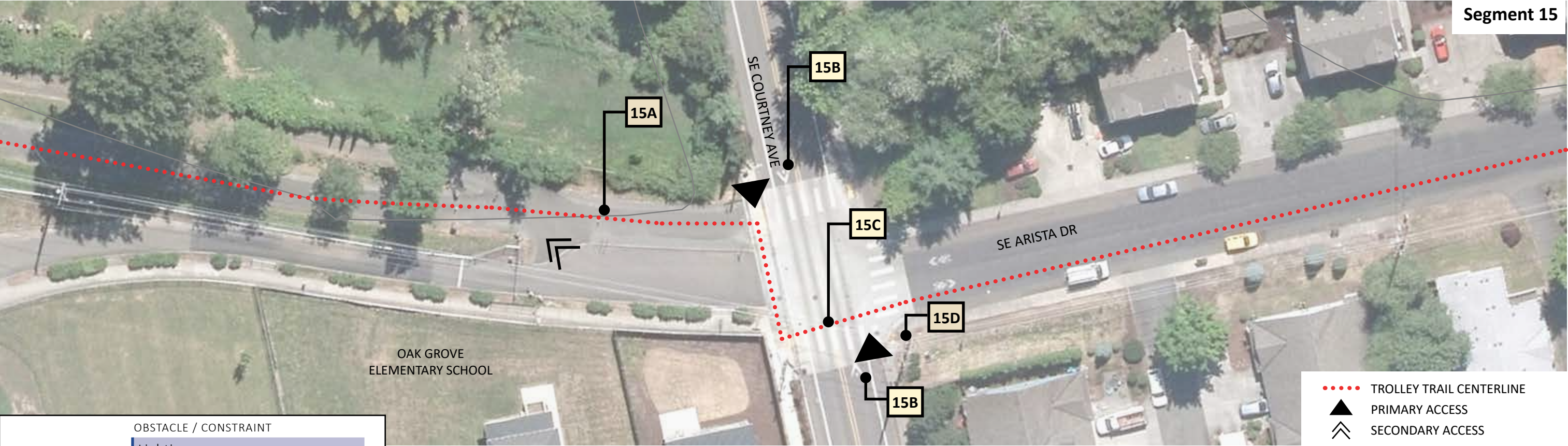


	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 14 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
14A	Gravel shoulder ends or is not present along other portions of trail	Continue gravel shoulder on both sides, useful for pedestrians/runners





VISIBILITY	OBSTACLE / CONSTRAINT
	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
	Message Placement Lack of Signage Graffiti
SIGNAGE	Placement Lack of Striping Faded
STRIPING	Industrial Heavy Machinery / Noises Odors Camping Parking Lots
ADJACENT LAND USE	

SEGMENT 15 TRAIL CONDITION ASSESSMENT		
	ISSUE	RECOMMENDATION
15A	Signage around school unclear	Review signage as it relates to school
15B	Chevron misuse (not raised crosswalks here)	Remove chevrons
15C	Bike crossing through intersection is not clearly marked	Add green skip striping to indicate where bicyclists should cross or consider separating user paths
15D	Trolley Trail sign at SW corner of intersection is not visible	Relocate sign





	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

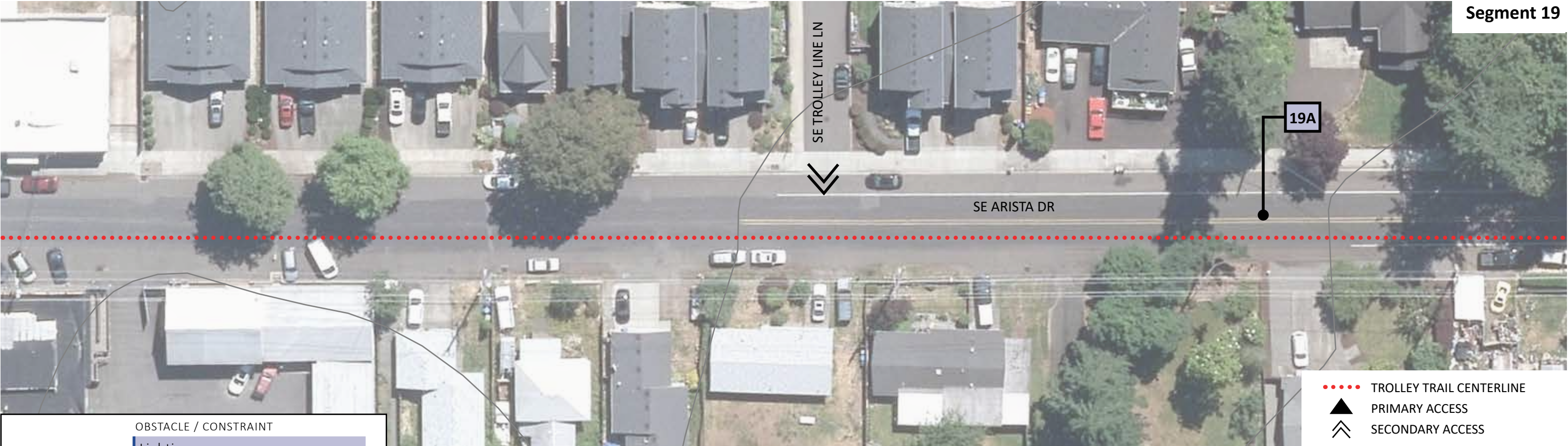
SEGMENT 16 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
16A	No shared lane markings or signage present to indicate that a user is on the Trolley Trail	Add shared lane markings and confirmation signage



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

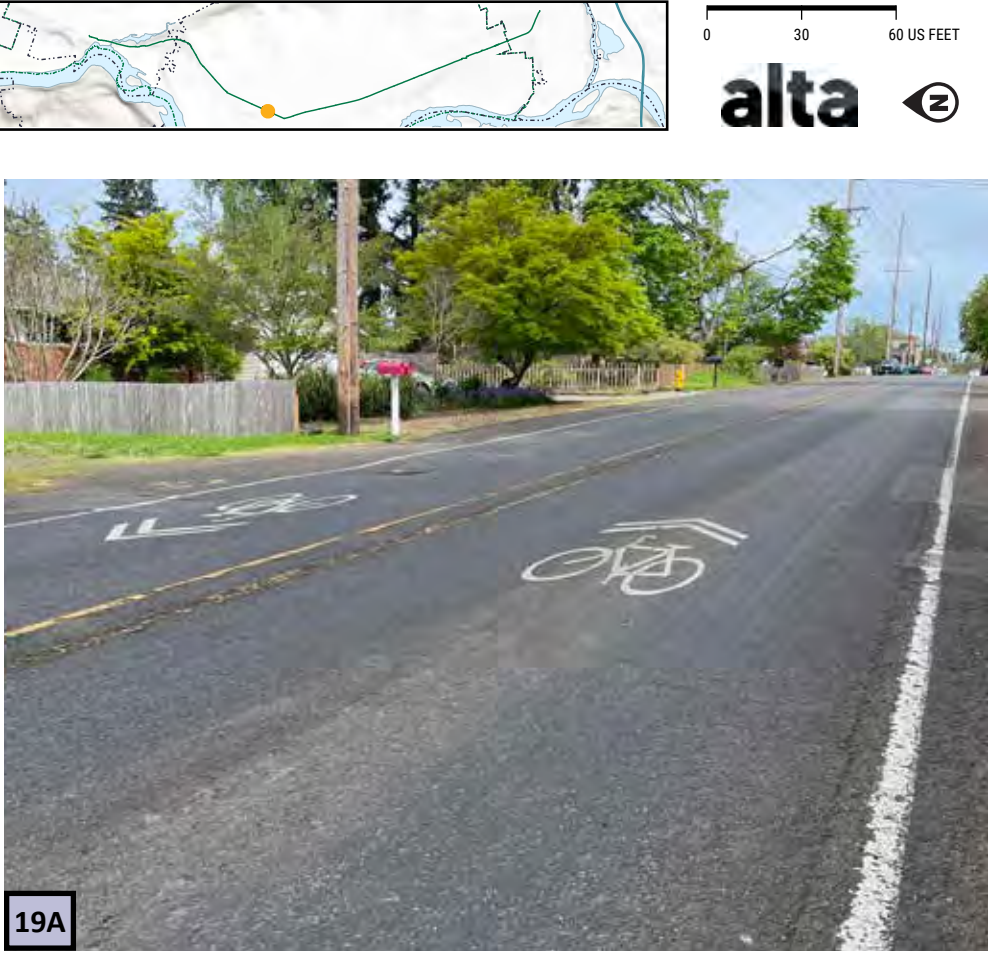
[illegible]



