

Tacoma to Puyallup Regional Trail Connection Route Analysis Study Report

Prepared for:

Washington State Department of Transportation
Puget Sound Gateway Program

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Acronyms and Abbreviations

ATCOI	Puyallup Watershed Initiative Active Transportation Community of Interest
BRT	Bus Rapid Transit
DOTG	Downtown On the Go (Tacoma)
NRHP	National Register of Historic Places
SAG	Stakeholder Advisory Group
SR	State Route
TDLE	Tacoma Dome Link Extension
WHR	Washington Historic Register
WISSARD	Washington Information System for Architectural and Archeological Records Data
WSDOT	Washington State Department of Transportation

Executive Summary

The purpose of the Tacoma to Puyallup Regional Trail Connection Route Analysis Study was to evaluate the feasibility of completing an active transportation connection between the cities of Puyallup, Tacoma and Fife to bridge a significant gap in the regional active transportation network in Pierce County. The study was proposed by the Tacoma to Puyallup Regional Trail Connection Cohort, a group of elected officials and local leaders of the surrounding communities, as an initial step to establish a purpose and need, evaluation criteria, and alternatives evaluation in consultation with a stakeholder advisory group (SAG) to determine merit for an implementation project and to recommend next steps.

The study's stakeholder advisory group (SAG) included members of the Tacoma to Puyallup Regional Trail Connection Cohort. The SAG includes representatives of the Washington State Department of Transportation (WSDOT), the Cities of Tacoma, Fife, and Puyallup, the Puyallup Tribe of Indians, Pierce County, Downtown

On the Go (DOTG) Tacoma, Puyallup Watershed Initiative Active Transportation Community of Interest (ATCOI), ForeverGreen Trails, as well as Port of Tacoma and Sound Transit.

The SAG, in cooperation with the community, established the purpose and need for a future regional trail project and developed the goals and criteria by which the trail alignment alternatives would be evaluated by the study team. The route analysis study included:

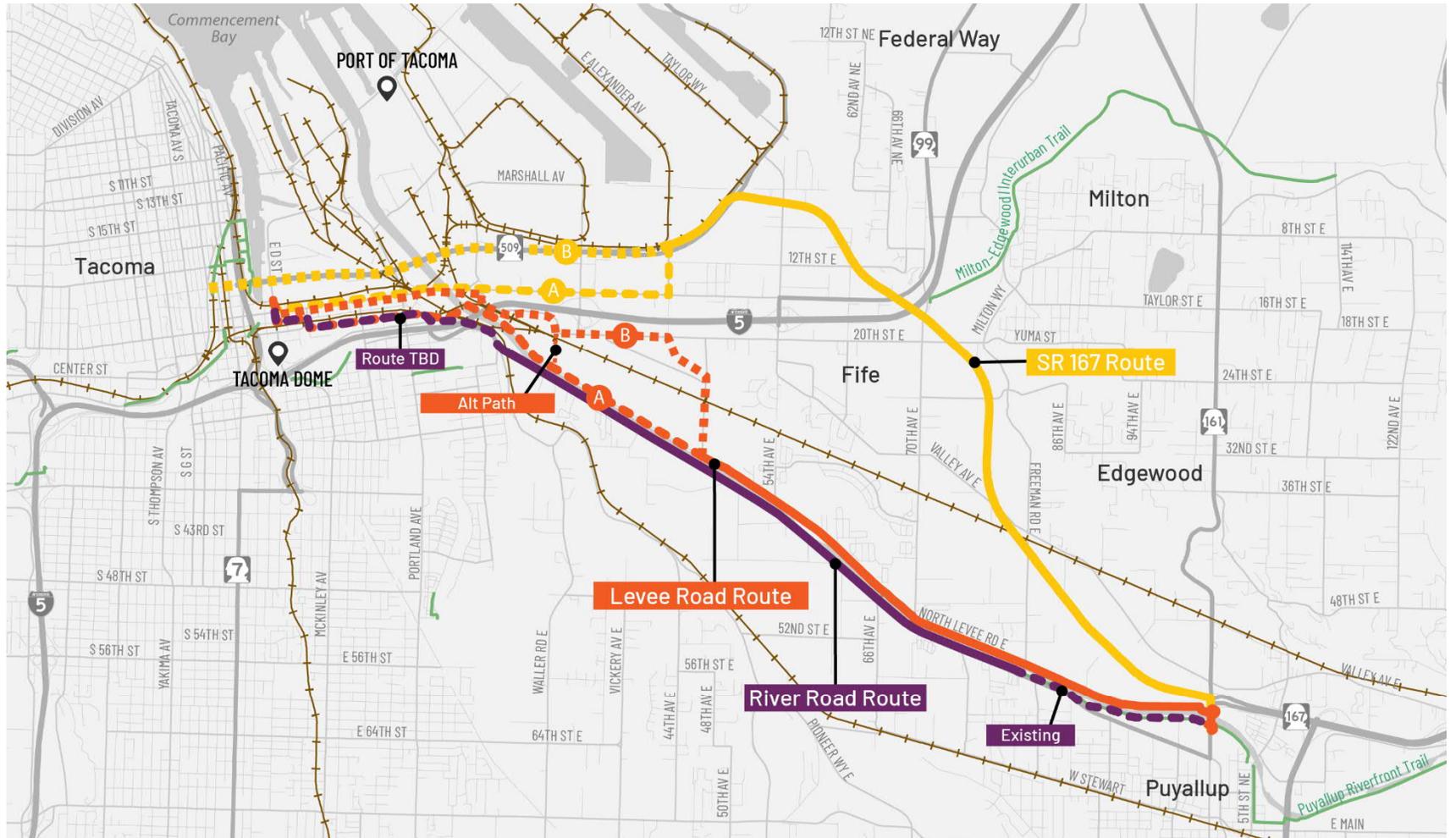
- ▶ Review of existing plans and studies
- ▶ Purpose and need
- ▶ Study goals, criteria and evaluation metrics
- ▶ Review of trail design standards
- ▶ Existing conditions for representative alignments
- ▶ Route refinements
- ▶ Alternatives evaluation
- ▶ Environmental review
- ▶ Potential funding sources
- ▶ Implementation and next steps

The representative alignments, developed by the Cohort, included three main alignments connecting the Riverwalk Trail in Puyallup to the Thea Foss Esplanade trail in downtown Tacoma. The three representative main alignments include:

- ▶ **Levee Road**, located along the south side of the roadway (north bank of the Puyallup River)
- ▶ **River Road** (existing SR 167), located along the north side of the roadway (south bank of the Puyallup River)
- ▶ **New SR 167**, located along the new SR 167 roadway alignment currently being designed by WSDOT's Puget Sound Gateway Program, between Puyallup and Fife

The representative main alignments are shown in Figure A.

Tacoma to Puyallup Regional Trail Connection



Source:



Potential Trail Alignments

- Levee Road Route
- River Road Route
- SR 167 Route
- Rail
- Existing Trail

Figure A Representative Route Alignments and Options

Existing conditions data was collected for each main alignment study area based on the criteria developed by the SAG to evaluate the performance of these alignments to meet the goals and objectives of a regional trail connection.

The study included a Community Forum, one open house-style public meeting, to obtain community input on the trail objectives and guiding principles and input on the three representative alignments. Throughout the study, the SAG provided direction and input on the trail project purpose and need, the guiding principles, goals, criteria and metrics, the route refinements and the alternatives analysis, and the next steps for an implementation project.

Purpose and Need

The purpose and need were developed by the SAG.

The purpose of the Tacoma to Puyallup Regional Trail is to provide active transportation connections between downtown Tacoma, Fife, the Puyallup Reservation, and downtown Puyallup. The envisioned corridor would be used by

pedestrians and bicyclists, be physically separated from car traffic, comfortable and attractive for people of all ages and abilities.

The Tacoma to Puyallup Regional Trail Connection would fill a significant gap in the active transportation network, allowing residents and visitors to comfortably travel between downtown Tacoma, Fife, Puyallup tribal land, and downtown Puyallup.

The Tacoma to Puyallup Regional Trail Connection would be a critical part of an existing and planned network of trails in Pierce County. It would improve mobility, increase transportation options (including connections to Sounder rail and future Link light rail stations), encourage mode shift towards active transportation, and provide economic and social benefits to the community.

Existing Conditions

The following is a summary of the types of data collected for the existing conditions analysis that was performed for the three representative alignments to identify key opportunities and constraints:

- ▶ Safety
- ▶ Connectivity
- ▶ Accessibility
- ▶ Equity
- ▶ Environment and community fit
- ▶ Cost

Safety

Data collected for safety included existing traffic volumes and speeds, trail width and separation from existing roadways, crossing conflicts with either roadways or rail, vehicle crash data, and other physical constraints that could impact safety.

Connectivity

Data collected for connectivity included existing connections to regional trails, key destinations and transit stops within ½ mile of the trail alignment.

Accessibility

Data collected for accessibility included existing major roadway crossings and potential for fully separated trail, multiple access points from existing sidewalk network as well as potential for connections, directness of travel, and slope (or elevation gain) along the trail alignment.

Equity

Data collected for equity included the number of zero-car households and population density within ½ mile of the trail alignment, and proximity to communities at risk for health disparities.

Environment and Community Fit

Data collected for the environment and community fit criteria included accessibility for low-income population and People of Color within ½ mile of the alignment, environmental impact and impact to cultural and historic resources, as well as opportunities for environmental or cultural and/or historic interpretive signage and art along the trail alignment.

Cost

Data collected for the cost criteria included significant capital investment constraints, potential connections to current and/or future capital projects, length of trail to be maintained and ease of maintenance, and overall cost estimate to determine the feasibility of implementing the project in the near-term.

Route Refinements

Based on the existing conditions identified for the three representative alignments and input from the SAG, route refinements were made to address constraints or maximize opportunities for each alignment to better meet the trail objectives. The route refinements included the main alignments with options for connecting the main alignments into downtown Tacoma. In addition to the representative Levee Road alignment, the SAG added an additional main alignment on the north side of Levee Road for consideration. This alternative would avoid the levee impact and the flooding issues presented with the Levee Road South alignment. The route refinements are shown in Figure B.

Alternatives Evaluation

A total of four main alignments with routing options to downtown Tacoma were evaluated to determine how effectively each alternative met the objectives of the criteria developed by the SAG. The effectiveness of each downtown Tacoma route option was evaluated, and the best performing option was then paired with the

main alignment to compare the alternatives.

Data collected during the existing conditions evaluation and site visits informed the evaluation and each alternative was rated on a scale of 1 to 5 to assess how effectively the alternative and option met the objectives (1 being the least effective and 5 being the most effective). The criteria were not weighted, therefore had equal impact on the overall rating of the alternative. The rating includes an overall score for each criterion.

The rating summary for the best performing four alignments considered in the alternatives evaluation is shown in Figure C. The Levee Road South and North alternatives scored 3.4, River Road scored 3.6 and the New SR 167 alternative scored 3.5 out of 5 for meeting the trail objectives. The evaluation provided the baseline information needed to begin discussing priorities for an implementation project.

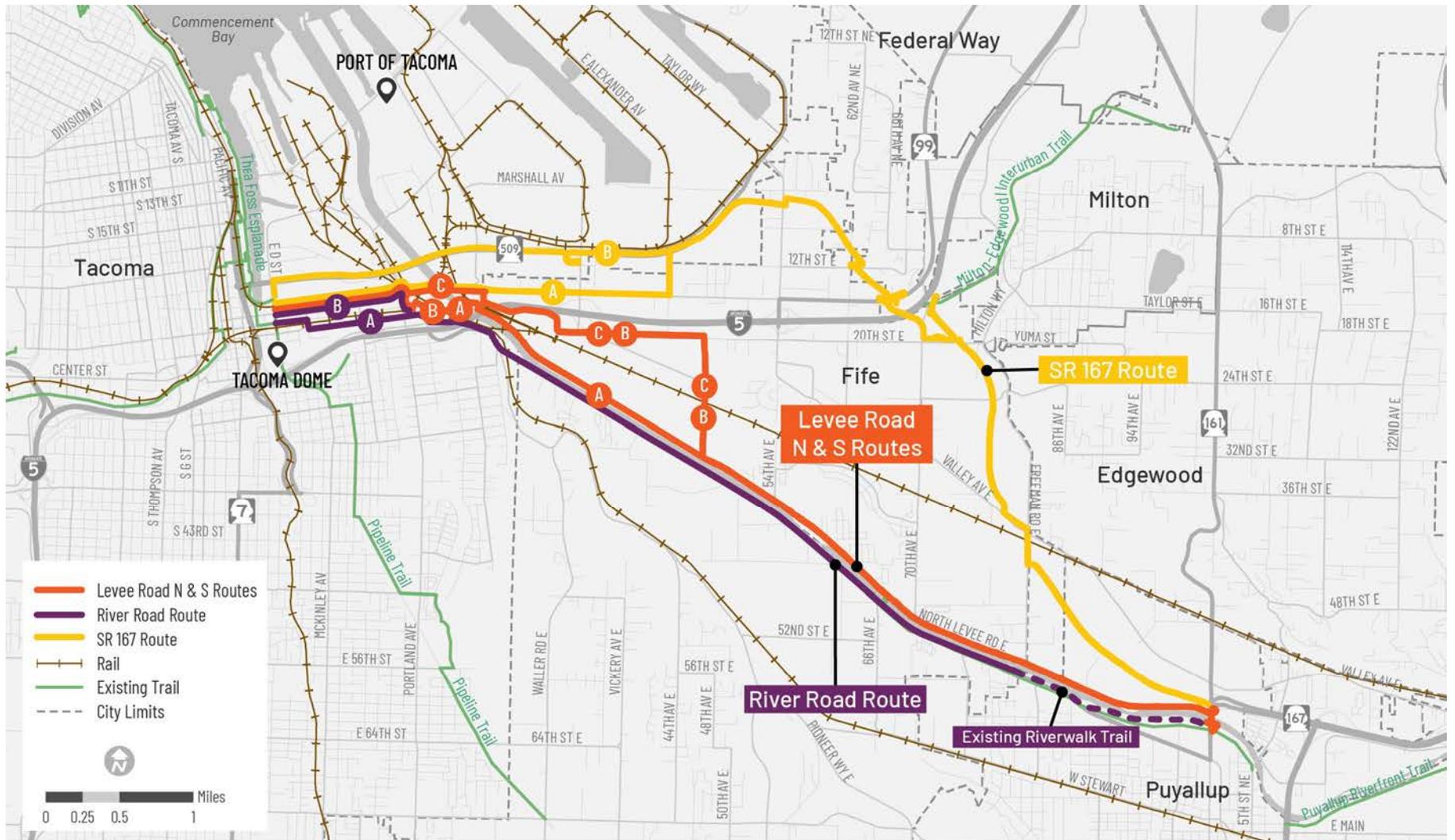


Figure B Refined Alternative Alignments Evaluated in the Alternatives Analysis

Criteria	Levee Road South (with Option C)	Levee Road North (with Option C)	River Road (with Option B)	New SR 167 (with Option A)
Safety				
Connections				
Accesibility				
Equity				
Environment and Community Fit				
Cost	8.4	8.4	5.9	9.7
	\$56M	\$48M	\$30M	\$15M
	\$6.6M	\$5.7M	\$5M	\$1.5M
Total Assessment Rating	3.4	3.4	3.6	3.5

Figure C Alternatives Evaluation Rating Summary

Next Steps

The Alternatives Evaluation findings were shared with the SAG at the meeting in February 2020 which included a discussion of funding sources, project implementation, and next steps. The following next steps were developed in coordination with the SAG. Generally, the SAG members reached consensus on the following:

- ▶ Levee Road South alignment is not a feasible option to continue to pursue as a priority project due to significant flooding risk and significant costs
- ▶ Levee Road North alignment is not a feasible option to continue to pursue as a priority project due to significant property and wetland impacts, and significant costs
- ▶ River Road alignment would require funding for further study and merits future analysis as decisions about the future of River Road are made
- ▶ New SR 167 trail alignment provides opportunity for a near-term implementation project for a regional connection and funding should be pursued to carry this

alignment forward. The recommended next step would be to develop a sufficient project scope for the SR 167 trail project to begin project funding discussions by September 2020 for consideration in a possible 2021-2023 Washington State Transportation funding package.

The next step is for the SAG members to discuss and agree on funding for the next phase of project development for the SR 167 trail project. As the segment between Puyallup and Fife is incorporated into the scope of the Puget Sound Gateway Program, there is an opportunity to continue in partnership with WSDOT. The SR 167 Trail Assessment phase would be scoped and budgeted for SAG review and approval. The SAG determined that the existing membership and representation would remain intact to continue to define the next steps for the SR 167 trail alignment and maintain momentum for the regional trail connection between Puyallup and Tacoma.

1 Introduction

The Tacoma to Puyallup Regional Trail Connection represents a significant gap in Pierce County's active transportation network. Currently, there is no direct, off-street route between downtown Tacoma and downtown Puyallup for people travelling on foot or by bicycle. Given the existing regional active transportation network, including the funded and planned trail connections in the region, there is an opportunity to fill this critical missing link. The Tacoma to Puyallup Regional Trail project seeks to complete active transportation connections between downtown Tacoma, Fife, the Puyallup Reservation, and downtown Puyallup. The envisioned corridor would be used by pedestrians and bicyclists (as well as skateboarders and similar users), be separated from motor vehicle traffic, and be comfortable and attractive for people of all ages and abilities.

The vision and shared goals for the project were developed by the Tacoma to Puyallup Regional Trail Connection Cohort, a group of elected officials and local leaders that represent the communities along the

alignment of the trail connection. The Cohort identified three high-level conceptual alignments and recommended the representative alignments for further study and potential refinement.

The Tacoma to Puyallup Regional Trail Connection Route Analysis Study is an initial step to establish a purpose and need, evaluation criteria, and alternatives evaluation in consultation with a stakeholder group to determine merit for an implementation project and to recommend next steps for completing active transportation connection(s) between downtown Tacoma and downtown Puyallup. The study is led by a stakeholder advisory group (SAG) that is comprised of a local leadership coalition which includes representatives from the following organizations and jurisdictions:

Washington State Department of Transportation (WSDOT)

- ▶ Roger Millar, Secretary of Transportation
- ▶ Craig Stone, Program Administrator - Puget Sound Gateway

- ▶ Steve Fuchs, Project Manager - SR 167 Completion Project
- ▶ Barb Chamberlain, Director – Active Transportation Division

City of Tacoma

- ▶ Victoria Woodards, Mayor
- ▶ Kurtis Kingsolver, Public Works Director/City Engineer
- ▶ Josh Diekmann, Assistant Division Manager/City Traffic Engineer
- ▶ Liz Kaster, Senior Planner & Active Transportation Coordinator

Puyallup Tribe of Indians

- ▶ Andrew Strobel, Director of Planning and Land Use
- ▶ Annette Bryan, Tribal Council Member
- ▶ David Bean, Tribal Council Chair

City of Fife

- ▶ Kim Roscoe, Mayor
- ▶ Russell Blount, Deputy City Manager
- ▶ Steve Friddle, Community Development Director

City of Puyallup

- ▶ John Palmer, Mayor
- ▶ Steve Kirkelie, Interim City Manager

Metro Parks Tacoma

- ▶ Erik Hanberg, Commissioner
- ▶ Debbie Terwilliger, Director of Planning
- ▶ Joe Brady, Chief Strategy Officer

Puyallup Watershed Initiative Active Transportation Community of Interest (ATCOI)

ForeverGreen Trails

- ▶ Jane Moore, Executive Director

Port of Tacoma

- ▶ John McCarthy, Commissioner

Downtown On the Go (DOTG) Tacoma

- ▶ Kristina Walker, Executive Director

Pierce County Parks and Recreation

- ▶ Roxanne Miles, Director

Pierce County

- ▶ Dennis Hanberg, Planning and Public Works Director

Sound Transit

- ▶ Andrew Austin, South Corridor Government and Community Relations Manager
- ▶ Sue Comis, Light Rail Project Manager
- ▶ Chelsea Levy, South Corridor Development Director
- ▶ Austin Neilson, Government & Community Relations South Corridor Officer
- ▶ Eric Chipps, Senior Planner

Study Background

A bicycle and pedestrian connection between Puyallup and Tacoma has been identified in several policy and planning documents including:

- ▶ Puyallup Tribe of Indians Tribal Transportation Improvement Program 2016-2020
- ▶ Puget Sound Regional Council 2014 Active Transportation Plan Regional Bicycle Network Gap Map
- ▶ Pierce County 2014 Parks, Recreation, and Open Space Plan
- ▶ City of Fife Comprehensive Plan, Transportation Element

- ▶ City of Puyallup Comprehensive Plan, River Road Corridor Plan
- ▶ City of Tacoma Transportation Master Plan

The Tahoma to Tacoma Trail Network Benefit Report, commissioned by the Puyallup Watershed AT COI, found that building this critical missing link in the main alignment of the Tahoma to Tacoma Trail network would generate economic benefits as well as health, transportation, equity and environmental benefits to the region. The relationship of the missing link to the existing trail network is shown in Figure 1.

In the summer of 2018, DOTG and Puyallup Watershed Initiative AT COI organized the Tacoma to Puyallup Regional Trail Connection MasterClass. This Cohort of elected officials and local leaders (the Cohort) first convened in June 2018 to develop a shared understanding of the regional trail connection background and goals and together the Cohort traveled to Copenhagen, Denmark and Malmo, Sweden, led by the CoUrban design collective & funded by the Scan|Design Foundation and the Puyallup Watershed Initiative AT COI, to explore and experience

some of the world's foremost walking and biking networks first hand.

In September 2018, the Cohort reconvened to develop their project goals, discuss conceptual trail alignments, and to solidify the next steps toward planning a regional trail connection that will provide safe access to jobs, schools, parks and housing in the region and as well as provide connections to regional transit centers. The Cohort identified project goals and three potential route alignments for further study: Levee Road, River Road, and the new SR 167 route. Representative route alignments are shown in Figure 2.

By the spring of 2019, the group identified priorities for a route analysis study and secured funding. WSDOT, the Puyallup Tribe, Pierce County, the City of Tacoma, the City of Fife, the City of Puyallup, Metro Parks Tacoma, and the Port of Tacoma collectively invested in this next phase of the project. The state's 2019-2020

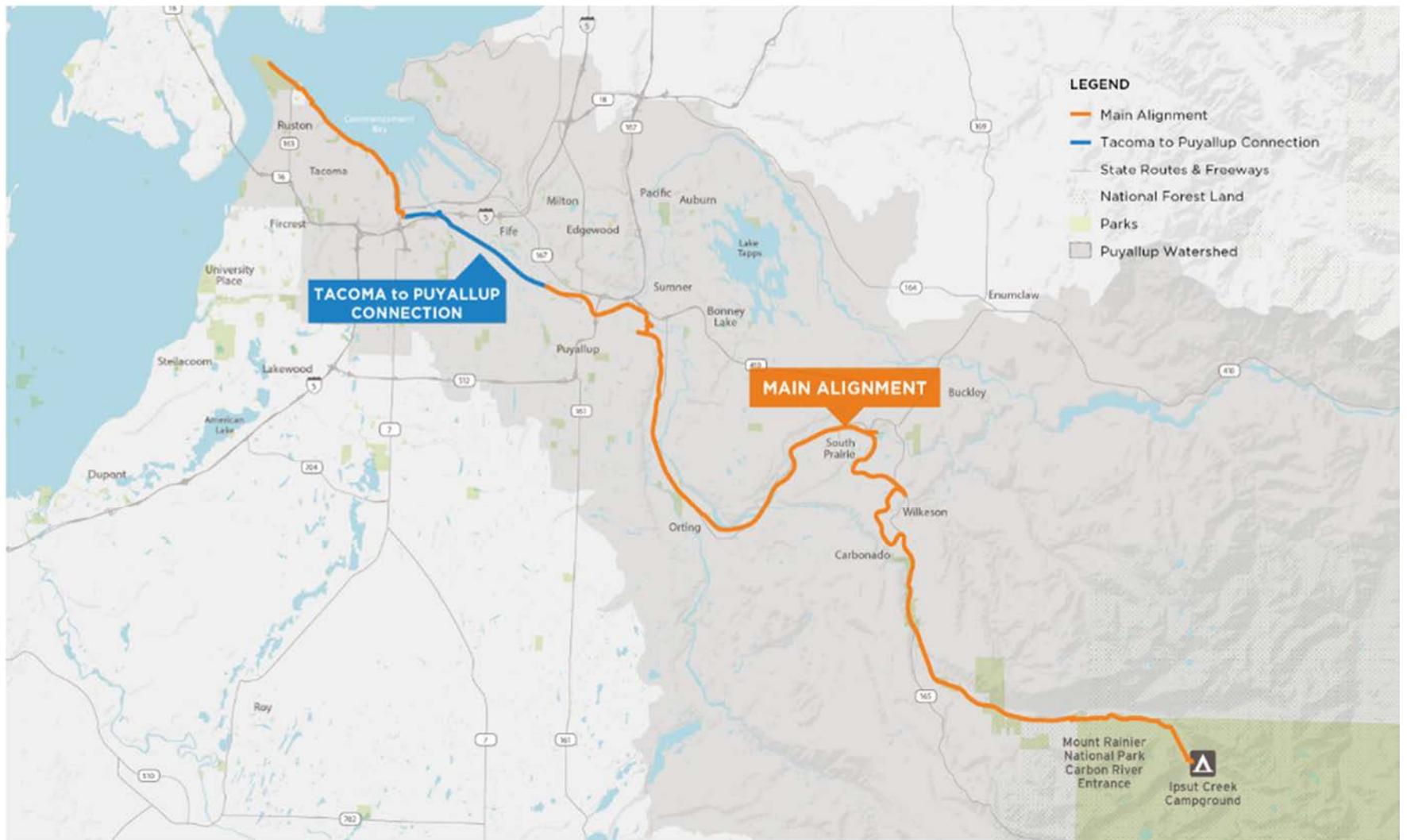
transportation budget included legislative direction to explore the development of a multiuse trail for users along the SR 167 right-of-way to connect new and existing trails from Mount Rainier to Point Defiance Park (ESHB 1160, Section 306). Given the critical decisions that were being made in the corridor, including WSDOT's SR 167 Completion Project, Sound Transit's Tacoma Dome Link Light Rail Extension and Pierce County's Canyon Road Extension, the cohort acted to engage with these projects to communicate the vision for a trail connection. The Cohort proposed that the regional trail connection become a project element separate from but managed under the ongoing Puget Sound Gateway Program which includes the SR 167 Completion Project from Puyallup to Tacoma following a new alignment.

Separate from this Tacoma to Puyallup Regional Trail Connection Route Analysis Study, the Puget Sound Gateway Program's

SR 167 Stage 1b Bicycle/Pedestrian Subcommittee is developing recommendations on the design of the active transportation elements for SR 167 between I-5 and SR 509 near the Port of Tacoma. Stage 1b includes a new bicycle and pedestrian shared-use facility along the new SR 509 Spur and will connect with planned and existing active transportation along the alignment where possible. The subcommittee's recommendations will be considered as planned future connections to the proposed SR 167 route as discussed in this route analysis.

The Tacoma to Puyallup Regional Trail Connection Route Analysis Study kicked off in April 2019 and is envisioned as an equitable partnership by the local agencies and WSDOT, with in-kind support from the Puyallup Watershed Initiative AT COI, Tacoma's DOTG, and ForeverGreen Trails.

Tacoma to Puyallup Regional Trail Connection



Source: Puyallup Watershed Initiative Active Transportation COI, Tahoma to Tacoma Trail Benefit Report

Figure 1 Tahoma to Tacoma Trail Network - Main Alignment

Existing Conditions Review

The intent of this review is to document existing conditions within the study area, which encompasses the representative route alignments identified by the Tacoma to Puyallup Regional Trail Connection Cohort. A set of evaluation criteria and metrics is also provided.

Existing conditions evaluated include bicycle and pedestrian networks and infrastructure, rights-of-way and land uses, traffic and crash history, transit network, demographics including environmental justice populations, critical areas and environmental resources. The quantitative and qualitative data collected will provide a basis from which to evaluate the alternatives.

A field assessment was conducted in June 2019 to identify potential constraints, assess conditions of the connections to existing trails, and summarize general physical characteristics of the River Road and Levee Road alignments.

In addition, this memo documents the review of relevant planning documents and studies that are pertinent to the trail connection to inform the evaluation of the

representative route alignments and additional route refinements that are needed.

Study Alignments

Three representative route alignments were developed by the Tacoma to Puyallup Regional Trail Connection Cohort for evaluation. These are:

- ▶ Levee Road Route
- ▶ River Road Route
- ▶ New SR 167 Route

Additional route options were identified by the Cohort for making the connection between the Puyallup River area and the Thea Foss Esplanade trail. Figure 2 illustrates the route alignments and associated options.

Levee Road Route

Approximate Distance: 8.2 miles (via Fishing Wars Memorial Bridge) / 7.5 miles (via new bridge connection)

The Levee Road representative route is approximately 8.2 miles long, via the main alignment and 7.5 miles via the Option A alignment, potentially crossing the Puyallup River by a new bridge. Near Puyallup, the route connects to the Riverwalk Trail via the

Meridian Avenue Bridge which features an existing 8-foot sidewalk which functions as a shared bicycle and pedestrian facility.

As shown in Figure 2 there are two potential routes to Downtown Tacoma. Option A would extend the existing unpaved Levee Road trail, through the existing BNSF right-of-way, at-grade and cross over the Puyallup River just north of I-5 via a proposed new bridge connection, potentially the new Sound Transit Tacoma Dome Link Extension (TDLE) elevated bridge.

Option B is the Puyallup Avenue/Fishing Wars Memorial Bridge Connection, which follows Frank Albert Road to 20th Street; this is identified as a trail and bike facility in the City of Fife. This route would then connect to the Fishing Wars Memorial Bridge and into Downtown Tacoma via Puyallup Avenue, and to the planned corridor improvements on Puyallup Avenue.

A potential connector to Option B would be via a new Ferguson Road railroad overpass connection to 20th Street Drive East, and on to Puyallup Avenue.

For the collection of existing conditions data, the Levee Road Route Options were simplified to consolidate the study area.

River Road Route

Approximate Distance: 5.7 miles

As shown in Figure 2, the route connects the Riverwalk Trail at the Puyallup city boundary, along the south side of the Puyallup River to the downtown Tacoma Dome District, following the Bay Street connection. The River Road representative route is approximately 5.7 miles long.

The River Road alignment follows 26th Street and S 25th Street to the Tacoma Dome Station/Pipeline Trail Connection, connecting to the Thea Foss Esplanade via East D Street.