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

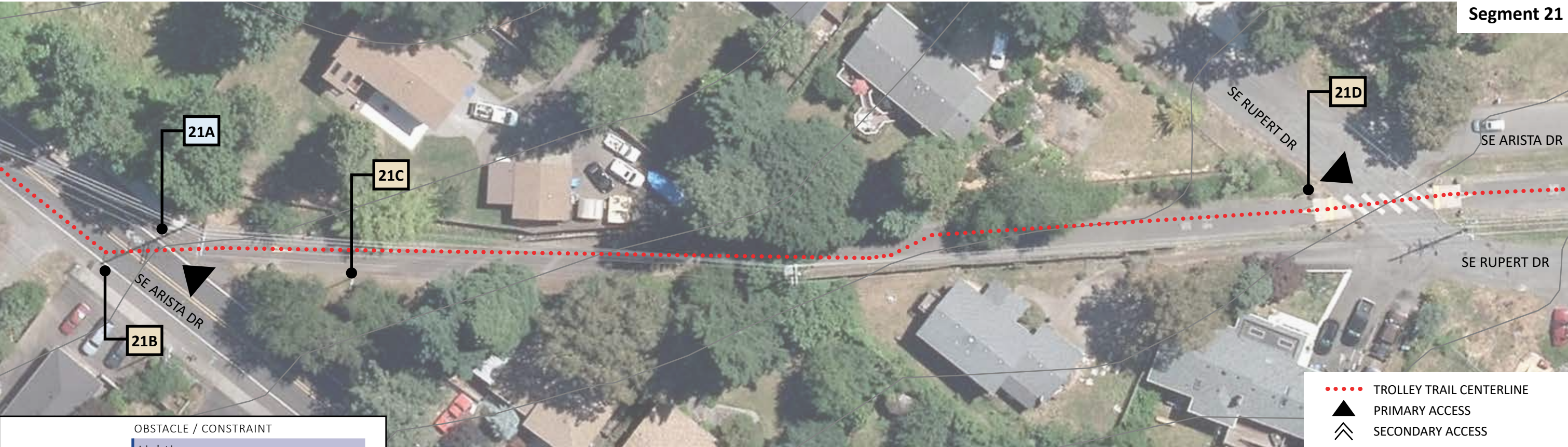
SEGMENT 19 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
19A	Road design feels fast for drivers	<ul style="list-style-type: none">• Add speed hump to slow down traffic• Restripe to add a “climbing” bike lane, remove centerline striping



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

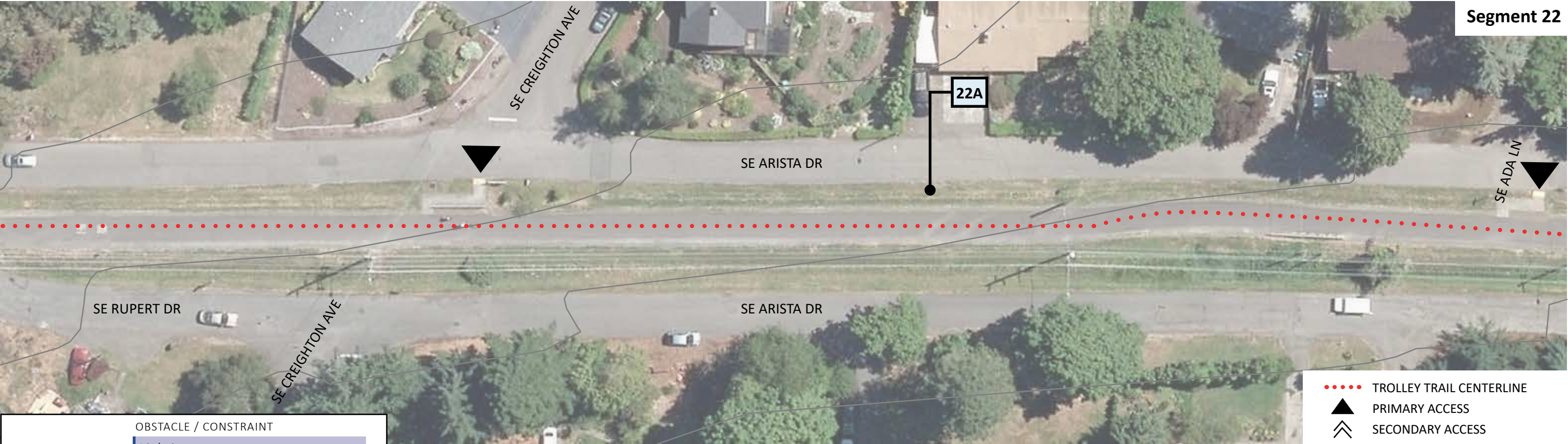


	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

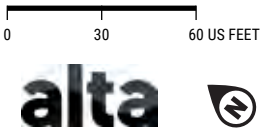
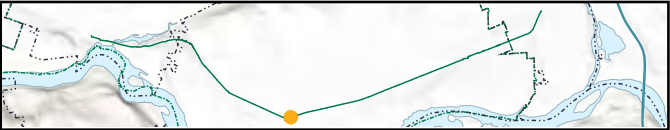
SEGMENT 21 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
21A	Sharp turn off Trolley Trail onto Arista Drive and manhole is not level	
21B	Bike turn signage unclear	Improve signage for bike turning
21C	Etiquette sign posted too high	Reposition etiquette sign lower
21D	Trail crossing sign facing incorrect direction	Downward diagonal facing arrow should be reserved to point to crosswalk





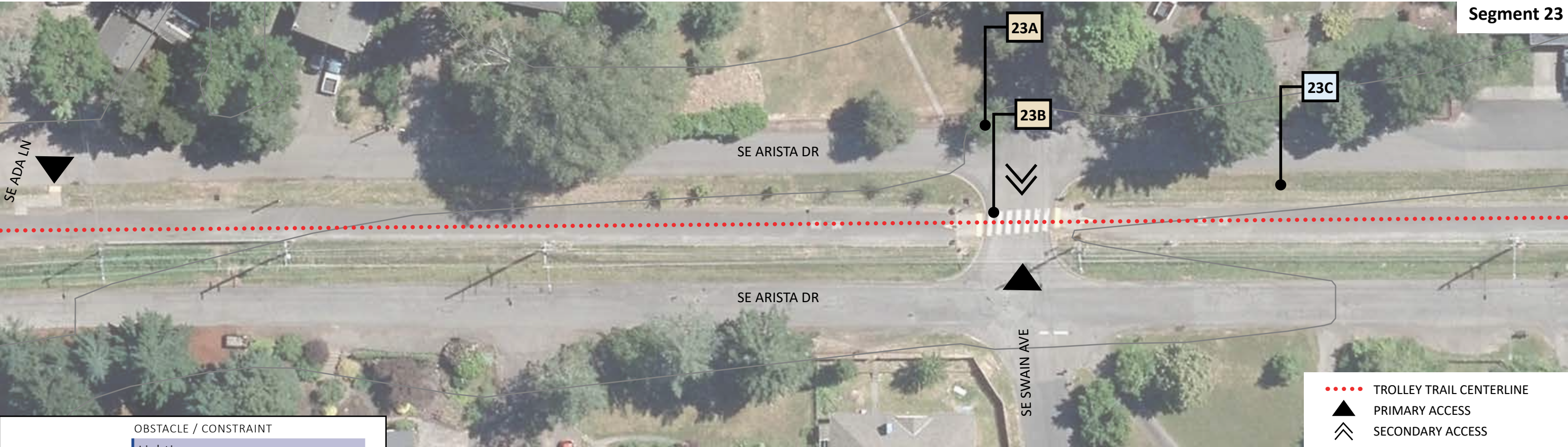
- TROLLEY TRAIL CENTERLINE
- ▲ PRIMARY ACCESS
- ⋈ SECONDARY ACCESS



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 22 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
22A	No shade along corridor	Add shade trees or taller vegetation



SEGMENT 23 TRAIL CONDITION ASSESSMENT

ISSUE		RECOMMENDATION
23A	Missing sign announcing a trail crossing	Add additional trail crossing sign
23B	Vehicles need to stop on trail crossing	Use a only bike yield sign
23C	No shade along corridor	Add shade trees or taller vegetation