New SR 167 Route

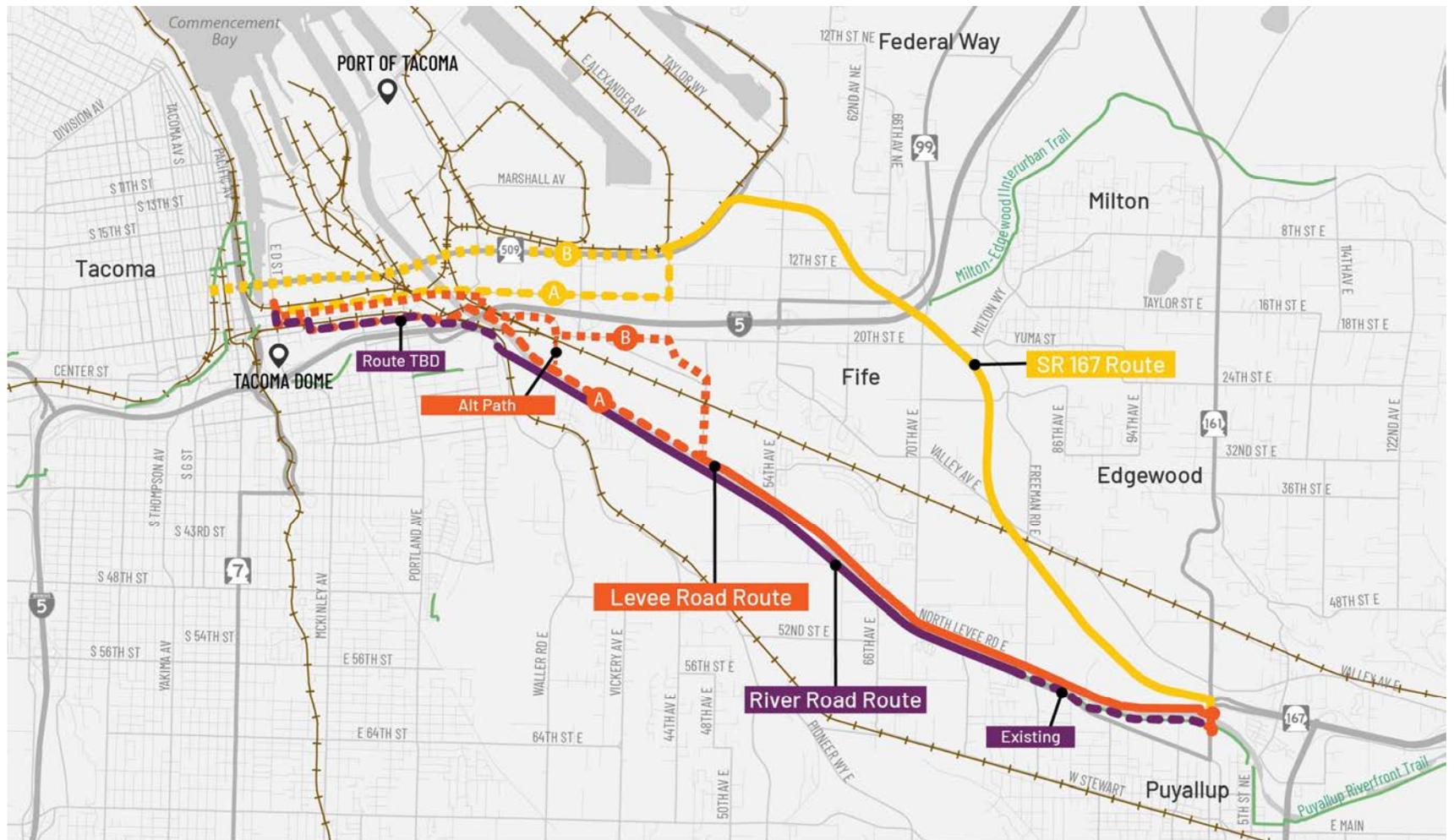
Approximate Distance: 9.4 miles

As shown in Figure 2, the route connects Puyallup to downtown Tacoma along the new SR 167 project alignment to the Riverwalk Trail via the shared use path on Meridian Avenue Bridge in Puyallup. The SR 167 representative route alignment is approximately 9.4 miles.

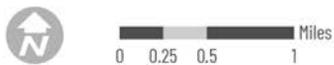
There are two potential routes to Downtown Tacoma. Option A follows the SR 509 connection to Alexander Avenue E and south to Pacific Highway E. From Pacific Highway, the route would continue to the Fishing Wars Memorial Bridge and onto Puyallup Avenue to the Tacoma Dome Station, with a potential connection to the Thea Foss Esplanade.

Option B follows westbound SR 509 into downtown Tacoma.

For the collection of existing conditions data, the New SR 167 Route Options were simplified to consolidate the study area.



Source:



Potential Trail Alignments

- Levee Road Route
- River Road Route
- SR 167 Route
- Rail
- Existing Trail

Figure 2 Representative Route Alignments and Options

Review of Existing Plans and Studies

In addition to the work completed by the Cohort, existing transportation planning documents and studies were reviewed to confirm the regional context of the trail and to derive relevant information to consider in the development of the Tacoma to Puyallup Regional Trail Connection guiding principles and evaluation criteria. Previous documents reviewed also pinpointed several planned regional trail and bicycle facility projects that were also identified within the study area.

A regional bicycle and pedestrian connection between downtown Tacoma and downtown Puyallup is supported by regional and local plans as well as the Puyallup Tribe of Indians, and has been previously included in studies by Pierce County and ForeverGreen Trails.

Table 1 summarizes the review of existing plans and studies.

Table 1 Review of Existing Plans and Studies Summary

Existing Plans and Studies Relevant to the Tacoma to Puyallup Regional Trail Connection	
Region	<p>PSRC Regional Active Transportation Plan 2018</p> <ul style="list-style-type: none"> ▶ PSRC Regional Bicycle Network is chosen with an emphasis of connecting a continuous and connected network across jurisdictional boundaries which connect regional centers, regional transit locations, high employment zones, higher education institutions and high schools with high enrollment rates, regional parks, major trails in surrounding counties, military bases, and connecting towns and cities of the central Puget Sound region. ▶ The Bicycle and Pedestrian Advisory Committee has recommended that shared use paths, protected bike lanes, and neighborhood greenways are the preferred facility types for implementing the Regional Bicycle Network because they meet a level of comfort that accommodates people of all ages and abilities ▶ Listed in the Regional Bicycle Network Maps and Gap List are: Puyallup River Trail, Foothills Trail – Puyallup River Trail, and Milton-Edgewood/Interurban Trail
Tribe	<p>Puyallup Tribe of Indians Transportation Improvement Plan 2016-2020</p> <ul style="list-style-type: none"> ▶ The Puyallup Tribe of Indians Transportation Improvement Plan has adopted a Long Range Transportation Plan to improve the transportation system within the reservation. The plan lists the Puyallup to Tacoma Bike/Pedestrian Safety Link, and states to “study and identify proper facility improvement to complete bike pedestrian trail from Puyallup to Tacoma to improve bike and pedestrian safety.”
County	<p>Pierce County Comprehensive Plan 2015, Parks & Recreation Element</p> <ul style="list-style-type: none"> ▶ Goal PR-17: Create connections between key community destinations, including Regional and county park sites, schools, employment centers, transit centers, significant natural areas, and landmarks. Connect to trails in neighboring counties and to trails in local jurisdictions. ▶ Goal PR-11: Develop regional trail routes, crossings and trail facilities that are accessible to all. ▶ Identified proposed trails in the plan include the North Levee Trail and Connector and the Puyallup River Trail.

Pierce County Regional Trails Plan 2014

- ▶ Goal 2D.1 Create connections between key community destinations such as regional and county park sites, schools, employment centers, transit centers, and significant natural areas and landmarks.

Pierce County Comprehensive Plan 2015, Active Transportation/Nonmotorized Transportation

- ▶ MPP-T-11: Prioritize investments in transportation facilities and services in the urban growth area that support compact, pedestrian- and transit-oriented densities and development.

Local**City of Puyallup Active Transportation Plan 2018**

- ▶ Reconfigure River Road into a “complete” street that accommodates all users and provides safe crossings for pedestrians and bicyclists. Redesign River Road right-of-way to accommodate pedestrian features, bicycle facilities and large planting strips for street trees.
- ▶ Long Term Bicycle Network Projects’ map includes the existing Puyallup Riverwalk Trail, which runs to the City’s western limits as well as a connection between the Riverwalk Trail and the Foothills Trail.
- ▶ The community recommended prioritizing active transportation improvements if they improve connectivity between major destinations, address a location (s) with safety (collisions) concerns, and are near businesses and downtown.
- ▶ The plan identifies long-term bicycle network projects connecting Riverwalk Trail north along River Road E as well as a connection between the Riverwalk Trail and the Foothills Trail. Both projects are identified as shared use path projects.

City of Tacoma Transportation Master Plan 2015

- ▶ Bicycle Priority Network Map depicts both a planned bike lane connecting to River Road at Eells Street and E Bay Street and a shared use path connecting to Levee Road from 11th Street.
- ▶ The Plan outlined eight guiding principles for policy, development, and implementation of the Mobility Master Plan. These include accessibility, connectivity, prioritize movement of people, equity, safety, sustainability and multimodal.

City of Fife Comprehensive Plan – Transportation Element

- ▶ The planned network for Fife is a system of sidewalks, on-street bicycle facilities, and off-street trail improvements. Completing the pedestrian and bicycle street network, supplemented by trails as promoted by the Parks and Recreation Element, is a key multi-modal strategy of the City of Fife. The plan lists the Puyallup Riverfront Trail, highlighting the construction of a shared use path along the Puyallup River for the whole length of the City limits as part of the Army Corps of Engineers replacement of Puyallup River Levee. The City of Fife lies at the planned intersection of two regional trails, the Interurban Trail and the Riverwalk Trail.

Studies**Cross County Commuter Connector (4C) Feasibility Study 2007, for Pierce County Parks and Recreation**

- ▶ The study assessed the possibilities and challenges of constructing a commuter trail from the Tacoma Dome Sounder Station to the Foothills Trail. One of the two northern route alternatives (No. 2) connects with the Tacoma to Puyallup trail by going east from the Tacoma Sounder Station towards Swan Creek Park, then south into the Salishan area of Tacoma where it connects with the Pipeline Trail.

ForeverGreen Trails Puyallup to Tacoma Trail Connection Conceptual Trail Alignment 2015

- ▶ ForeverGreen Trails convened a series of meetings to discuss how to connect the Puyallup Riverwalk Trail to the Tacoma Dome Sounder Station, resulting in a conceptual trail alignment presented to the board of directors for adoption. The alignment follows Puyallup Avenue across the Puyallup River Bridge and follows N Levee Rd. via 20th Street. E, Frank Albert Road., and River Road. A new bicycle and pedestrian bridge is proposed over the Puyallup River at Frank Albert Road., where a planned City of Fife Levee Road trail would connect and reconnect again at 70th Avenue E.

2 Purpose and Need

The Purpose and Need Statement was developed by the Tacoma to Puyallup Regional Trail Connection SAG to guide the development of the project and ensure that a wide variety of goals and criteria are adequately considered in the evaluation.

Purpose Statement

The purpose of the Tacoma to Puyallup Regional Trail is to provide active transportation connections between downtown Tacoma, Fife, the Puyallup Reservation, and downtown Puyallup. The envisioned corridor would be used by pedestrians and bicyclists, be physically separated from car traffic, comfortable and attractive for people of all ages and abilities.

Need Statement

The Tacoma to Puyallup Regional Trail Connection would fill a significant gap in the active transportation network, allowing residents and visitors to comfortably travel between downtown Tacoma, Fife, Puyallup tribal land, and downtown Puyallup.

The Tacoma to Puyallup Regional Trail Connection would be a critical part of an existing and planned network of trails in Pierce County. It would improve mobility, increase transportation options (including connections to Sounder rail and future Link light rail stations), encourage mode shift towards active transportation, and provide economic and social benefits to the community.

Goals and Criteria

The following goals and criteria to guide the project were established by the SAG and vetted by the public at a community forum.

Safety

- ▶ Be comfortable for, and perceived as safe by, community members of all ages and abilities
- ▶ Ensure mobility and access for all active transportation modes
- ▶ Protect vulnerable road users, reducing opportunities for vehicle collisions

Health and Equity

- ▶ Provide residents, commuters, and visitors with viable transportation options that are healthy and affordable – particularly those who are unable to drive due to age, ability, or access to a household vehicle
- ▶ Make exercise and activity easier to incorporate into daily life

Livability and Economy

- ▶ Strengthen the region's position as a vibrant community in which to live, work, and play
- ▶ Create a spine that will connect with employment centers, transit nodes, community destinations, and existing and future trails

Environment

- ▶ Provide transportation options that reduce oil consumption, greenhouse gas emissions, and storm water runoff

3 Evaluation Criteria and Metrics

The Tacoma to Puyallup Regional Trail SAG developed evaluation criteria and key objectives for the quantitative and qualitative assessment of the representative route alternatives. Metrics were developed for each objective and are shown in Table 2.

Table 2 Evaluation Criteria and Metrics

	Criteria	Objectives	Metrics
	Safety	The route promotes a positive perception of personal safety by users of all ages and abilities	<ul style="list-style-type: none"> ▶ Traffic volume on adjacent roads ▶ Traffic speeds ▶ Trail width and separation
		The route manages interactions with vehicle and rail traffic particularly at intersections	<ul style="list-style-type: none"> ▶ Number of crossing conflicts (vehicle, rail, driveways, major roadways) ▶ Crash history data
		The route has clear sightlines that reduce the likelihood for collisions with other trail users	<ul style="list-style-type: none"> ▶ Physical constraints
	Connections	The route provides connections to other active transportation facilities	<ul style="list-style-type: none"> ▶ Connections (within ½ mile) to key regional trails
		The route provides connections to key destinations	<ul style="list-style-type: none"> ▶ Connections to key destinations (within ½ mile) such as commercial nodes, residences, schools.
		The route provides access to key transit connections	<ul style="list-style-type: none"> ▶ Connections to key transit stops (within ½ mile)
	Accessibility	The route is comfortable for cyclists and pedestrians of all ages and abilities	<ul style="list-style-type: none"> ▶ Major roadway crossings ▶ Space to be fully separated from roadway traffic
		The route is direct and intuitive	<ul style="list-style-type: none"> ▶ Existing multiple points of entry (with potential to provide access to trail alignment) ▶ Directness of travel (shortest distance/less wayfinding)
		The route's elevation profile is navigable for all users	<ul style="list-style-type: none"> ▶ Slope (elevation gain)
	Equity	The route is accessible to users who do not drive or have access to a household vehicle	<ul style="list-style-type: none"> ▶ Number of zero-car households within the ½ mile network buffer
		The route serves communities experiencing health & transportation disparities	<ul style="list-style-type: none"> ▶ Located within a community at risk for health disparities¹
		The route serves and / or is easily reachable to areas with significant population density	<ul style="list-style-type: none"> ▶ Population density within ½ mile network buffer

	Criteria	Objectives	Metrics
	Environment and Community Fit	The route has a positive social impact	<ul style="list-style-type: none"> ▶ Accessibility for low-income and People of Color within ½ mile network buffer
		The route has a positive environmental impact	<ul style="list-style-type: none"> ▶ Minimal impact to environmentally sensitive areas threatened and endangered species ▶ Opportunity for environmental interpretive signage and art
		The route respects and reflects cultural and historic resources	<ul style="list-style-type: none"> ▶ Minimal impact to cultural/historic resources ▶ Opportunity for cultural and/or historic interpretive signage and art
		The route is attractive and aesthetically appealing	<ul style="list-style-type: none"> ▶ Majority of route is adjacent to green space or provides access to an attractive viewshed ▶ Majority of route is adjacent to loud traffic or rail operations
	Cost	The route is feasible to implement in the near-term	<ul style="list-style-type: none"> ▶ Significant capital investment constraints ▶ Order of magnitude capital cost ▶ Opportunity to connect to current/future capital projects (funded or potentially funded)
		The route is cost effective to maintain.	<ul style="list-style-type: none"> ▶ Length of trail to be maintained ▶ Ease of maintenance and access

¹Source is Washington State Health Disparities map at fortress.wa.gov

Community Forum

In July 2019, the community came together to discuss the aspects of the future trail and create a path forward for what they would like to see in the future. In total, 114 community members attended the community forum and took part in an open house-style event with small group discussions. Together, the community came up with key themes that were important to them. A complete summary of the Community Forum meeting is provided in Appendix A.

Guiding Principles

The key themes from the community forum helped us refine the below five Guiding Principles that underlie the Tacoma to Puyallup Trail project:

Safe – The trail is fully separated from vehicle traffic, provides ample lighting and visibility of the trail, and ensures that all users feel safe and comfortable along the trail.

Connected – The trail is a continuous and direct route with no gaps that provides connections to key destinations such as

other trails, parks, transit nodes, and places of business.

Culturally representative – The trail adequately represents the unique significance of the area, honors the Puyallup River as a sacred place for the Puyallup Tribe, and allows for public art and interpretive signage that reflects the cultural significance of this place.

Accessible – The trail can be used by people of all ages and abilities and provides access for under-served populations. The trail has a hard surface, allows for multiple access points, includes additional amenities (such as benches), and provides access over the Puyallup River.

Environmentally friendly – The trail provides scenic routes through natural areas, is maintained to not negatively impact the natural areas, and is built in a manner that addresses flooding concerns.

Design Standards

As part of its Guide for the Planning, Design, and Operation of Bicycle Facilities, AASHTO has written a section on the design of shared use paths that details the design standards expected of shared-use paths

and trails. While this document is primarily concerned with the existing conditions of the alignments, the constraints for each will need to have a solid basis in guideline standards going forward. As such, the following design guide standards would be applied to any of the three alignments:

- ▶ Minimum paved width of 10' (recommended 14')
- ▶ Minimum two-foot physical separation buffer between trail and any vehicle lanes
- ▶ Generally, a 5% maximum grade unless for short distances where the grade can be increased up to 12.5%

Additional design guide standards also exist to help with the design and may be consulted as needed. Those design guides are:

NACTO Urban Bikeway Design Guide

- ▶ Roadway context for all ages and abilities bikeways: High-speed limited access roadways, natural corridors or geographic edge conditions with limited conflicts with low pedestrian volume = shared use path or protected bicycle lane facility

- ▶ Intersection treatments to address vehicle-bike conflicts (consider large turn radii and wide lanes encourage drivers to make sweeping fast turns).

WSDOT Design Manual Chapter 1515 – Shared Use Paths

- ▶ Desired paved width is 12' excluding shoulders; minimum paved width is 10' with 2' unpaved shoulders on either side
- ▶ Reduced width of 8' at areas with physical constraints such as environmental feature or other obstacle
- ▶ Maximum cross slope on paved shared use path is 2%

Pierce County Trail Design Guidelines

- ▶ Avoid private crossings (driveway, private roads)
- ▶ Major arterial crossings requiring signalization based on AASHTO and WSDOT requirements
- ▶ Urban, multi-use trail no less than 10' wide with 2x2' shoulders, 2x1' shy distance next to shoulders, include additional area needed for slope and fill maintenance

- ▶ Trails outside of urban growth areas, no less than 12' wide with 2x2' shoulders.
- ▶ Surface treatment should be porous or pervious as appropriate. If hard surface is used, it should be porous paving with soft surface unpaved shoulders; if porous paving is unsuitable, impervious surfacing should be considered
- ▶ Striping at limited sight-distance curves
- ▶ Lighting should be installed at trailheads, major road crossings or activity areas (scaled for pedestrian users and shielded from adjacent properties)
- ▶ Easy to read directional signage, safety information, intersection warnings
- ▶ Informational signage such as trail length, direction, maps, history or environment.
- ▶ Trail gradient not to exceed 5%, if it does, provide a ramp per Uniform Federal Accessibility Standards
- ▶ Fencing may be used to protect from hazards such as steep slopes or to restrict access

- ▶ Bollards can be used to limit public vehicle traffic at trailheads (should only be used if warranted (could also be illuminated to provide lighting))

City of Tacoma Trail Design Standards

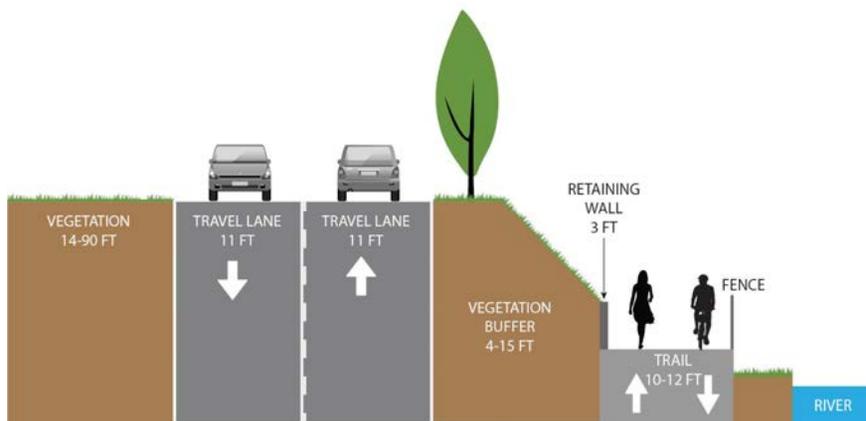
- ▶ The minimum width for a shared use path is 14', including 10' of pavement and 2' shoulders on either side
- ▶ The pavement width for a shared-use path in an area of higher demand should be widened to accommodate the anticipated demand and context of the trail location
- ▶ Reduced path width may be considered if there is exclusive use by one mode, horizontal and vertical alignments provide frequent, well-designed passing and resting opportunities, shared-use path is for a short distance such as a spur connection to a neighborhood, and topographic and geographic constraints

Typical Trail Typology

The typical trail typology depends on the alignment option but is largely based on the design standards listed in the previous section. These typologies also don't account for various pinch points and areas where additional right-of-way or engineering solutions will be needed.

Levee Road

Levee Road runs along the north side of the Puyallup River and is a smaller roadway overall, typically consisting of only 2 lanes total and eventually decreasing to a roadway with no marked lanes at all, and then a dirt road. There is an existing unpaved trail along the river bank between the river and the roadway that could be developed into a shared use paved trail. The following cross section shows the typical cross section for this alignment.



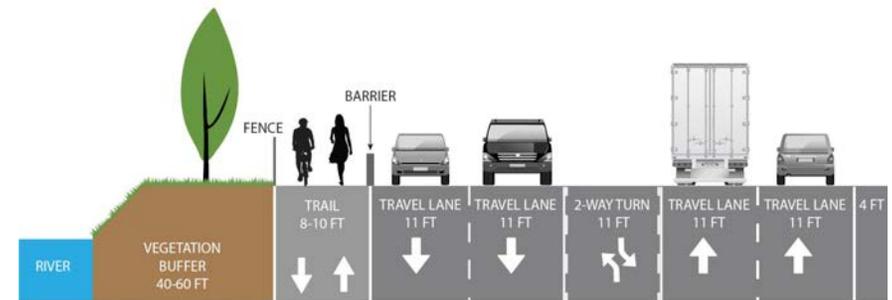
(figure not to scale)

Figure 3 Typical Cross Section Levee Road Trail

Most of the trail has sufficient area to provide for a 10-12-foot trail within the existing right-of-way; however, in some areas, the trail alignment would require cutting into the roadway slope and adding a retaining wall to create space. There are areas where there is the potential to impact the adjacent levee to provide enough trail width. Segments of the trail would need fencing on the river side due to steeper river embankments.

River Road

River Road currently runs on the south side of the Puyallup River. It has anywhere from 40' to 60' of vegetated right-of-way in between the roadway and river at any given point along this segment of the trail. The following cross section shows the typical cross section for this alignment within the existing roadway configuration.



(Modified roadway configuration needed in some areas)

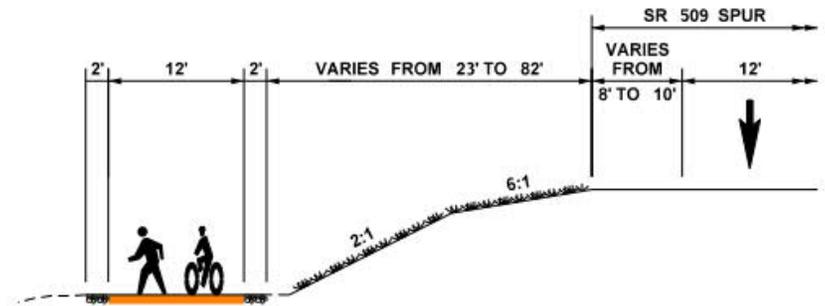
(figure not to scale)

Figure 4 Typical Cross Section, River Road Trail

The trail alignment along the roadway shoulder, adjacent to the river, has sufficient right-of-way to allow for an 8 to 10-foot trail in most areas; however, in some areas, the trail would require additional roadway right-of-way or a retaining wall on the river bank to build out the trail width. In other areas where there are bridge crossings on River Road over creeks and ditches, the trail width would be constrained to approximately 8 feet. Future analyses of traffic operations may prove that River Road can be reconfigured to accommodate the required trail width by re-purposing travel lanes (including a road diet), reducing speeds and improving safety for all roadway users.

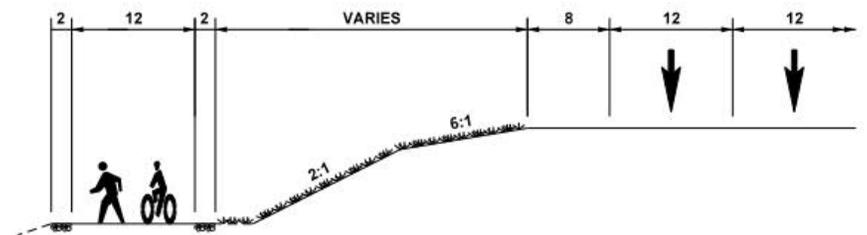
New SR 167

The SR 167 alignment would run adjacent to the newly built roadway that runs north towards Fife and connects with I-5 and SR 509. A typical cross section is provided for the segments near Valley Road and one for the SR 509 Spur segment.



(figure not to scale)

SR 167 at SR 509 Spur



(figure not to scale)

SR 167 near Valley Road

Figure 5 Typical Cross Section, New SR 167

4 Existing Conditions

Methodology

For each of the three alternative trail alignments, existing conditions data were collected to provide information directly relevant to the metrics described in Table 2.

To focus the collection of quantitative data in support of the accessibility and equity criteria, half mile walksheds of each alignment were created in ArcGIS using the existing street network. Points were set at each intersection of the existing street network and the route alignment to identify access points. The network analyst tool was then used to create a unique polygon for each alignment based on these access points. This network approach was used to obtain a more accurate representation of access points to each trail alignment. Due to major constraints, such as freeways, rail, wetlands, and river, proximity to the trail does not assure access. The network polygons show areas that will be accessible to the trail based on the existing roadway.

The polygons were used to create maps that visually define the spatial socio-economic data most relevant to each alignment and allow illustrative and quantitative comparisons between alternatives.

ArcGIS was also used to create the existing network maps in support of the Connections criteria. Land use maps and aerial photos were used to provide findings for the Environmental and Community Fit criteria. Field surveys in combination with aerial photos were used to provide information related to Accessibility and Safety.

Results

For each criterion, high level maps and/or tables were created to illustrate the collected existing conditions data by trail alternative. To illustrate and compare some of the key quantitative findings, a map template was prepared that shows the three alignments side by side. In other instances, such as for the illustration of transportation networks, one large map with all three alignments, was created to allow for an overall understanding and assessment of the study area.

General physical characteristics of the existing roadways along the potential trail alignments were also gathered and are presented in the following section, followed by existing conditions data organized by criterion and trail alternative.

Levee Road

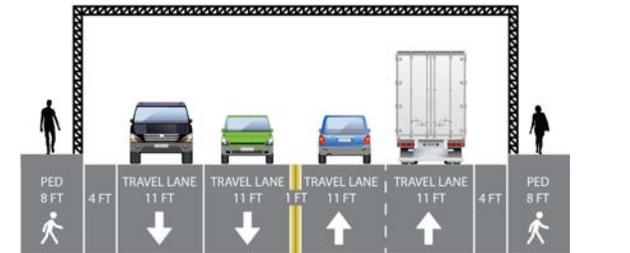
Levee Road is primarily a two-lane county road that functions as an alternate link between I-5 in Tacoma and the existing freeway section of SR 167. The roadway runs parallel to the Puyallup River on its northern side. The surrounding land ranges from predominantly agricultural in the southeast to a mix of residential and agricultural in the center of the alignment to industrial at the northwest terminus.

For most of the alignment, there is no shoulder or sidewalk but there is an unmarked dirt trail between the road and the river (see Figure 6). Levee Road has several stop-controlled intersections at minor roads, but no signalized intersections or marked crosswalks. The western segment has four lanes of roadway with a sidewalk on the north side of the street. The new Fishing Wars Memorial Bridge, formerly the Puyallup River Bridge, has a 4-lane profile, with 8-foot sidewalks as well as 4-foot shoulder for the section that is over the railroad. The section of the bridge over the river has yet to be re-built. The bridge crossing has narrow pedestrian sidewalks.

Figure 7 illustrates three typical cross sections.



Figure 6 Levee Road Aerial Photo, typical area



Levee Road – Fishing Wars Memorial Bridge Crossing



Levee Road – Dense Industrial Area (East of SR 161)



Levee Road – Open Space/Residential Area (Between 54th Avenue E and 70th Avenue E)

(figures not to scale)

Figure 7 Existing Levee Road Cross Sections

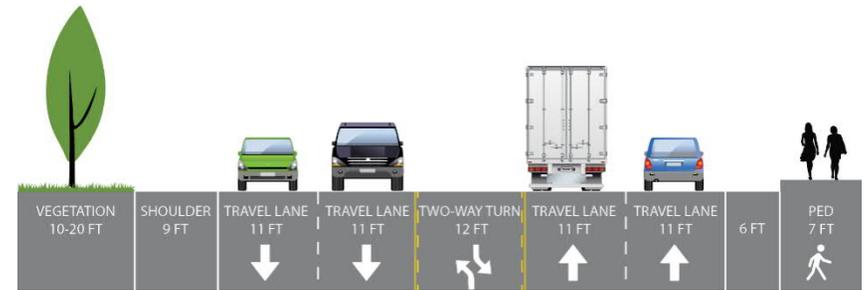
River Road

River Road (existing SR 167) is a five-lane principal arterial, functioning as the link between I 5 in Tacoma and the existing SR 167 freeway near Puyallup. Most of the intersections are stop-controlled at the minor streets and lack crosswalks across River Road. There are 6-foot shoulders on the north side of the roadway and 4-foot shoulders on the south side, see Figure 9.

The roadway runs parallel to the Puyallup River on its southern side. The surrounding land is predominantly undeveloped and agricultural along the roadway, with more residential and industrial uses on southern side east of 66th Ave E. There are no sidewalks on either side for 3.3 miles of segment from I-5 to 72nd Ave E. There are connected sidewalks on the south side of the roadway for approximately 0.61 miles. The Riverwalk Trail, adjacent to the river and on the north side of the roadway is approximately 10-foot wide and extends from 20th Street NW in Tacoma to 8th Avenue NE in Puyallup.



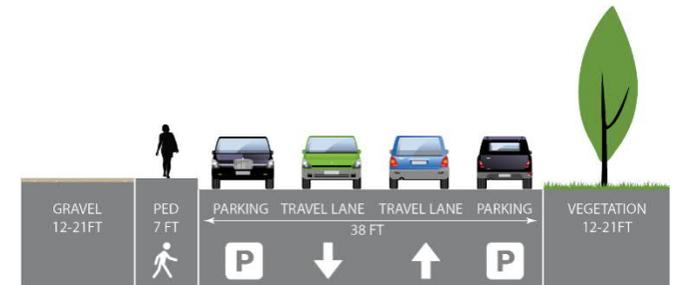
Figure 8 River Road Aerial Photo, typical area



River Road – West of Existing Riverwalk Trail



River Road – Between Gay Road E and Gratzler Road E



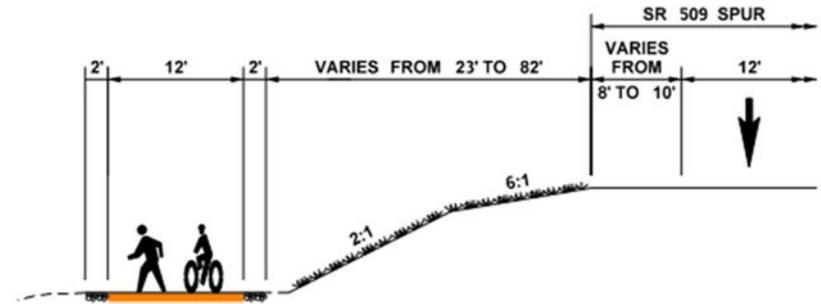
River Road – East 26th Street, West of E Portland Avenue

(figures not to scale)

Figure 9 Existing River Road Typical Cross Sections

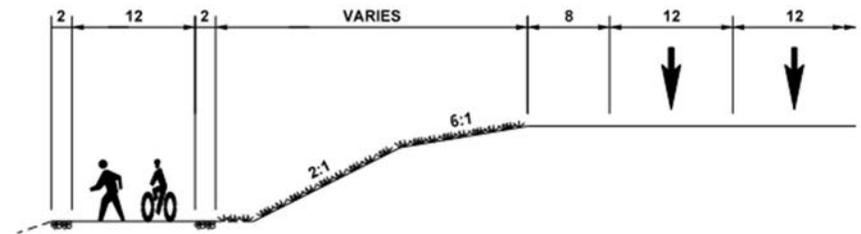
New SR 167

The new SR 167 will be a 4-lane grade separated limited access freeway that begins at SR 161/Meridian Avenue and continues northwest past Valley Avenue E to a new interchange at I-5, and north to SR 509. The new SR 167 facility is elevated structure as it crosses the railway and Valley Avenue E. Part of the completion of the freeway could potentially include two segments of shared use trail in the segment north of I-5 and SR 99 (connecting to the Interurban Trail) and another segment at the SR 509 spur. These trail segments would be separate from the freeway and its structures. The new SR 167 representative route would parallel the new roadway facility but would be separated from the roadway itself. See Figure 10.