SE RISLEY AVE

SE ARISTA DR

SF FILL A AVE

OBSTACLE / CONSTRAINT

- Lighting
- Vegetation
- Slopes
- Traffic Speed

- Materials
- Drainage
- Leaf Litter
- Cracks
- Tree Roots / Shade
- Manhole

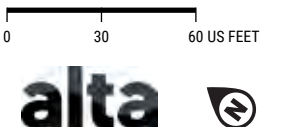
- Message
- Placement
- Lack of Signage
- Graffiti

- Placement
- Lack of Striping
- Faded

- Industrial
- Heavy Machinery / Noises
- Odors
- Camping
- Parking Lots

ISSUE

RECOMMENDATION

[illegible]

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

LOCATION OF PEDESTRIAN CRASH
DATE: 05/09/2014, 7:00 PM VEHICLE DIRECTION OF TRAVEL: NORTHEAST

[illegible]

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

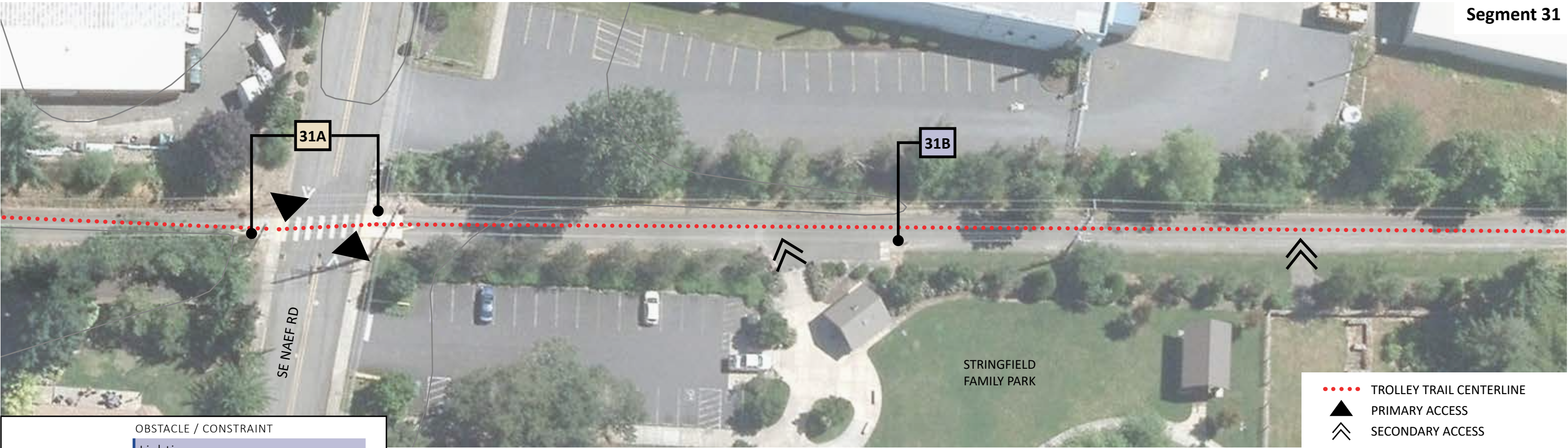
	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

	OBSTACLE / CONSTRAINT
VISIBILITY	<ul style="list-style-type: none"> Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	<ul style="list-style-type: none"> Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	<ul style="list-style-type: none"> Message Placement Lack of Signage Graffiti
STRIPING	<ul style="list-style-type: none"> Placement Lack of Striping Faded
ADJACENT LAND USE	<ul style="list-style-type: none"> Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 31 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
31A	Inconsistent stop signs	Use bike stop sign on white background seen at other crossing locations for consistency
31B	Unmarked bike counter sits close to trail	Add reflectors to bike counter and anything else that sits within 2 feet of the trail edge





	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
ADJACENT LAND USE	Faded
	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 32 TRAIL CONDITION ASSESSMENT

ISSUE		RECOMMENDATION
32A	Campers on adjacent private property - access to campsites is from trail	
32B	Graffiti just past bridge over Boardman Creek	Remove graffiti



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

Segment 34

BOARDMAN CREEK

OBSTACLE / CONSTRAINT

..... TROLLEY TRAIL CENTERLINE
 ▲ PRIMARY ACCESS
 ≡ SECONDARY ACCESS

Segment 34

BOARDMAN CREEK

OBSTACLE / CONSTRAINT

..... TROLLEY TRAIL CENTERLINE
 ▲ PRIMARY ACCESS
 ≡ SECONDARY ACCESS

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

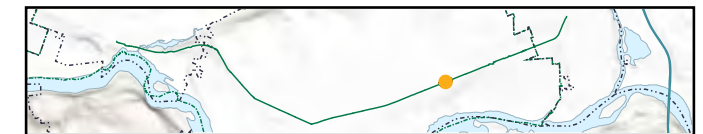
	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

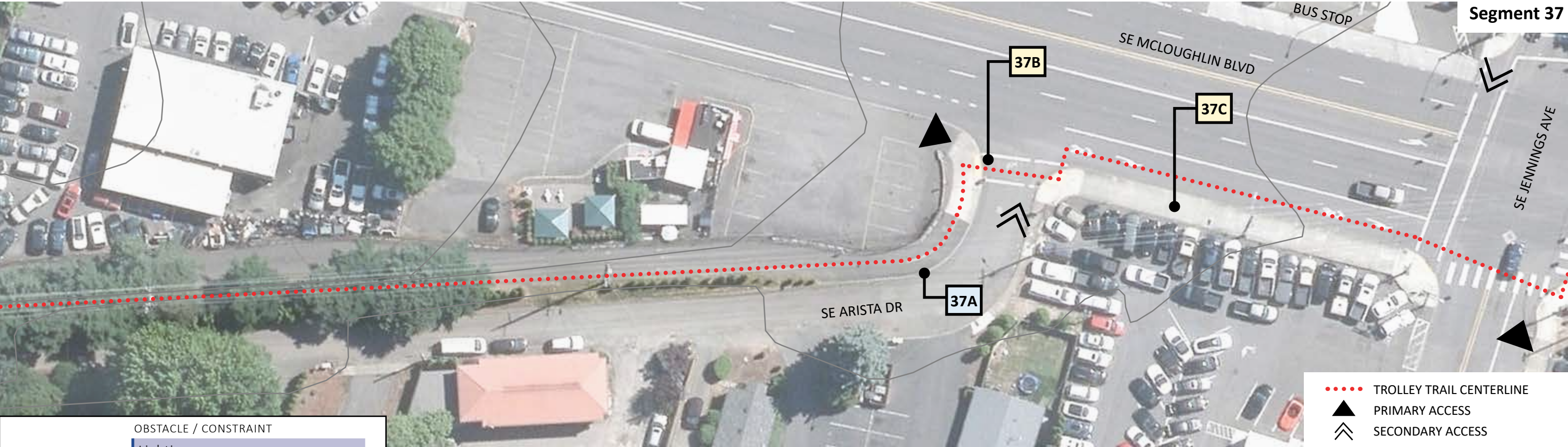
	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible][illegible][illegible]

SEGMENT 35 TRAIL CONDITION ASSESSMENT



[illegible]



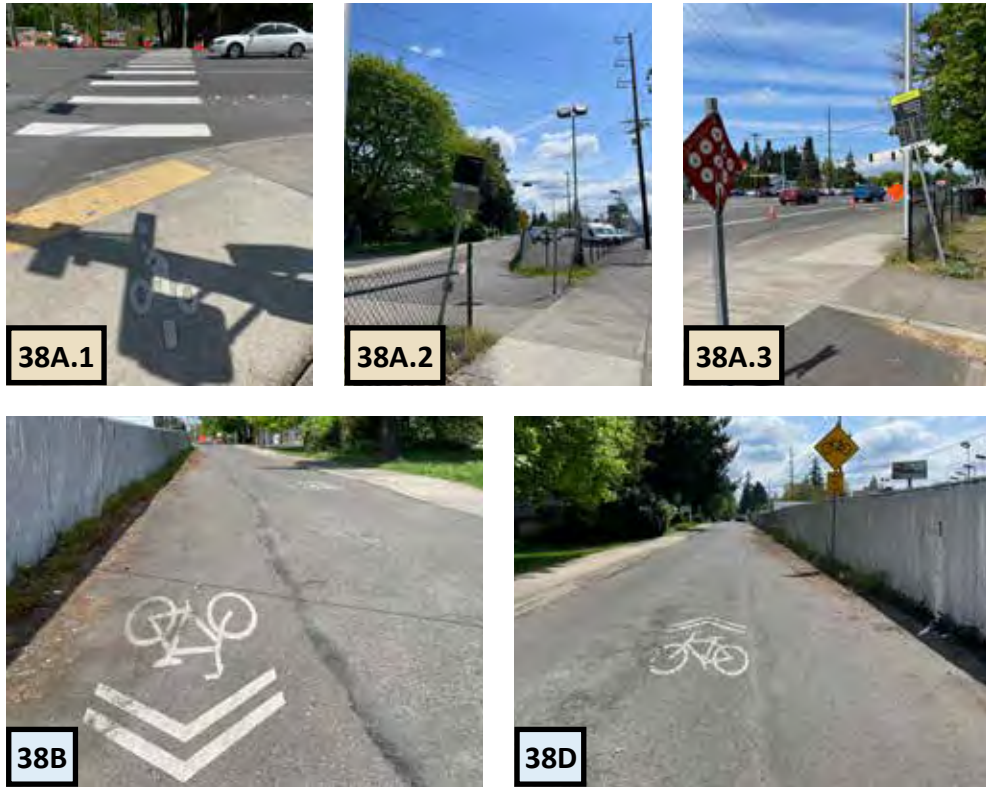
	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Manhole
	Message
	Placement
	Lack of Signage
STRIPING	Graffiti
	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