(figure not to scale)

SR 167 at SR 509 Spur



(figure not to scale)

SR 167 near Valley Road

Figure 10 New SR 167 Typical Cross Sections

5 Safety

For each alternative, data and observations were collected to determine:

- ▶ Average speeds
- ▶ Average annual daily traffic (AADT) volumes
- ▶ Number of crossings and physical constraints
- ▶ Sightline and slope concerns
- ▶ Crash history (see Figure 11)

The safety analysis considered traffic volume including the type of traffic, 5-year crash history, trail connections, surrounding land uses, and sightlines. WSDOT crash and annual traffic data (which includes heavy truck percentages) were used in conjunction with a desktop review of each alignment in Google Earth, county land use data in ArcGIS, and Pierce County and State of Washington road data.

Traffic Conditions

Levee Road

- ▶ Primarily 35 mph speed limit with small section at 25 mph.
- ▶ The AADT along Levee Road was 8,625 in 2018.

Traffic volumes and speeds are amenable to cyclists and pedestrians. Additionally, based on traffic data, surrounding land uses, and the roadway geometry, Levee Road has a low volume of heavy trucks. The route on the existing unpaved trail along the river is located out of view of Levee Road and could inhibit the perception of personal safety for pedestrians and bicyclists.

River Road

- ▶ 50 mph speed limit
- ▶ 29,000 AADT (at the intersection of 66th Avenue E)

The relatively high traffic volume and traffic speeds would not promote a positive perception of personal safety for pedestrians and bicyclists. Currently this route is a major truck route so there is a high percentage of heavy vehicles, but the new SR 167 freeway facility is expected to divert much of the existing truck volume.

If the speed on River Road is reduced, operations are modified, and the roadway is reconfigured, there is the potential to improve safety on this facility.

New SR 167

The speed limit will be 50 mph between I-5 and SR 509 and 60 mph for the remainder of the new SR 167.

The estimate 2045 build average annual daily traffic volumes were reviewed at three key locations, considering both north and southbound traffic, to get an estimate of future conditions on the new SR 167 facility.

The key locations reviewed were:

- ▶ SR 509 Spur between 54th and I-5
- ▶ SR 167 between I-5 and Valley Ave E
- ▶ SR 167 between Valley Ave E and Meridian Avenue

The total AADT volumes as estimated for these locations is approximately 156,221. While the expected traffic volumes and posted speeds will be high, the trail alignment is physically separated from the roadway and has the opportunity to provide a positive perception of personal safety for pedestrians and bicyclists. Per the FHWA Bikeway Selection Guide (2019), any bike facility being considered on a roadway with more than 7,000 vehicles per day, with a posted speed of

35 mph or greater, should be constructed as a separated bike lane or shared-use path. The guidance suggest separation of approximately 3 to 6 feet depending on the context.

Crossings

Levee Road

This trail alignment encounters one (1) physical constraint. The trail would cross under the SR 161 bridge over Puyallup River and access the bridge via the ramp to cross the river. Placement of the trail between the road and the river would effectively manage interactions with vehicle and rail traffic.

If the trail alignment were on the north side of Levee Road, the path would cross eight (8) streets which would require pedestrian crossing improvements.

Physical Constraint:

- ▶ SR 161 bridge over the Puyallup River has four lanes with very narrow shoulders and narrow sidewalks on both sides.

Most of the access points to the potential trail alignment would not have adequate crossing of the parallel roadway. For most

of Levee Road there are no crosswalks or stop control at intersections that would lead residents to the trail.

River Road

The River Road trail alignment encounters one (1) difficult crossing and seven (7) physical constraints. Placement of the trail on the north side of River Road (between the road and the river) effectively manages interactions with vehicle and rail traffic.

However, for those trail users not entering at the start/finish of the trail there would be considerable hazards associated with pedestrians and bicyclists crossing five lanes of high-speed traffic. Given this alignment, the trail crosses one ramp and runs under one bridge. If the trail alignment were to be placed on the south side of River Road, the path would cross 25 streets and one ramp.

Existing Major Crossing:

- ▶ Intersection of River Road, Pioneer Way and E Grandview- complex vehicle turning movements may require crossing improvements to accommodate and protect trail users.
- ▶ Crossing at 66th Avenue E bridge

Physical Constraints:

- ▶ Limited existing right-of-way on roadway shoulder
- ▶ Right-of-way constraints beneath the I-5 freeway overpass on E Bay Street
- ▶ Right-of-way constraints at bridge crossing over railroad East of Pioneer Way E (no shoulder and narrow sidewalks on both sides)

New SR 167

The new SR 167 is planned as a grade separated freeway, which would allow this trail alignment to effectively manage interaction with vehicles where the trail runs proximate to the freeway. On this section the trail would encounter three (3) major crossings/physical constraints:

- ▶ SR-509
- ▶ I-5
- ▶ Puyallup River

Segments of the new SR 167 will be elevated, such as the section between Freeman Road E and Valley Avenue E. Along the elevated freeway segments, the trail would deviate from the freeway alignment, remain at-grade and use the local street network until it could reconnect with the new SR 167 alignment.

Based on the industrial land uses and associated traffic patterns, the trail user would encounter heavy trucks and railroad crossings. In addition to local street intersections and driveways, this configuration would require one (1) at-grade rail crossing.

Physical constraints include rail crossings, driveways, and street intersections. The new SR 167 trail alignment along the local street network will be further refined defined.

Crash History

Available crash history data from WSDOT was collected for the route segments. Crash histories occurring from 2013-2017 for the existing roadways are shown in Figure 11.

Levee Road

From 2013-2017 there were 56 crashes on the Levee Road segment (from N Meridian to I-5), of which there was one bicycle crash and one pedestrian crash, the severity of both were possible injuries. There is a data gap on Levee Road for the segment between the city of Tacoma and the Puyallup River.

River Road

From 2013-2017 there were 548 crashes between N Meridian and I-5: six (6) pedestrian injuries including one (1) fatality and seven (7) bicycle crashes, with minor injuries.

New SR 167

This is a new facility so there is no crash history for 2013-2017. As the new SR 167 will be a grade separated freeway, this alignment will generally limit interaction with vehicles. However, the trail would need to deviate from the freeway alignment at several locations where, based on the industrial land uses and associated traffic patterns, would require more interaction with trucks and railroad.

Roadway Profiles

Levee Road

The route would be mostly flat for cyclists, with no more than 30 feet of elevation variation over its entire length. The vegetation along the river has a moderate cross slope.

The existing unpaved trail parallels the Puyallup River and is approximately 15 to 20

feet below Levee Road in most areas. Levee Road is not illuminated, and trail users would not be seen from the roadway. Trail users would have clear line of sight of other users on the trail.

River Road

Following the river would provide clear sightlines for most of the alignment. The alignment would run adjacent to River Road, which lacks illumination. Users of the trail are easily seen on this segment from River Road. Slight slope at the E 28th St merge with SR 167.

Vegetation along the river has a moderate cross slope.

New SR 167

The new SR 167 alignment would provide the least direct route so the roadway curvature would potentially compromise sightlines. As this will be a new freeway there will be illumination at interchange locations, which, depending on how close the bicycle facility is to the roadway, may provide opportunities at key locations for trail users.

This alignment would be mostly flat, with elevation changes within 30 feet on the existing neighboring roadways.

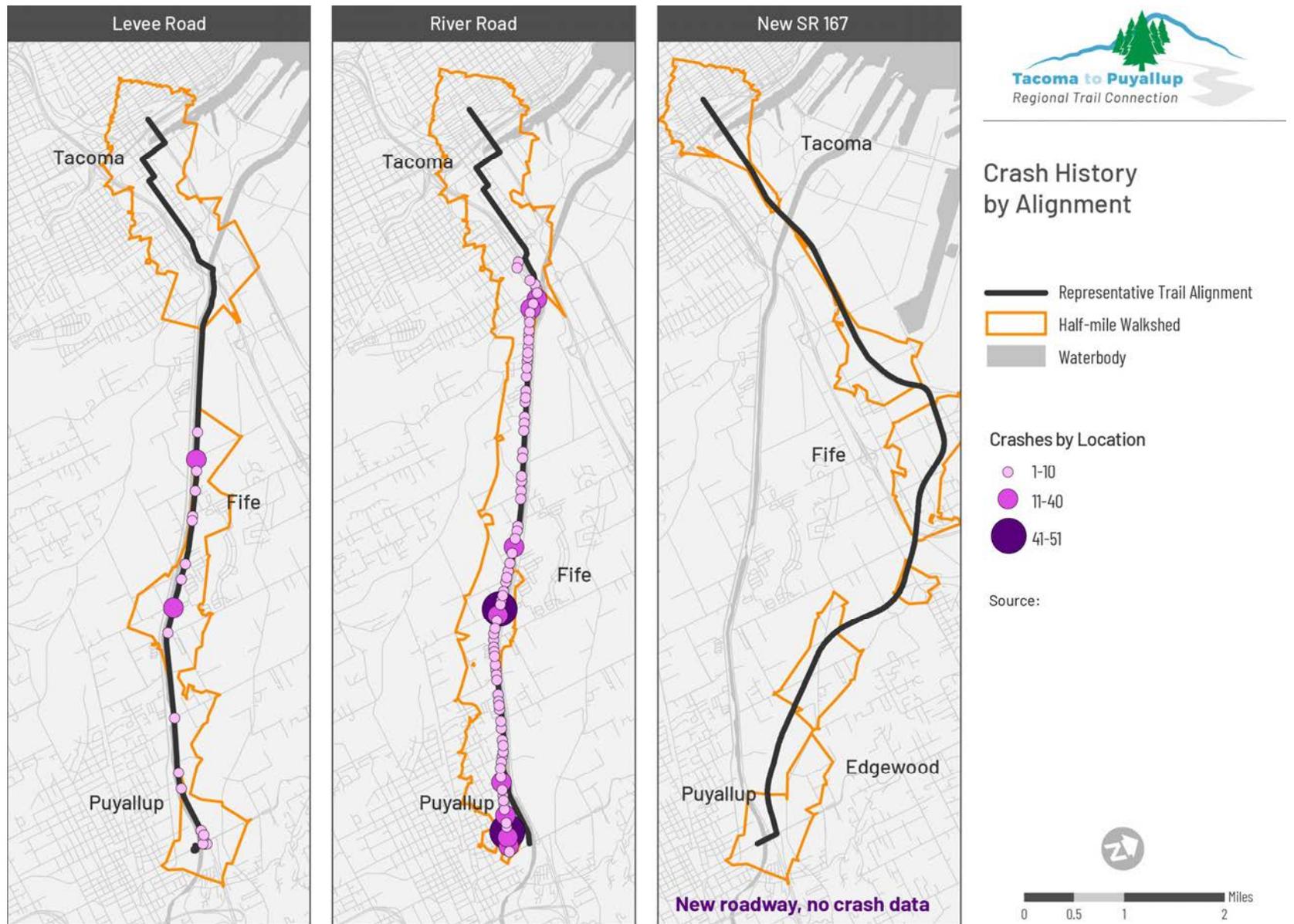


Figure 11 Crash History 2013-2017

6 Connectivity

To assess the proposed project's interactions with connections to both existing and future infrastructure, the project team reviewed roadways that cross the proposed alignments, existing, planned, and proposed bike infrastructure and public transportation, and key destinations within active transportation distance to the proposed alignments. Data was collected using site visits, Google Maps, public transit websites, ArcGIS, and was developed into maps. Key destinations were identified through a series of stakeholder meetings and Cohort discussions.

All three trail alignments would connect into the existing roadway network within Puyallup, Tacoma, Fife and the surrounding Pierce County. The Levee Road Alignment would connect into all roadways along Levee Road, the River Road Alignment would connect into all roadways along River Road, and the SR 167 Alignment would connect into any new road developed for

the connection to the new State Road 167. Currently, most roadways that interact with the proposed alignments do not have adequate infrastructure in place such as stop lights, stop signs, cross walks, which are crucial for safe access to and from the proposed alignments.

Three area maps were created to assess each of the metrics identified in Table 2.

Bicycle Network Connections:

All three potential alignments connect into existing, planned and proposed bike infrastructure within Puyallup, Tacoma, Fife and Pierce County (see Figure 12). Infrastructure includes existing hike/bike trails, dedicated bike lanes, and shared roadways.

Levee Road

The Levee Road alignment would connect into the Riverwalk Trail at the southeastern end via the SR 167 bridge, and would run parallel to the Puyallup River on the

northern side. The alignment would also connect to the bicycle network that intersects Levee Road as well as existing and proposed bike networks in Downtown Tacoma.

River Road

The River Road alignment would connect into the existing Riverwalk Trail which is adjacent to the Puyallup River in the City of Puyallup. The Riverwalk Trail is approximately 4.1 miles long and connects E Main Ave and 20th ST NW and will have future connections to the planned 21-mile long Foothills Trail.¹ Additionally, the River Road alignment would connect into proposed bike networks intersecting River Road and existing and proposed bike networks in Downtown Tacoma.

¹ <https://www.trailink.com/trail/puyallup-riverwalk-trail/>

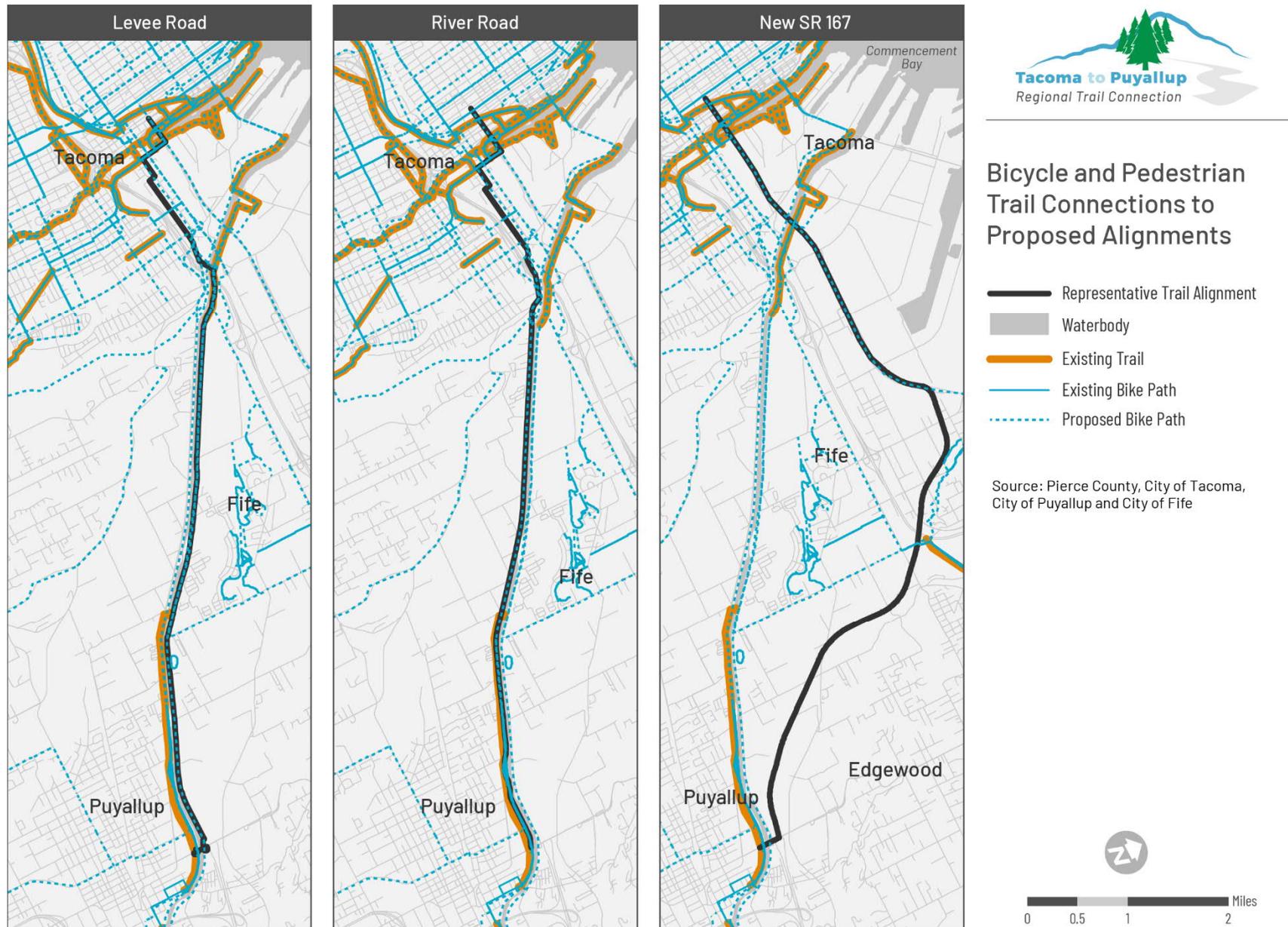


Figure 12 Bicycle and Trail Infrastructure

New SR 167

The SR 167 alignment, like both River Road and Levee Road alignments, would connect into the Riverwalk Trail at its eastern end. The alignment would connect into planned and proposed bike trails along the new roadway in Fife and Downtown Tacoma.