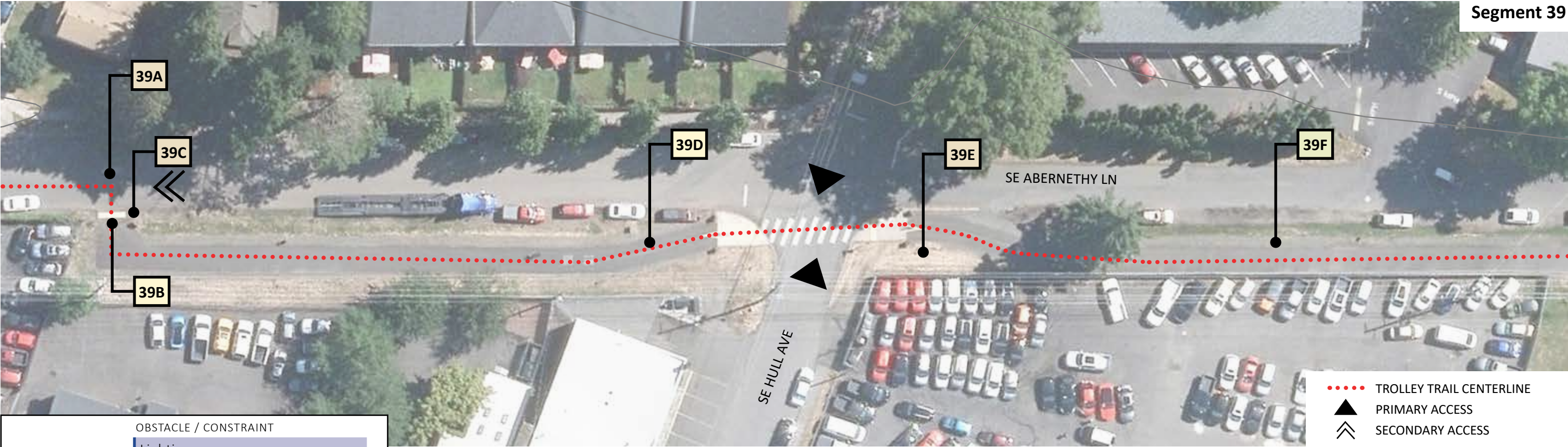
SEGMENT 37 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
37A	Trail curve with curb on outside edge	Paint buffer between curb and path or add railing
37B	Crosswalk needs added visibility	Provide a continental crosswalk
37C	Users are not currently delineated along sidewalk	Add pavement markings designating areas for bikes vs. pedestrians



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

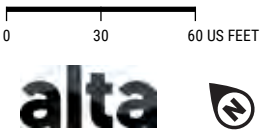
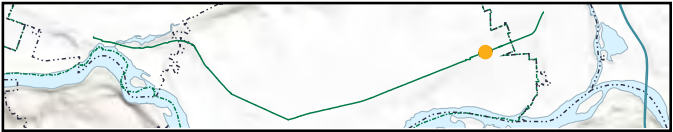
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	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
SURFACE CONDITIONS	Slopes
	Traffic Speed
SIGNAGE	Materials
	Drainage
STRIPING	Leaf Litter
	Cracks
ADJACENT LAND USE	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
STRIPING	Lack of Signage
	Graffiti
ADJACENT LAND USE	Placement
	Lack of Striping
STRIPING	Faded
	Industrial
ADJACENT LAND USE	Heavy Machinery / Noises
	Odors
ADJACENT LAND USE	Camping
	Parking Lots

SEGMENT 39 TRAIL CONDITION ASSESSMENT

ISSUE		RECOMMENDATION
39A	Share the road sign is blocked	<ul style="list-style-type: none">• Add crosswalk• Remove sign and add shared lane markings• Add Trolley Trail signage
39B	Centerline is too short along curve	Extend centerline on path curve
39C	Stop sign is faded	Replace stop sign
39D	Centerline is faded	Repaint centerline
39E	Sign in wrong location	Move 'NO PARKING' sign to the curb
39F	Industrial noise	



	OBSTACLE / CONSTRAINT
VISIBILITY	<ul style="list-style-type: none"> Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	<ul style="list-style-type: none"> Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	<ul style="list-style-type: none"> Message Placement Lack of Signage Graffiti
STRIPING	<ul style="list-style-type: none"> Placement Lack of Striping Faded
ADJACENT LAND USE	<ul style="list-style-type: none"> Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 41 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
41A	Northbound side of trail is missing stop sign and bollards at crossing	Add stop sign and bollards
41B	Faded crosswalk	Refresh crosswalk markings



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

The top portion of the page features a map of the study area, showing a network of roads and water bodies. A yellow dot on the map indicates the location of the study area. To the right of the map is a scale bar showing 0, 30, and 60 US FEET, and the Alta logo.

The bottom portion of the page is a photograph of the study area. It shows a paved road with a grassy shoulder on the left and a gravel area with a green building on the right. A white van is parked on the left side of the road. A 'Welcome to Blaine' sign is visible on the left. The sky is blue with scattered clouds.

42A

	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]

SEGMENT 44 TRAIL CONDITION ASSESSMENT



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting Vegetation Slopes Traffic Speed
SURFACE CONDITIONS	Materials Drainage Leaf Litter Cracks Tree Roots / Shade Manhole
SIGNAGE	Message Placement Lack of Signage Graffiti
STRIPING	Placement Lack of Striping Faded
ADJACENT LAND USE	Industrial Heavy Machinery / Noises Odors Camping Parking Lots

[illegible]



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

SEGMENT 46 TRAIL CONDITION ASSESSMENT

	ISSUE	RECOMMENDATION
46A	Limited signage	Add gateway / wayfinding signage to mark the Trolley Trail
46B	Trail access is not clear	Add safe crossing for pedestrians and improve signage



GLADSTONE SPECIFIC ISSUES & RECOMMENDATIONS

Along Portland Ave From E Jersey Street to Chief Charles Ames Memorial Park



	OBSTACLE / CONSTRAINT
VISIBILITY	Lighting
	Vegetation
	Slopes
	Traffic Speed
SURFACE CONDITIONS	Materials
	Drainage
	Leaf Litter
	Cracks
	Tree Roots / Shade
	Manhole
SIGNAGE	Message
	Placement
	Lack of Signage
	Graffiti
STRIPING	Placement
	Lack of Striping
	Faded
ADJACENT LAND USE	Industrial
	Heavy Machinery / Noises
	Odors
	Camping
	Parking Lots

	ISSUE	RECOMMENDATION
Gladstone-A	Poor sidewalk conditions	Repair sidewalk
Gladstone-B	No crosswalks or ADA ramps	Add crosswalk markings and ADA ramps

GENERAL ISSUES ALONG THE TROLLEY TRAIL



Minimal graffiti

UNIVERSAL RECOMMENDATIONS FOR THE TROLLEY TRAIL



Use consistent stop signs along trail



Place reflectors on bollards



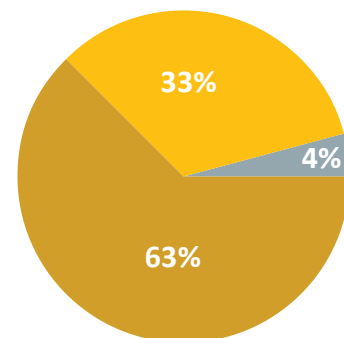
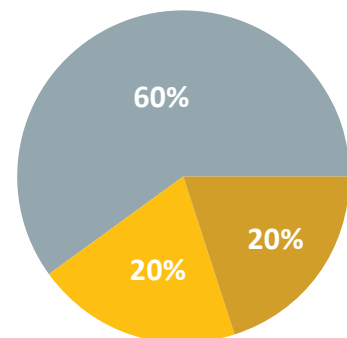
Trim vegetation off trail