Connections to Key Destinations

All three trail alignments would have direct connections to key destinations in Puyallup.

Levee Road

The Levee Road alignment could access key destinations on the northern side of the Puyallup River. These include the Puyallup Tribe Youth Center, Dacca Park, Columbia Junior High School, 5 Acre Park, Brookville Gardens Community Park, and the Puyallup Recreation Center.

River Road

The River Road alignment could access to key destinations on the southern side of the Puyallup River. These include Sam Peach Park, the Washington Premier Football Club Field Complex, and Roosevelt Park.

New SR 167

The new SR 167 alignment could access similar key destinations as the Levee Road alignment. These include the Brookville Gardens and Community Park and the Puyallup Recreation Center as well as a direct connection to the Interurban Trail and Hylebos Nature Area. The proximity of the trail alignments to key destinations is shown in Figure 13.

Transit Connections

All three potential alignments would connect into the existing and planned public transportation infrastructure in Downtown Tacoma. The western end of the three alignments would connect into the existing Tacoma Link Light Rail transit (LRT) system which serves Downtown Tacoma. The Tacoma Dome Station serves the Sounder train and the Tacoma Link LRT as well as Sound Transit bus service, Intercity Transit and Pierce Transit routes. The station will also serve Amtrak in the future. In 2022, the Tacoma LRT will be extended by 6 stops, increasing transit access within the downtown area. Additionally, the planned Pierce Transit Bus Rapid Transit (BRT) System will provide service between

downtown Tacoma and Spanaway on Pacific Avenue/SR 7.

The three alignments will also connect to Sound Transit's Tacoma Dome Link Extension (TDLE). The TDLE is part of a larger LRT effort that will extend the regional light rail system by 10 miles to create a connection between Downtown Tacoma and SeaTac Airport with four new stations in areas near south Federal Way, Fife, east Tacoma and the Tacoma Dome.

Transportation services run by Sound Transit have bike facilities which include bike racks, lockers, and/or cages, which helps to promote bicycling and public transit integration. The transit connections and proximity to the transit network are shown in Figure 14.

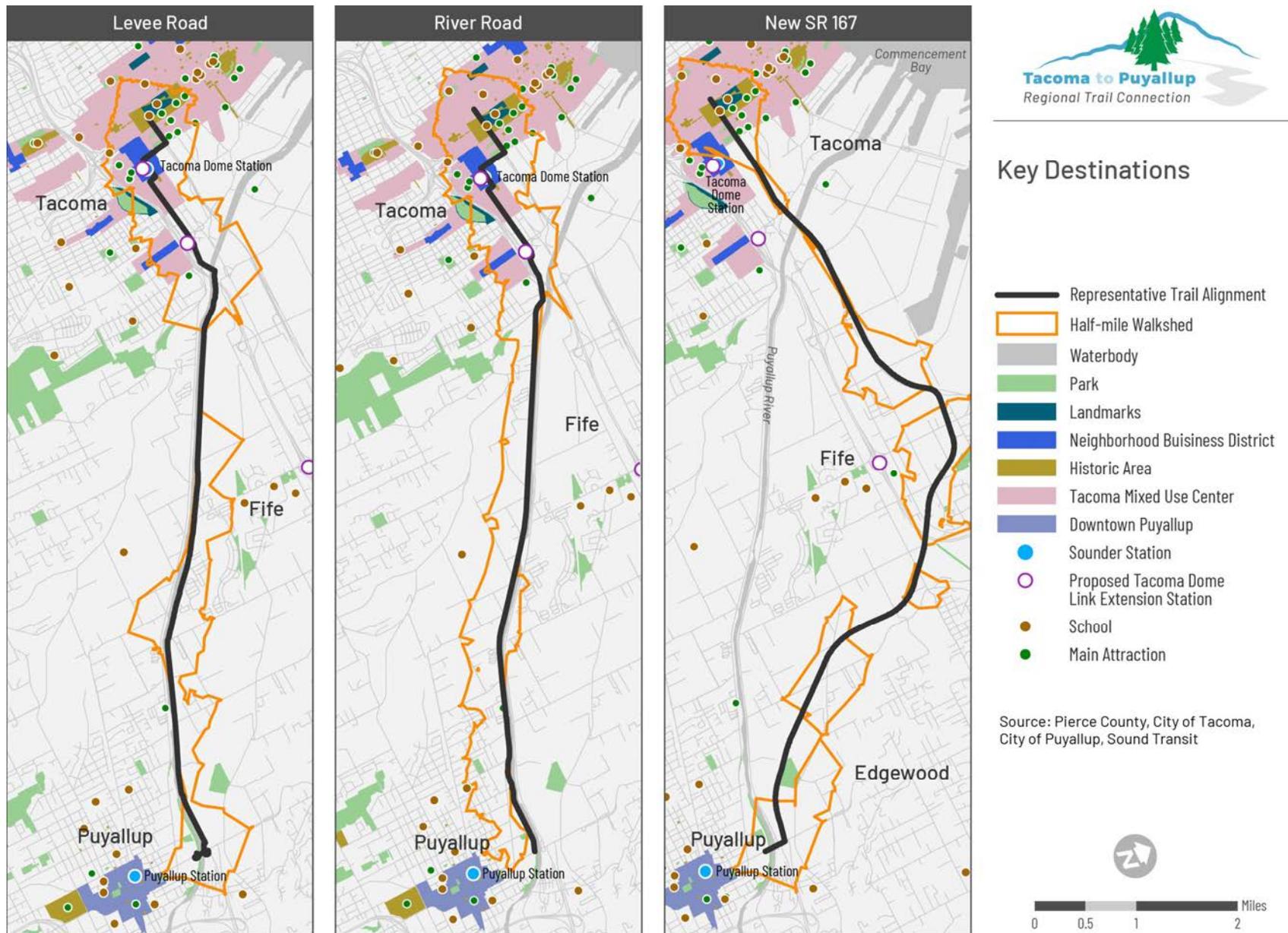


Figure 13 Key Destinations

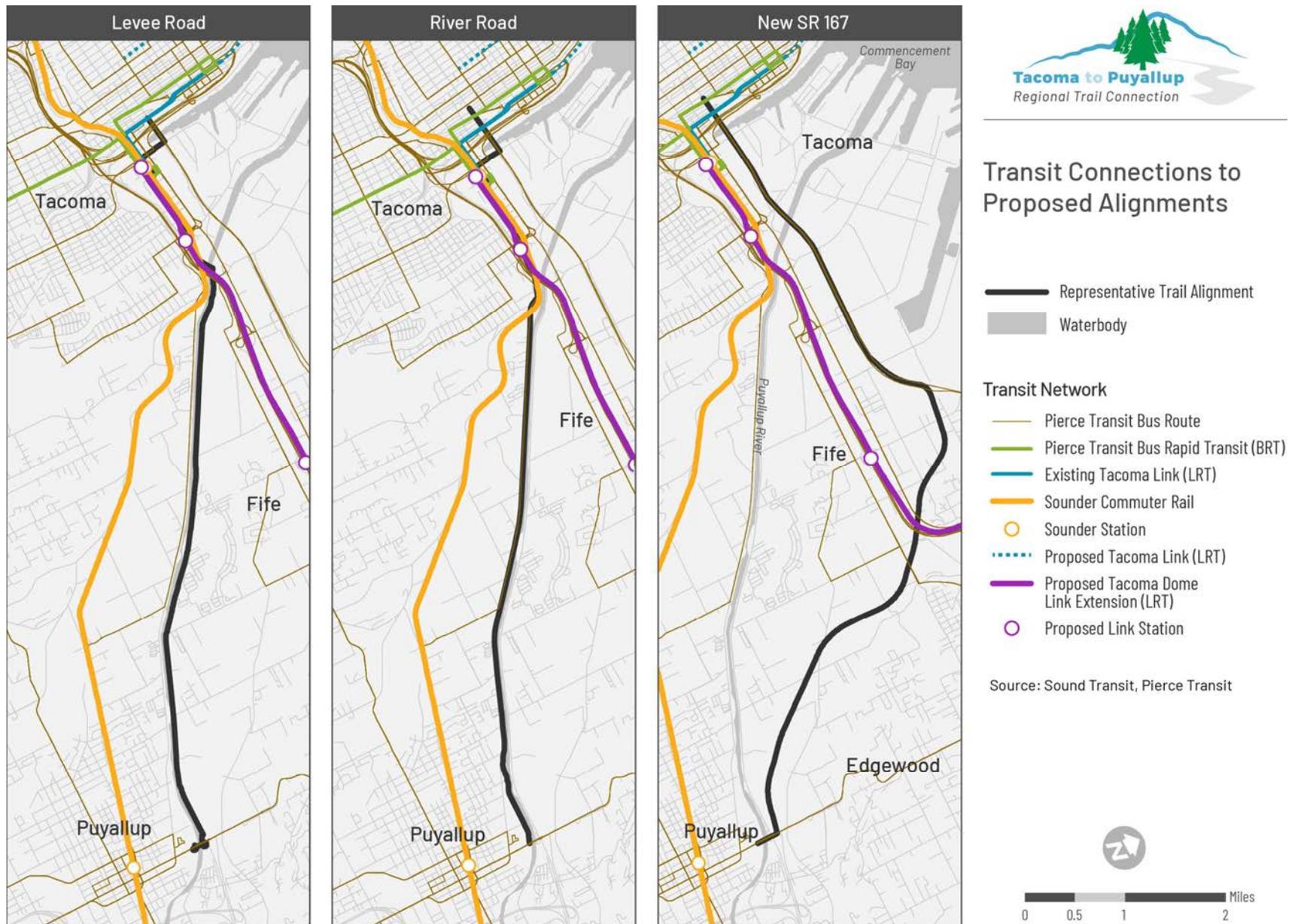


Figure 14 Public Transit Connections

Table 3 Existing Sidewalk Infrastructure on Major Intersecting Roadways

Major Intersecting Roadway	Roadway Description	Existing Sidewalk
Levee Road Route		
82nd Ave E	North-south running 2 lane road ending at Levee Rd E.	No sidewalks.
70th Ave E	North-south running 2 lane road ending at Levee Rd E.	No sidewalks.
66th Ave E (bridge)	North-south running bridge over Puyallup River.	Narrow pedestrian path only on the southeast side of the bridge.
54th Ave E	North-south running 2 lane road ending at Levee Rd E.	No sidewalks.
Frank Albert Rd E	North-south running 2 lane road ending at Levee Rd E.	No sidewalks.
Portland Ave E	North-south running 6 lane road (including center turning lane).	Sidewalks present immediately adjacent to roadway.
River Road Route		
76th Ave E	North-south running 2 lane road ending at River Rd E.	No sidewalks.
66th Ave E	North-south running 2 lane road including the bridge the crosses the Puyallup River.	No sidewalks on 66th Ave E south of River Rd. Narrow pedestrian path on the southeast side of the bridge.
Pioneer Way E	North-south running 3 lane road ending at River Rd. E	Sidewalks adjacent to roadway on west side of street only.
Portland Ave E	North-south running 6 lane road (including center turning lane).	Sidewalks present immediately adjacent to roadway.
New SR 167 Route		
82nd Ave E/Freeman Rd E	North-south running 2 lane road.	No sidewalks.
Valley Ave E	Northwest-southeast running 4 lane road with bike lanes.	Sidewalks present with small grass median separation.
20th St E/Yuma St	East-west running 2 lane road that widens as you get nearer to 70th Ave E.	Some sidewalks nearer to 70th Ave E. Sidewalks end at the edge of development. May have been extended since Oct 2018.
70th Ave E	North-south running 2 lane road. Appears to have heavy freight use.	No sidewalks, but the Interurban Trail (hard surface) runs along the east side of the road providing access.
Pacific Hwy E	East-west running 4 lane road.	No sidewalks east of SR 167; Some sidewalk west of SR 167.
54th Ave E	North-south running 5 lane road (including center turning lane).	Sidewalks present immediately adjacent to roadway.
Alexander Ave E	North-south running road, 4 lanes increasing to 6 lanes near SR 509 for added turning lanes.	Sidewalks present on eastside immediately adjacent to roadway.
Port of Tacoma Rd	North-south running 5 lane road with a center turning lane.	Sidewalks present on both sides adjacent to roadway.

Source: WSP, 2019

7 Accessibility

To assess the potential accessibility of each trail alignment, information was gathered to determine:

- ▶ The number of access points between the existing street network and the trail available to pedestrians and bicyclists along the route
- ▶ Number and type of impediments to active transportation travel along the route
- ▶ The route length and the ease of connections to key destinations
- ▶ The slope/elevation of the route

Access Potential

Levee Road

The Levee Road alignment has a small street network connection. The existing intersections with Levee Road do not provide adequate stop control for safe pedestrian crossing. However, the two-lane cross section with low traffic volumes and speed provides an opportunity to address safer crossings.

River Road

The River Road alignment has a significant number of crossings within the local street network which could provide multiple access points to the route. However, each crossing would need to be addressed with appropriate treatments to adequately (safely) move cyclists and pedestrians across intersections with 5 lanes of traffic that currently lack stop control and crosswalks.

New SR 167

The new SR 167 route presents the most challenges for accessibility among the alternatives with the lowest number of connections to the existing roadway network.

Representative route and route option constraints are shown in Figure 15.

Impediments to Accessibility

Levee Road

- ▶ SR 167 Bridge – the bridge over the Puyallup River at N Meridian Avenue has four lanes with narrow shoulders and approximately 8-foot sidewalks on both sides.

- ▶ The route would require a railroad crossing both on the south and north side of the Puyallup River.

River Road

- ▶ Intersection of River Road, Pioneer Way and E Grandview- complex vehicle turning movements may require crossing improvements here for a trail
- ▶ Limited existing right-of-way on roadway shoulder
- ▶ Right-of-way constraints beneath the I-5 freeway overpass on E Bay Street
- ▶ Right-of-way constraints at bridge crossing over railroad East of Pioneer Way E (no shoulder and narrow sidewalks on both sides).

New SR 167

- ▶ The new SR 167 route alignment would cross the major interchanges with SR 509 and I-5 as well as railroad
- ▶ New SR 167 channelization has been designed; right-of-way is wide enough to accommodate the trail that is separated from the roadway and would require on-street routing in the

segment where SR 167 facility is elevated.

Directness and Wayfinding

Levee Road

The main Levee Road would follow along the Puyallup River providing a relatively direct route between Tacoma and Puyallup. To cross the Puyallup River and railroads, the Levee Road representative route includes a couple of options. Option A requires a new river crossing and continues to E Bay Street and then on to E 26th Street, to E G Street, and east on E 25th Street to E D Street, on to the Tacoma Dome area. Option B goes north from the Levee Road side of the river on Frank Albert Road E, connecting to 20 Street E via a greenbelt, and continues west to 20th Street Drive E to Pacific Highway E, over the Fishing Wars Memorial Bridge and on to Puyallup Avenue to E D Street downtown. Both Option A and B would require significant wayfinding to connect trail users to the Thea Foss Esplanade via a combination of off-street paths and bike lanes/sidewalk.

River Road

The River Road alignment provides the most direct route of the alternatives with no need to deviate from the river path until the north end of the route near downtown Tacoma. Trail users would continue north on E Bay Street to connect to E 26th Street, then north on E G Street, and east on E 25th Street to E D Street to the Tacoma Dome area. While the representative route does not clearly define the pathway from E Bay Street to E 26th Street, significant wayfinding through this area would be required. The route from E 26th Street to E D Street to Thea Foss Esplanade is the same as Levee Road Option A.

New SR 167

The SR 167 alignment would be the least direct route of the 3 representative routes. The trail would run parallel to the freeway except at locations where it is necessary to elevate the freeway structure, such as the section between Freeman Road E and Valley Avenue E. At this location the path would be required to use the local street network (potentially requiring an at-grade rail crossing) until it could reconnect with the new SR 167 alignment. This alignment would

be more dependent on wayfinding as on-street diversions would be required to follow circuitous paths requiring turns on multiple streets to reconnect with the freeway.

Slopes/Elevation

All the representative routes would be mostly flat for pedestrians and bicyclists, with no more than 30 feet of elevation variation over the entire length. There would be minor slopes for those routes requiring a bridge crossing over the river and railroad tracks, such as for Levee Road and the new SR 167. The route alignments along E D Street, shared by Levee Road Option A, River Road alignment, and the new SR 167 Option A, would require a minor slope to cross the railroad to Dock Street.

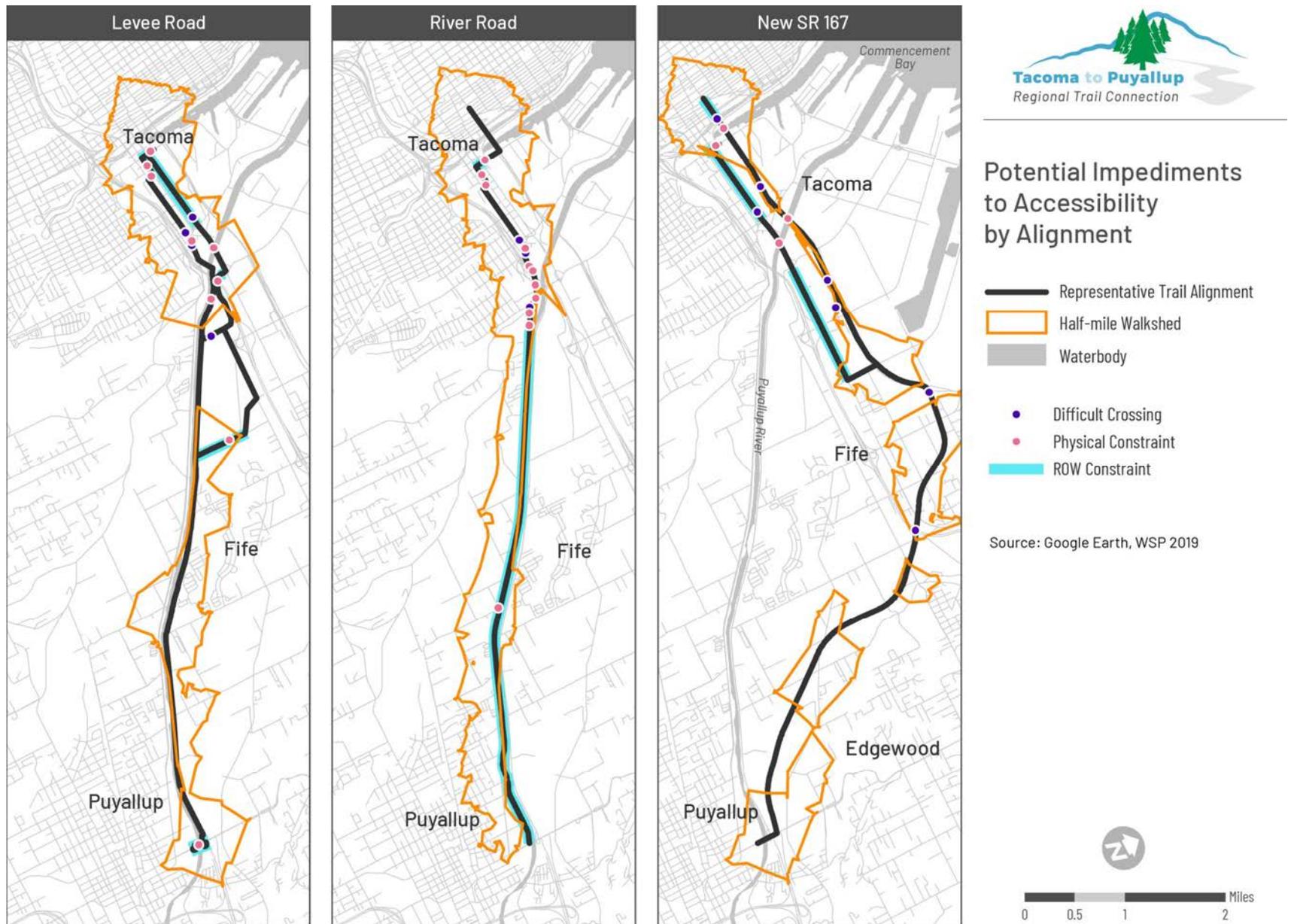


Figure 15 Representative Route Impediments

8 Equity

The Tacoma to Puyallup Regional Trail connection intends to provide access for underserved communities – people of color, low-income and “zero car” households- and to reach areas with significant population density. These community characteristics were evaluated based on the US Census American Community Survey (ACS) 5-year data collected for 2013-2017. These datasets were analyzed using ArcGIS for those populations within a ½ mile walkshed of the representative route alignments. The ½ mile walkshed study area was developed based on the existing roadway network that would provide access to the route via the street and sidewalk networks.

Maps were created to illustrate the data by metric and by alignment (see Figure 16- Figure 19). A summary of the demographic data by representative route alignment is provided in Table 4.

An overall assessment of health and transportation disparities focused on the equitable opportunities for active transportation. This criterion was evaluated based on the existing sidewalk network along the representative route alignments and

connecting roadway networks. The qualitative data was collected from Google Earth and a site visit to generally characterize the existing conditions. The existing sidewalk network was described under Connections and in Table 3.

Population Density

Levee Road

- ▶ Second highest population of all 3 representative route walksheds, with greater population densities in the City of Tacoma.

River Road

- ▶ Highest population of all three representative route walksheds, with highest population densities near the Puyallup River within the boundaries of the city of Tacoma, Fife (near the 66th Avenue E Bridge), and Puyallup near SR 161.

New SR 167

- ▶ The least total population of all three representative route walksheds and low population density.

See Figure 16.

Low-income and Zero Car Households

Levee Road

- ▶ Approximately 10% of the households within the route walkshed are zero-car households, slightly above the Pierce County average of 6%.
- ▶ Census Tracts between Tacoma and Fife, west of the Levee Road Route, report up to 5 times the county average of low-income households.
- ▶ Approximately 13% of households within the ½ mile walkshed are low-income which is slightly more than the Pierce County average of 8%.

River Road

- ▶ 9% of the households within the alignment walkshed are zero-car households, slightly above the county average of 6%.
- ▶ Census Tracts near the city of Tacoma report up to 5 times the county average of low-income households.

- ▶ Approximately 12% of households within the ½ mile walkshed are low-income which is slightly more than the Pierce County average of 8% of households.

New SR 167

- ▶ 9% of the households within the route walkshed are Zero-Car Households, slightly greater than the Pierce County average of 6% as shown in Table 4.
- ▶ Approximately 9% of households within the ½ mile walkshed are low-income which is close to that reported for the Pierce County average of 8%.

See Figure 17, Figure 18 and Table 4.

People of Color

Levee Road

- ▶ Of the 3 representative routes, Levee Road shows the second highest percentage of People of Color within the ½ mile route walkshed at 42%, well above the county average of 32%.
- ▶ Within the cities of Fife and Tacoma, the populations of People of Color

are up to 2 to 2.5 times the Pierce County average.

River Road

- ▶ Of the 3 representative routes, River Road shows the highest percentage of People of Color within the ½ mile route walkshed at 44%, well above the Pierce County average of 32%.
- ▶ Within the cities of Fife and Tacoma, the populations of People of Color are up to 2 to 2.5 times the Pierce County.

New SR 167

- ▶ Of the 3 representative routes, the new SR 167 alignment shows the lowest percentage of People of Color within the ½ mile route walkshed at 37%, which is still slightly greater than the county average of 32%.
- ▶ Within the cities of Fife and Tacoma, the populations of People of Color are up to 2 to 2.5 times the Pierce County average.

See Figure 19.

Health and Transportation Disparity

Levee Road

- ▶ In downtown Tacoma, the overlapping segment of River Road Extension and Levee Road Option A has sidewalks near the Tacoma Link Station on E. 26th Street. Near areas with the highest populations of zero car, low-income households, and People of Color, major sidewalk gaps exist resulting in a low level of active transportation opportunities for these groups.
- ▶ The segment of Levee Road Option B and the New SR 167 Option A on Puyallup Ave has sidewalks connecting to the east side of the river, although sidewalks narrow significantly on Fishing Wars Memorial Bridge.
- ▶ Along the Levee Road Route, there are minimal sidewalks on the alignment and on intersecting roadways including the 66th Ave E bridge and Pioneer Way E.

River Road

- ▶ In downtown Tacoma, the overlapping segment of River Road

Extension and Levee Road Option A has sidewalks near the Tacoma Link Station, but major sidewalk gaps exist on E 26th St. providing minimal active transportation opportunities near the areas with the highest populations of zero car and low-income households as well as People of Color.

- ▶ Along the River Road Route, there are minimal sidewalks on the alignment and on intersecting roadways, including the 66th Ave E

bridge and Pioneer Way E in unincorporated Pierce County

New SR 167

- ▶ Stage 1a of the new SR 167 design plan extends from SR 167/Meridian Avenue to 20th Street E. There is an opportunity to connect to existing sidewalks on the adjoining roadway network.
- ▶ A proposed route alignment at-grade within the acquired right-of-way for the new SR 167 facility would

potentially intersect local roadways at Valley Ave E., Freeman Road E., 26th Street E., and 20th Street E., connecting to the Interurban Trail.

- ▶ Stage 1b of the new SR 167 design plan shows a planned active transportation element (shared-use path) from Taylor Way to Alexander Avenue and another shared use path from SR 99 to 12th Street E, crossing SR 509 to 8th Street E adjacent to the existing Milgard and Hylebos Path

Table 4 Summary of Demographic Data within ½ Mile Walkshed of Representative Routes

	Pierce County	Levee Road	River Road	New SR 167
Total Population	845,193	6,200	7,300	4,200
People of Color	270,686 (32%)	42%	44%	37%
Low-Income Households	25,966 (8%)	13%	12%	9%
Zero Car Households	17,975 (6%)	10%	9%	9%

Source: US Census ACS 5-year (2013-2017)