Appendix B

User Experience Assessment (Field Visit #2)

Thursday, May 25th 8:00am-9:00am
sunny, 63°

MORNING FIELD NOTES



Northbound
 Southbound
 Westbound (to/from Milwaukie Bay Park)

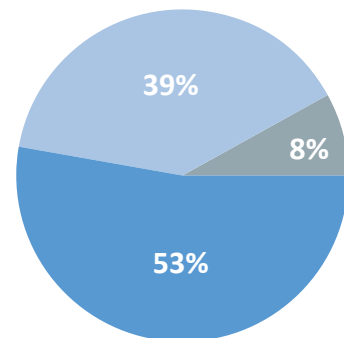
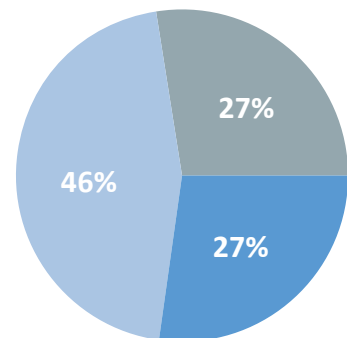


0 with children

[illegible]

Thursday, May 25th 4:00pm-5:00pm
sunny, 80°

EVENING FIELD NOTES



■ Northbound ■ Southbound ■ Westbound (to/from Milwaukie Bay Park)



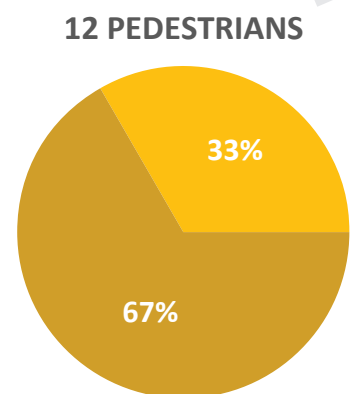
RECOMMENDATION



between SE 22nd and SE River Road
Thursday, May 25th 9:00am-10:00am
sunny, 63°

USER EXPERIENCE

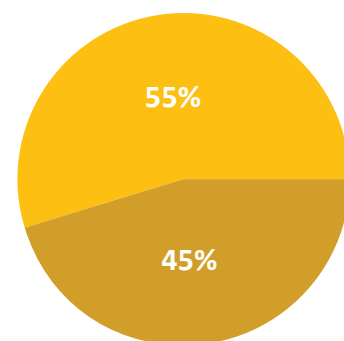
MORNING FIELD NOTES



12 PEDESTRIANS

23 TOTAL MORNING TRAIL USERS

11 BICYCLISTS



Northbound
 Southbound
 Out and back

7 walking



2 jogging



3 rolling



1 with children



1 ebikes

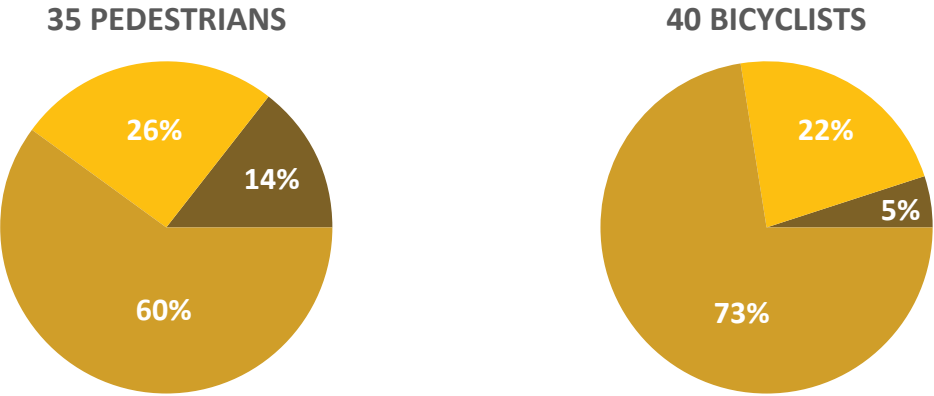
[illegible]

near MAX Station and SE Park Ave & SE 27th Ave
Thursday, May 25th 8:00am-10:00am
sunny, 63°

USER EXPERIENCE
MORNING FIELD NOTES



75 TOTAL MORNING TRAIL USERS



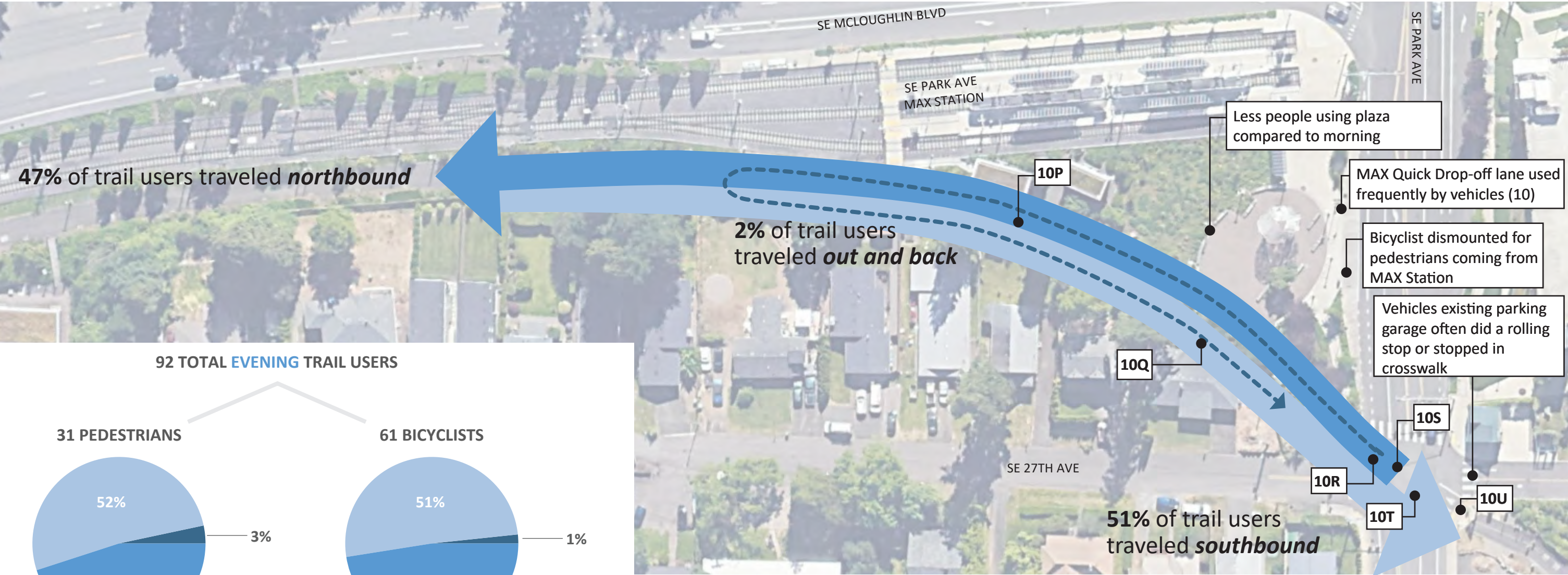
Northbound Southbound Out and back



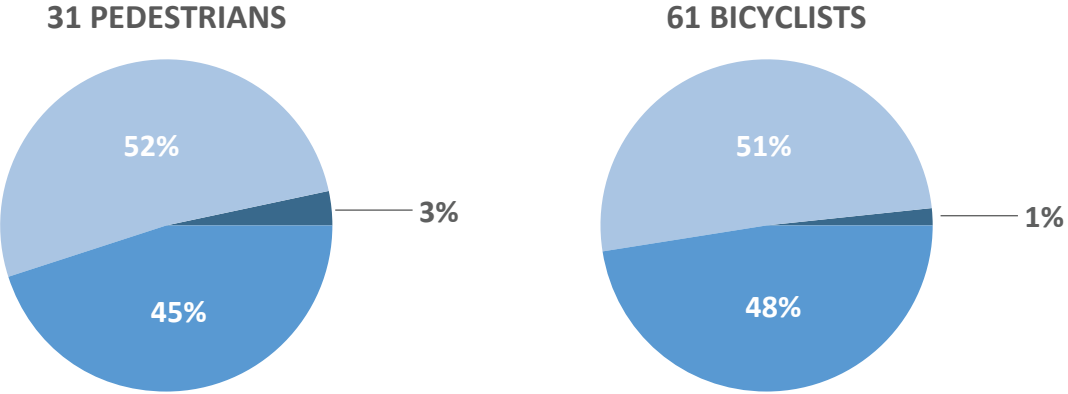
ISSUE		RECOMMENDATION
10L	Person sleeping/sitting on trail, blocking west side of trail	
10M	Multiple bicyclists listening to loud music on speakers	
10N	People (3 total) sleeping under/on nearby plaza benches (eventually woken up and asked to leave by TriMet security)	
100	Drug activity at nearby bus stop, TriMet security ran across street to approach individual	

near MAX Station and SE Park Ave & SE 27th Ave
Thursday, May 25th 4:00pm-6:00pm
sunny, 80°

USER EXPERIENCE
EVENING FIELD NOTES



92 TOTAL EVENING TRAIL USERS



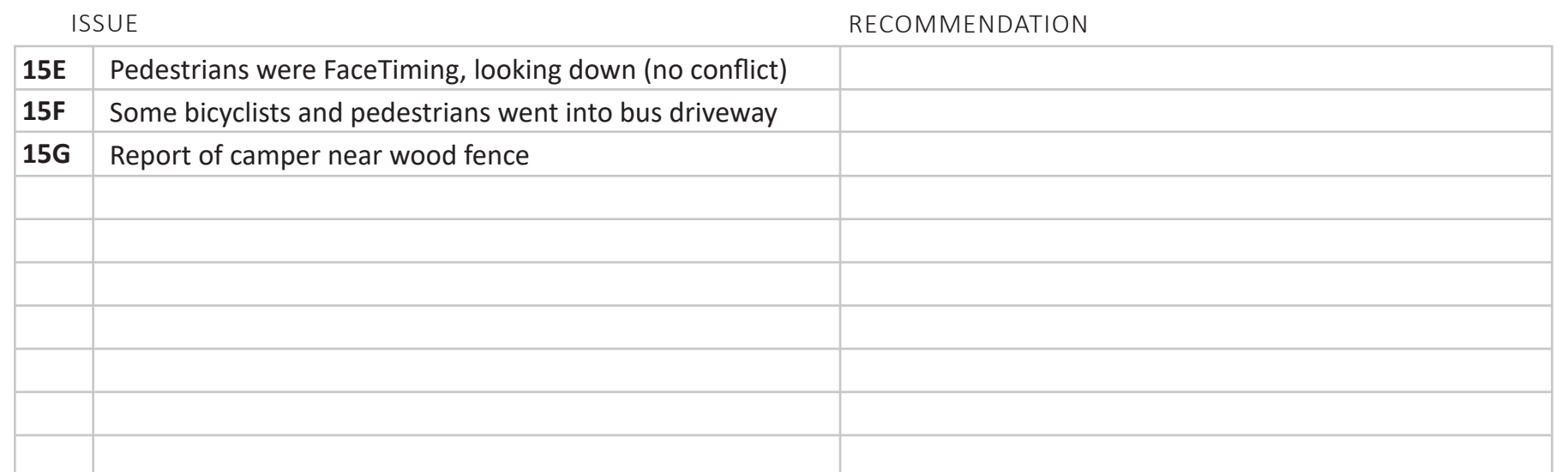
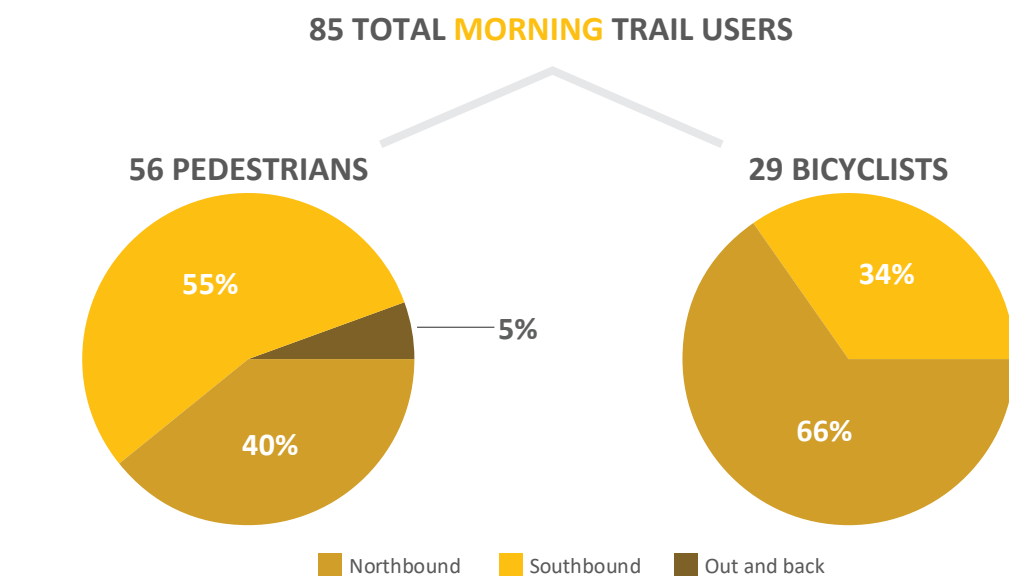
Northbound Southbound Out and back



ISSUE		RECOMMENDATION
10P	Multiple pedestrians walking on left side of trail (bicyclist had to divert around pedestrians during one instance)	
10Q	Person sleeping on trail bench with a leashed dog, dog sitting on blind corner of the trail forcing trail users to go around	
10R	Majority of bicyclists ran diagonal bike crossing in evening	
10S	Multiple vehicles did U-turn in intersection (including 1 police vehicle and two vehicles after using MAX Quick Drop-off lane)	
10T	Pedestrians often used diagonal bike signal, signal is not timed long enough to walk through at a leisurely pace	
10U	Driver turned from Park Ave to 27th on red, cutting off bike with green diagonal crossing symbol	

Thursday, May 25th 7:00am-9:00am
sunny, 55°

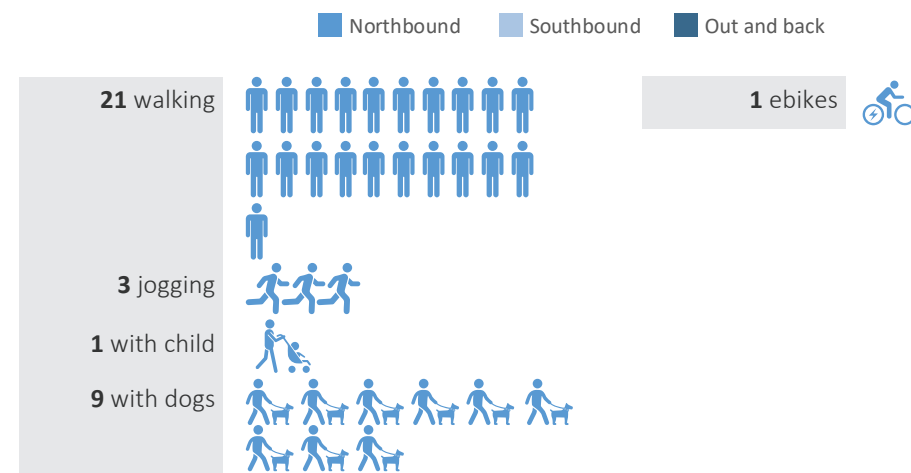
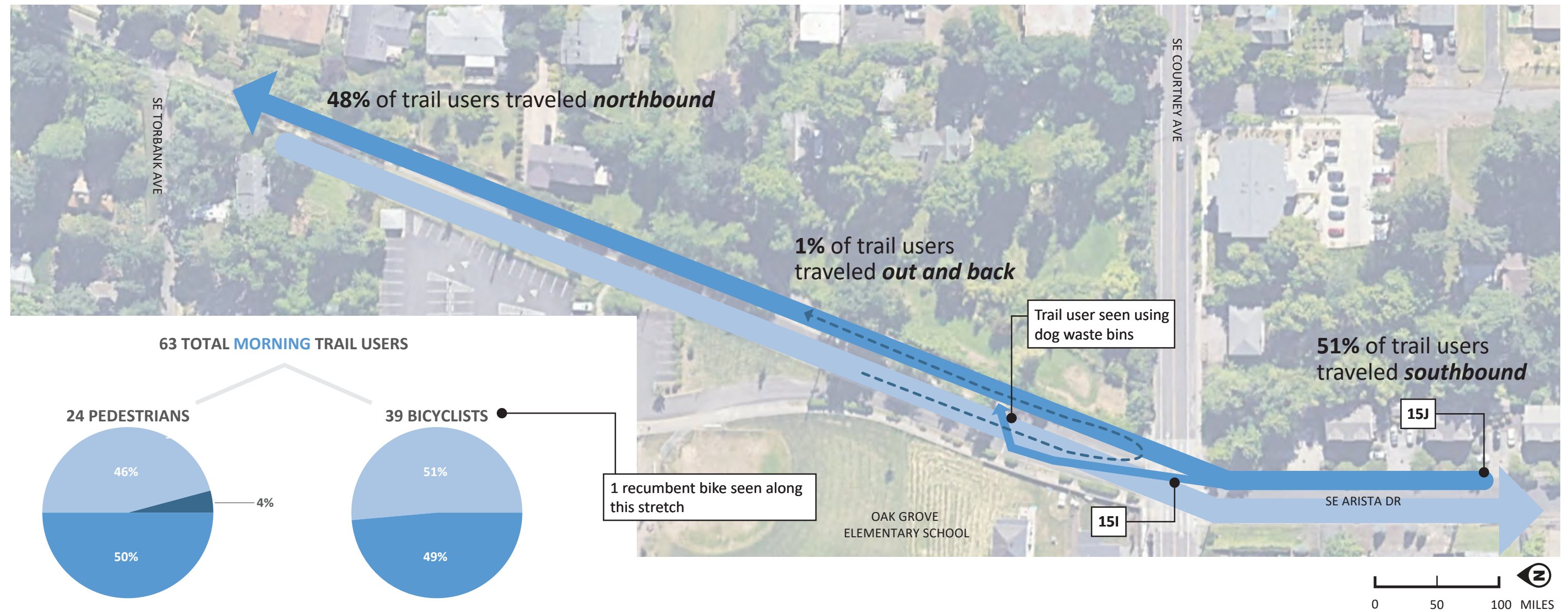
MORNING FIELD NOTES



Thursday, May 25th 4:00pm-5:30pm
sunny, 80°

USER EXPERIENCE

EVENING FIELD NOTES

[illegible]

Thursday, May 25th 9:00am-10:00am
sunny, 60°

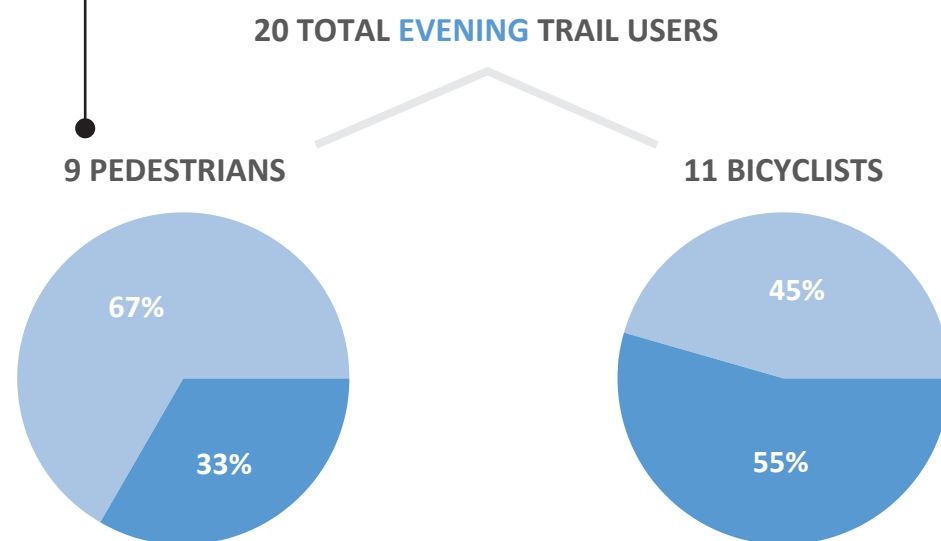
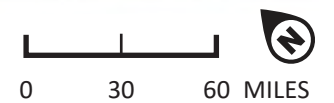
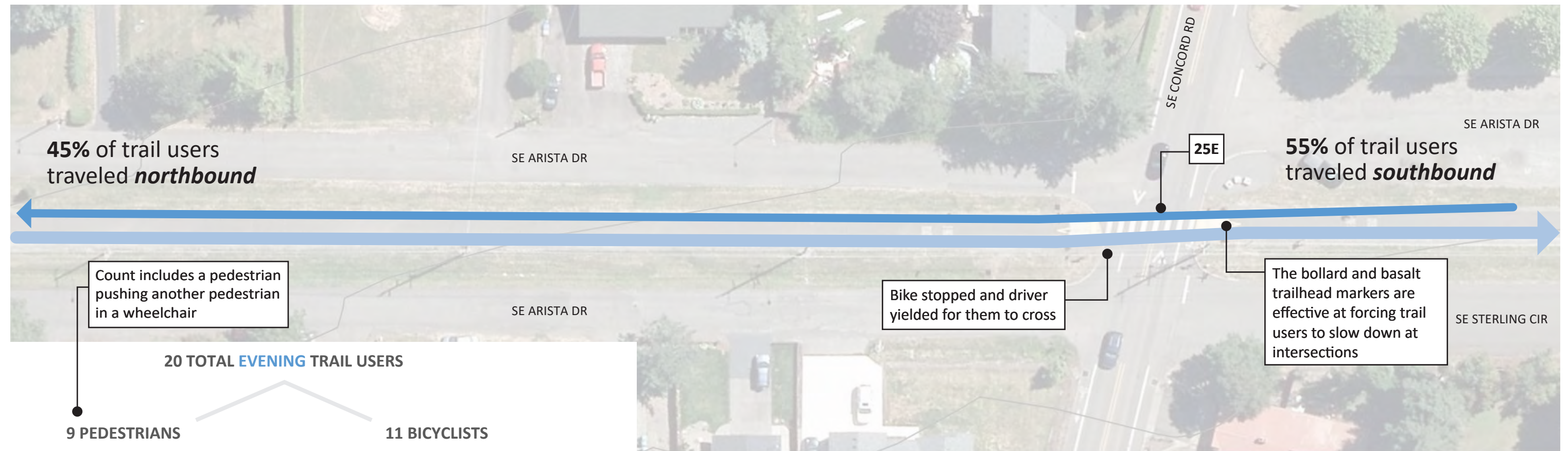
MORNING FIELD NOTES

[illegible]


Thursday, May 25th 5:30pm-6:00pm
sunny, 80°


USER EXPERIENCE

EVENING FIELD NOTES




■ Northbound ■ Southbound ■ Out and back

3 walking 

5 jogging 

1 rolling 

2 with dogs 

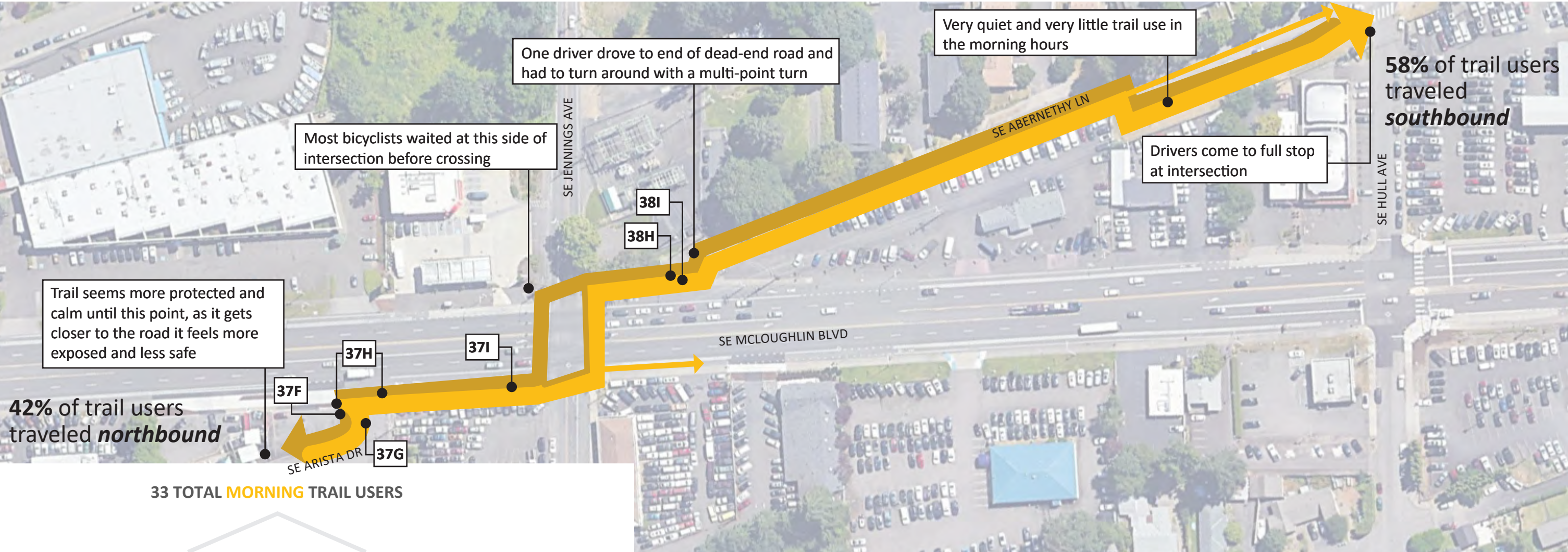
0 ebikes

0 with child

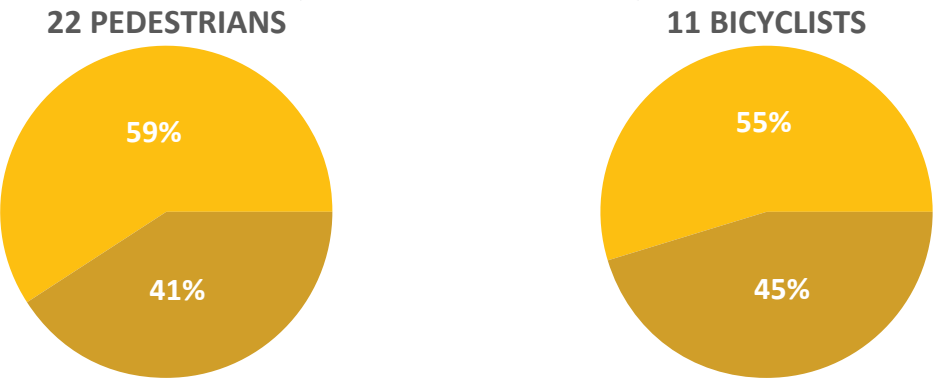
[illegible]

between SE Arista Dr to SE Jennings Ave to SE Abernethy Ln to SE Hull Ave
Thursday, May 25th 8:00pm-10:00pm
sunny, 60°

USER EXPERIENCE
MORNING FIELD NOTES



33 TOTAL MORNING TRAIL USERS



Northbound Southbound Out and back



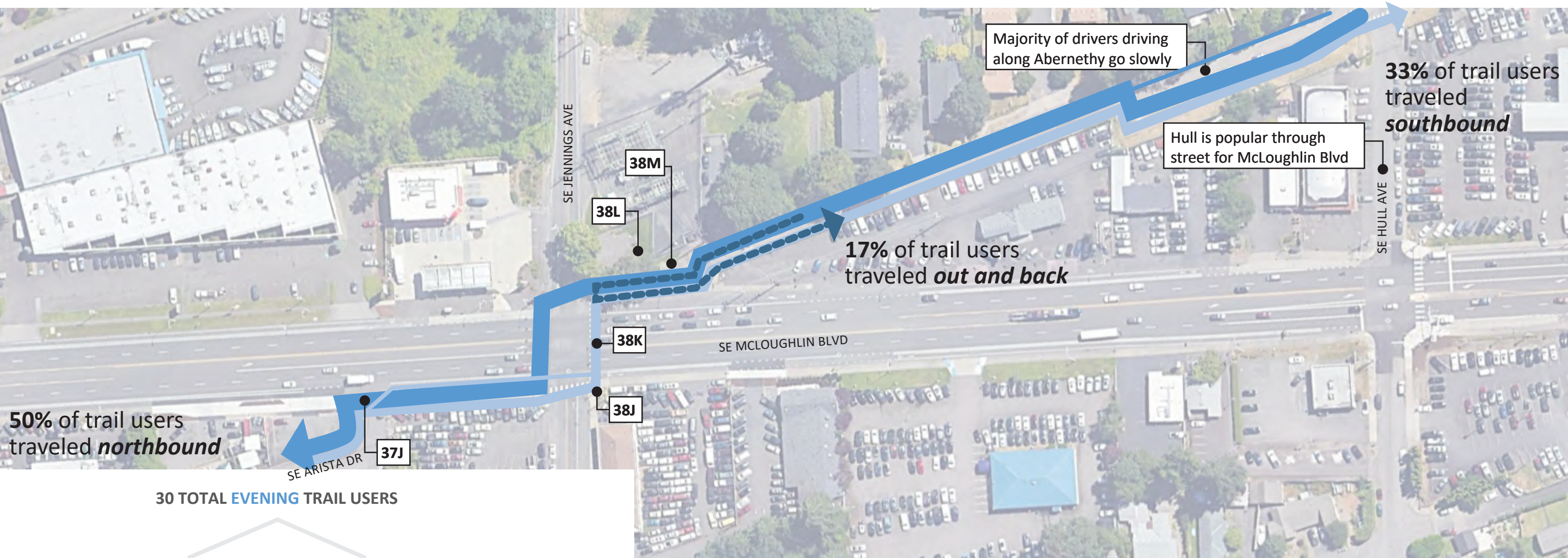
ISSUE		RECOMMENDATION
37F	Popular turn around area, seems to be perceived as the “end of trail” for many users	Add wayfinding signage / trail pavement markings to show continuation of trail
37G	Driver (turning from McLoughlin) drove up onto curb. Other drivers traveled very fast off McLoughlin	
37H	Narrow trail/sidewalk and tight turning radii for bicyclists	New curb cut and green paint crossing
37I	All bicyclists used sidewalk along this stretch, rather than marked bike lane on road	
38H	Attempted bike theft to a bike locked to sidewalk pole	
38I	Bicyclists turn and stay on sidewalk here, rather than using shared bike lane on road	

between SE Arista Dr to SE Jennings Ave to SE Abernethy Ln to SE Hull Ave

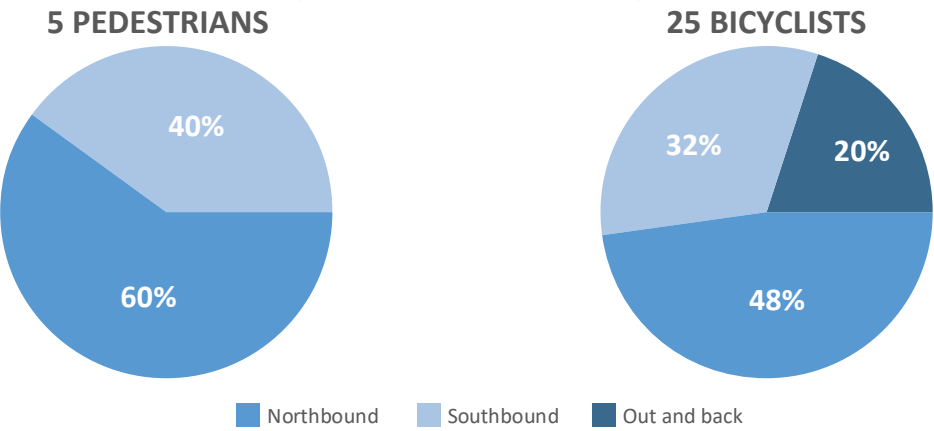
Thursday, May 25th 4:00pm-6:00pm
sunny, 80°

USER EXPERIENCE

EVENING FIELD NOTES

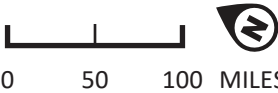


30 TOTAL EVENING TRAIL USERS



- 2 walking
- 1 jogging
- 1 rolling
- 1 with child
- 1 with dog

- 2 ebikes



ISSUE		RECOMMENDATION
37J	Driver stopped in Arista intersection - bicyclist had to go behind	
38J	Long wait for pedestrian signal to change with uncomfortable, exposed conditions to traffic and sun	
38K	Very short “walk” window from SW Corner to SE Corner of intersection	
38L	Suspicious activity - looked as if someone was trying to break into the back door of Brush & Palette Art Association - walked away when noticed	
38M	Driver did not realize this was a dead end and drove onto lawn to turn around	