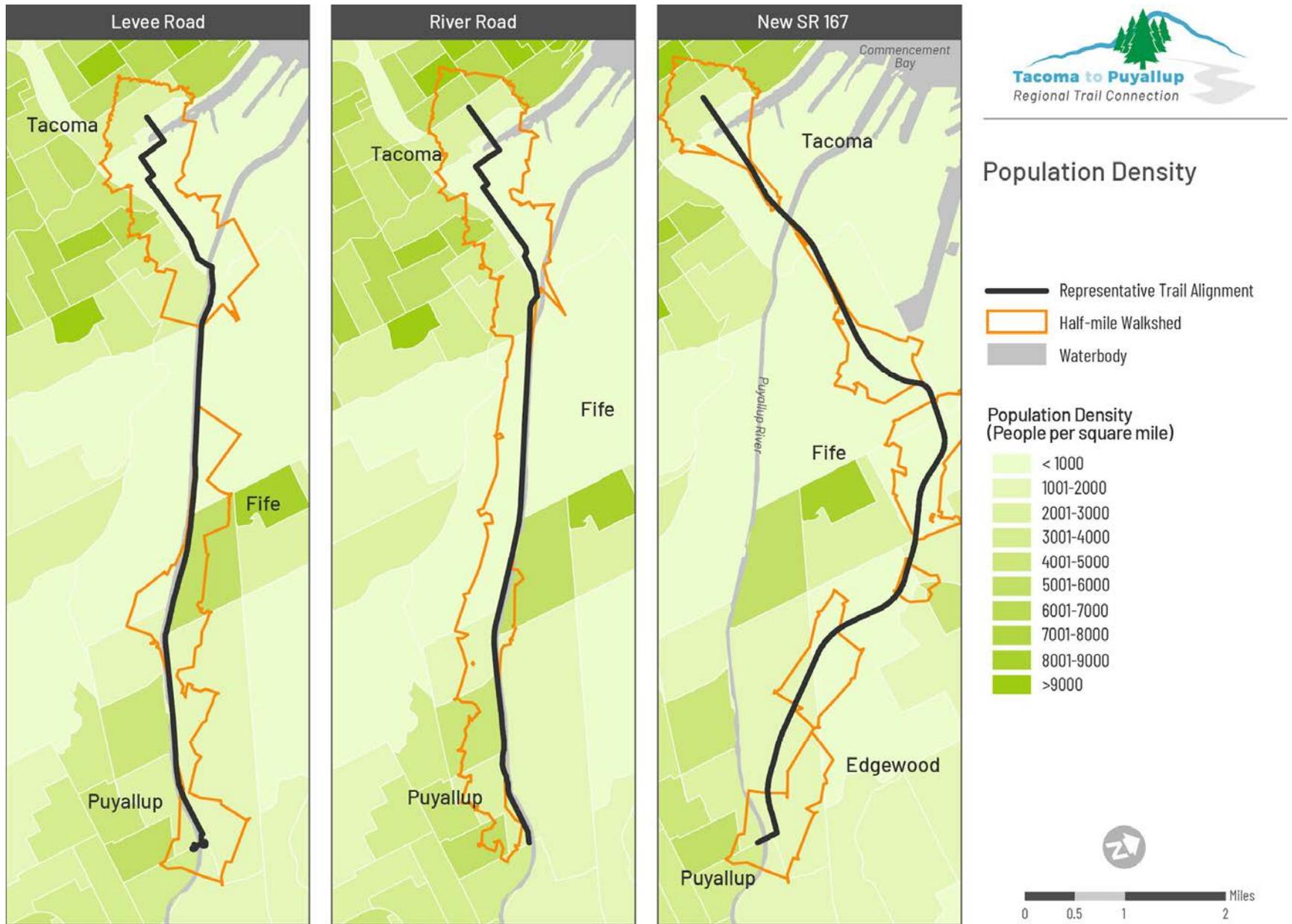


Figure 16 Population Density

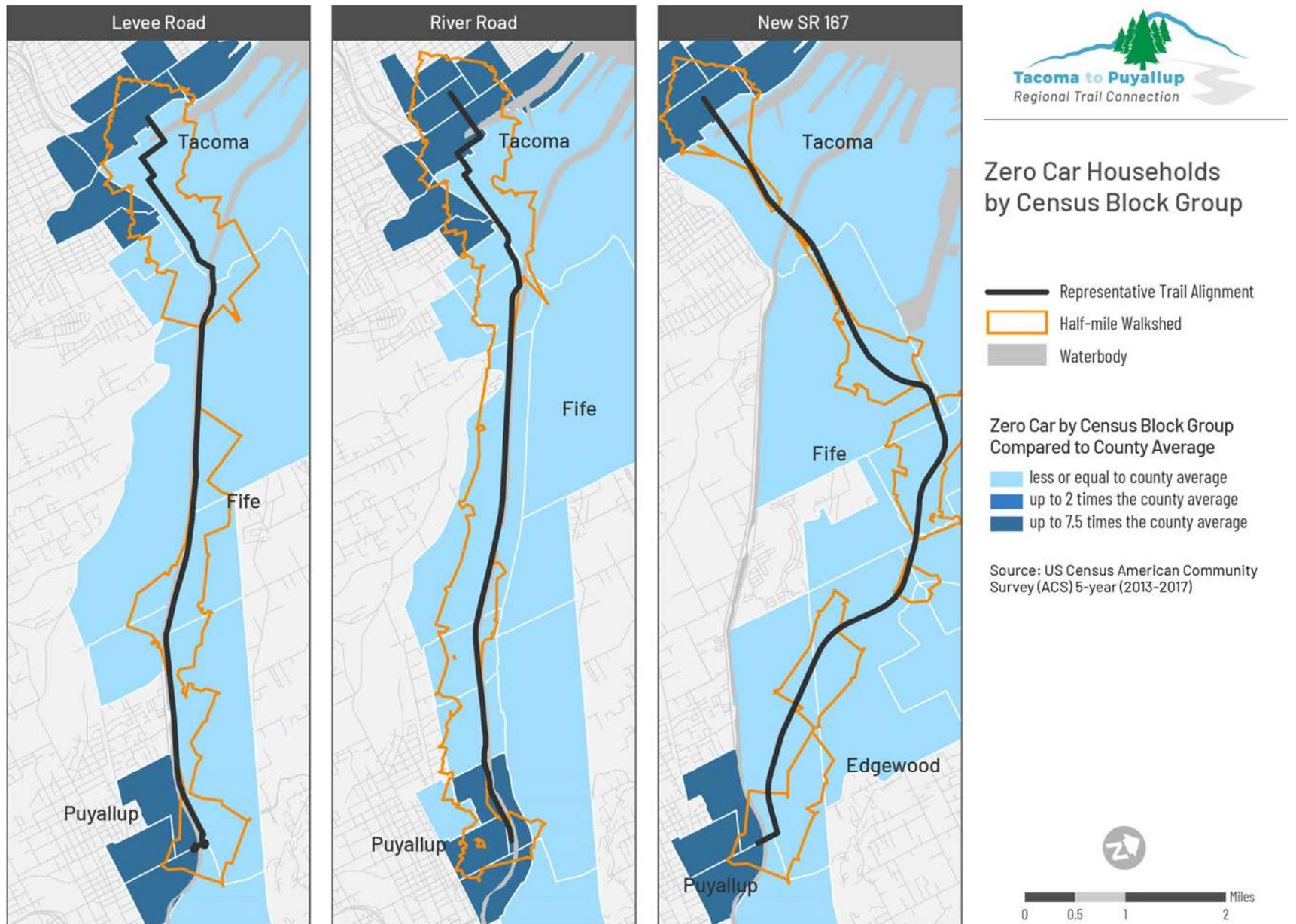


Figure 17 Zero Car Households

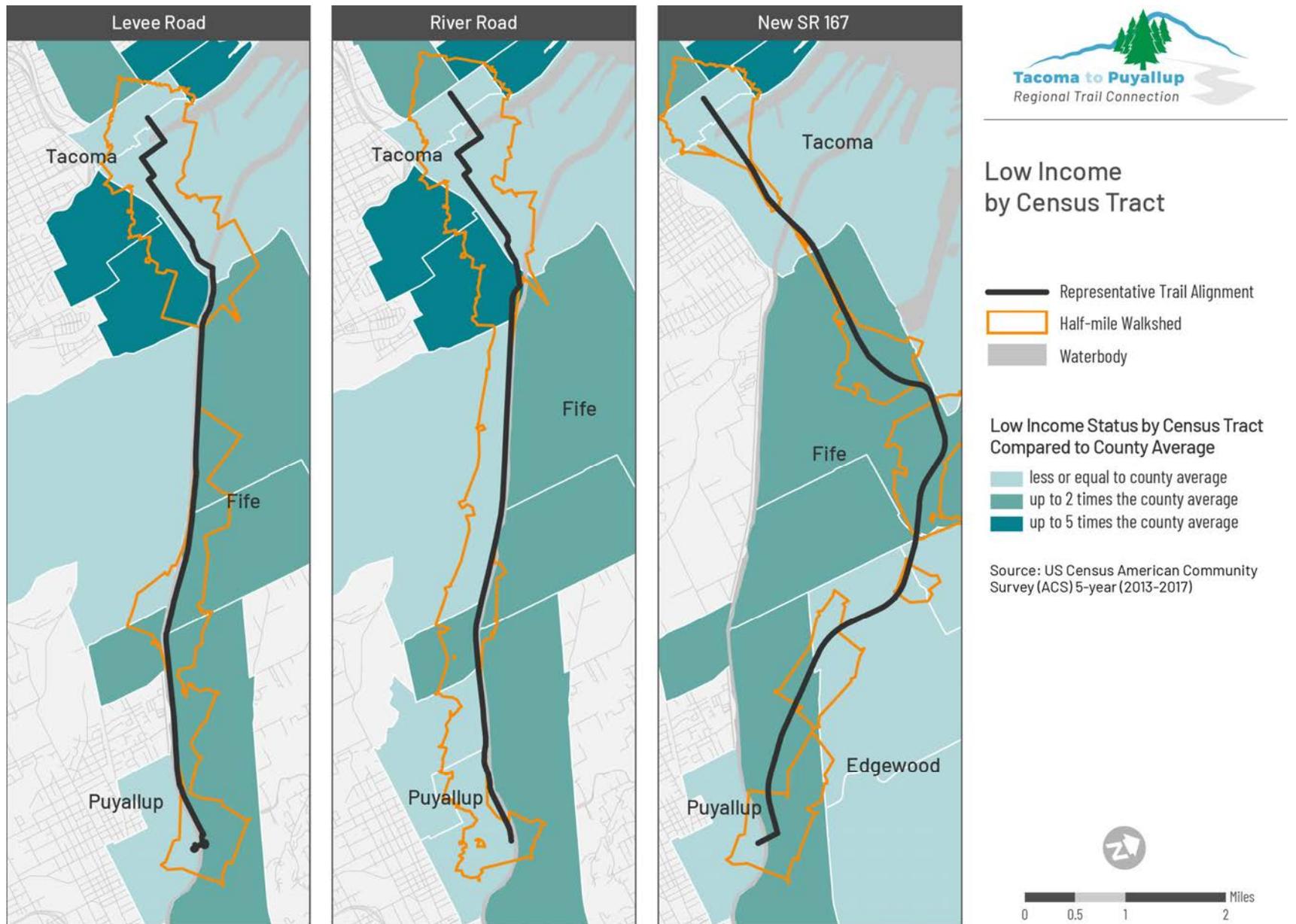


Figure 18 Low-Income Households

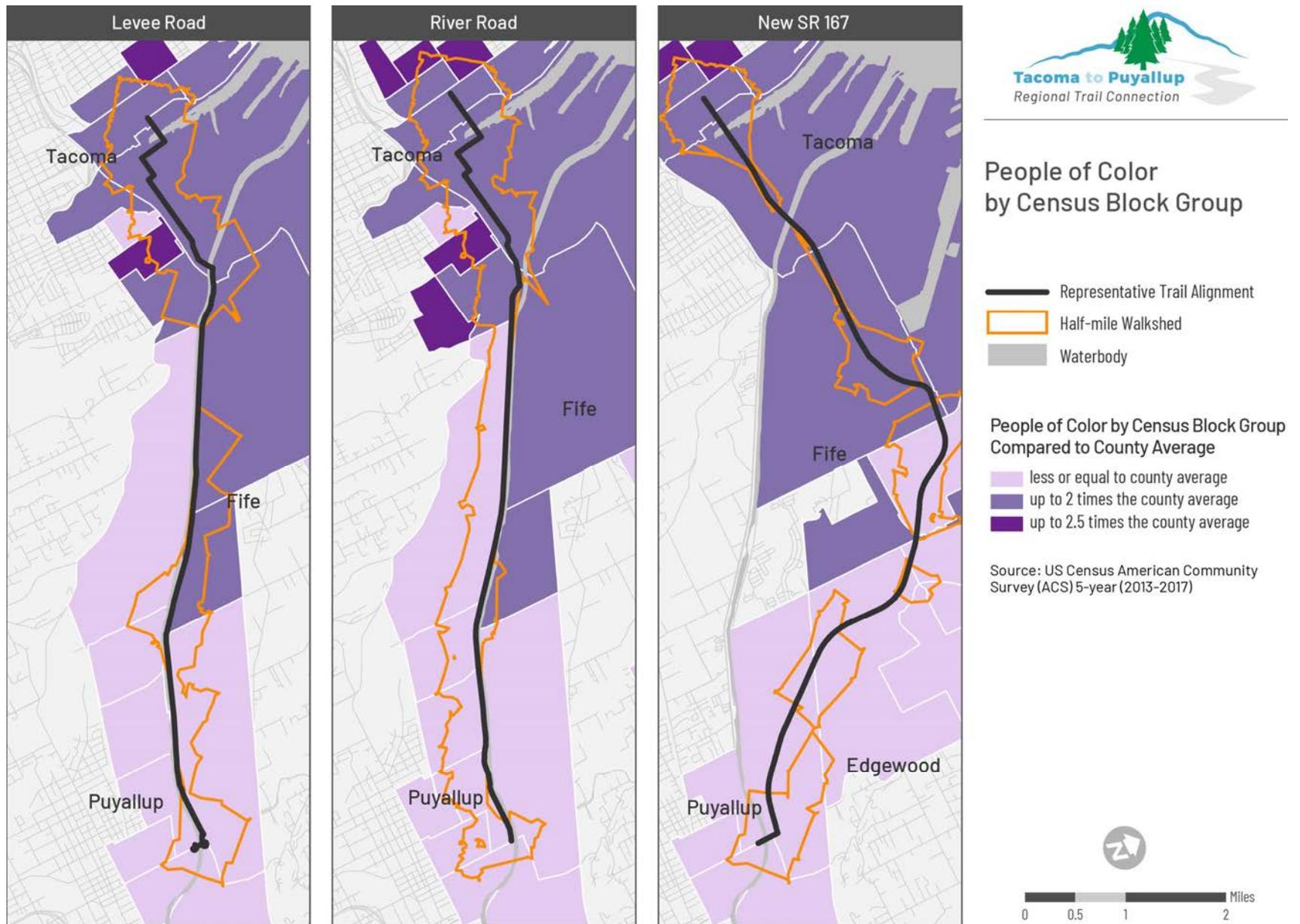


Figure 19 People of Color

9 Environment and Community Fit

The trail aspires to have a positive social, environmental, and cultural and historic impact to the communities it will connect and serve by providing an aesthetically pleasing facility that fits the surrounding context. The environment and community aspects were evaluated based on the available land use and environmental critical areas data from Pierce County, and the Cities of Tacoma and Fife. Land uses are shown in Figure 23.

Critical areas include steep slopes (landslide or geological hazard areas), wetlands and streams, and floodplains. Critical Areas are shown in Figure 20, Figure 21, and Figure 22. Existing threatened and endangered species as well as critical habitat data was obtained from US Fish and Wildlife Service and National Marine Fisheries Services. These datasets were overlaid with the representative route alignments to understand the land uses and environmental resources in the study area.

In addition, one cultural resources study, the NEPA Re-Evaluation: Cultural Resources Survey to Support NEPA Re-Evaluation of the

Washington State Department of Transportation SR 167 Extension Project – Puyallup to SR 509 was reviewed to understand the existing cultural and historic resources adjacent to the representative route alignments. The Washington Information System for Architectural and Archeological Records Data (WISSARD) database was also reviewed for archeological and historic resources in the area. The database indicates that cultural survey is “highly advised” for the area surrounding all three routes.

Erosion and Landslide Hazards

Levee Road

- ▶ Located along the Puyallup River north embankment adjacent to Levee Road at Freeman Road E
- ▶ Other steep slopes located at I-5 near downtown Tacoma.

River Road

- ▶ Located nearly the entire length of River Road along the Puyallup River south embankment

- ▶ Other steep slopes near Pioneer Way and I-5 near downtown Tacoma

New SR 167

- ▶ Primarily located north of I-5 and east of the new SR 167 facility but not immediately adjacent to the alignment

See Figure 20.

Wetlands and Streams

Levee Road

- ▶ Associated waterbodies include the Puyallup River, Wapato Creek, and other unnamed streams and ditches
- ▶ A total of 2 stream crossings, as well as one river crossing
- ▶ Wetlands include riverine and freshwater forested/shrub wetlands along the main alignment; Options A and B intersect estuarine and marine deepwater wetlands near I-5 and SR 509 River crossings

River Road

- ▶ Associated waterbodies include the Puyallup River, Roosevelt Ditch, Swan

Creek, Clarks Creek, and other unnamed streams and ditches

- ▶ A total of 3 stream or ditch crossings
- ▶ River Road extension intersects estuarine and marine deepwater wetlands near I-5 and SR 509 River crossings

New SR 167

- ▶ Associated waterbodies include the Puyallup River, Wapato Creek, Hylebos Creek, and other unnamed streams and ditches
- ▶ A total of 8 stream or ditch crossings, and one river crossing
- ▶ Wetlands include riverine, freshwater forested/shrub wetlands as well as freshwater emergent wetlands; Options A and B intersect estuarine and marine deepwater wetlands near I-5 and SR 509 River crossings

See Figure 21.

Flooding

Levee Road

- ▶ The Lower Puyallup River is a high-risk flood area
- ▶ Areas within the special flood hazard area protected by levee were mapped as Flood Zone X, (minimal flood hazard); however, the North Levee Road levee has been de-accredited by the US Army Corps of Engineers, and is not considered to provide adequate protection from major floods
- ▶ Areas immediately outside of the levee protection zone are mapped as Zone AE (100-year floodplain)
- ▶ Areas along segments of Wapato Creek are within a 100- or 500-year floodplain

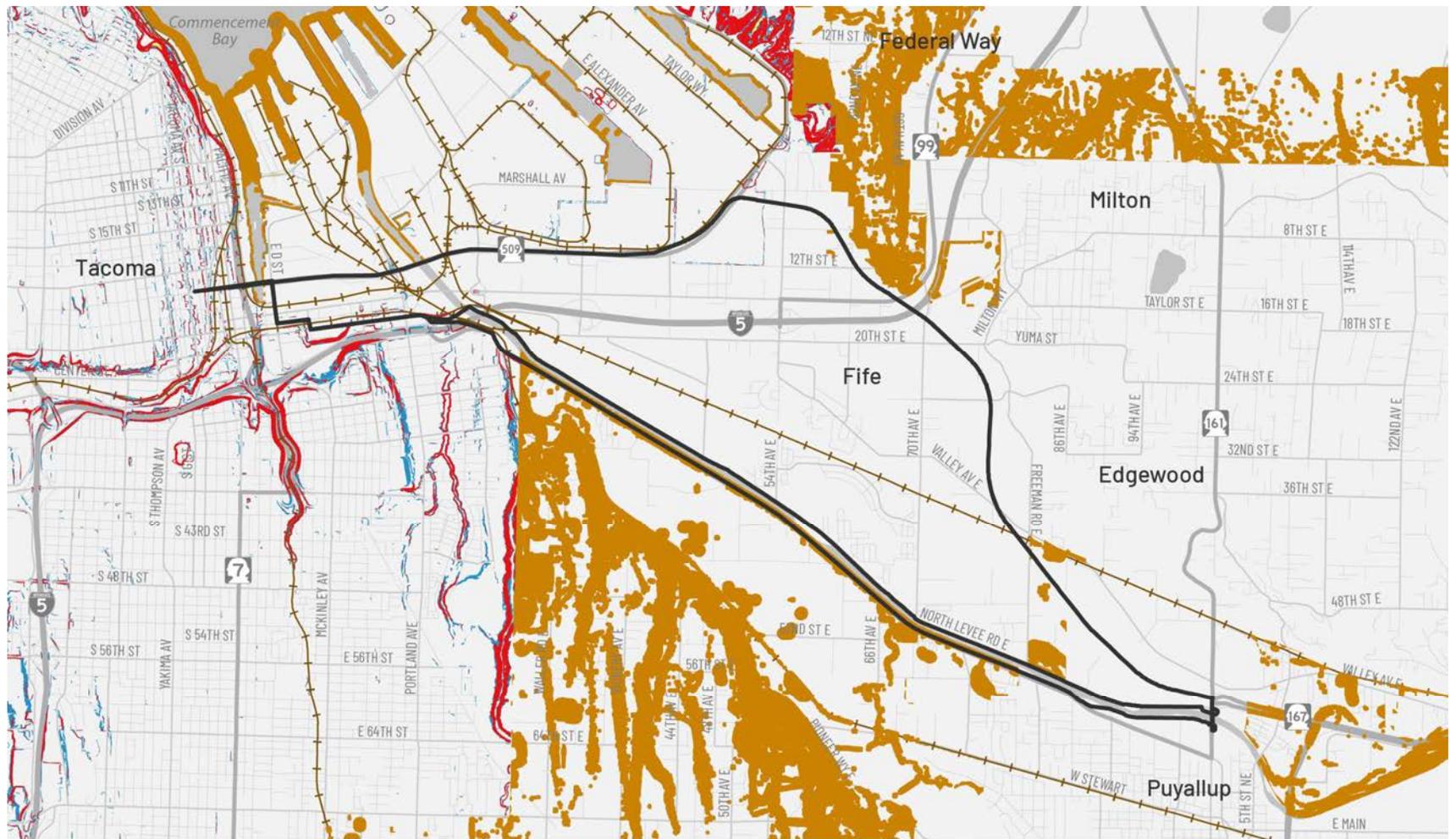
River Road

- ▶ The Lower Puyallup River is a high-risk flood area
- ▶ Areas within the special flood hazard area protected by levee were mapped as Flood Zone X, (minimal flood hazard); however, the River Road levee has been de-accredited by the US Army Corps of Engineers, and is not considered to provide adequate protection from a major floods
- ▶ Areas immediately outside of the levee protection zone are mapped as Zone AE (100-year floodplain)
- ▶ Areas along Roosevelt Ditch, Swan Creek, and Clarks Creek are within a 100-year floodplain

New SR 167

- ▶ Areas along segments of Wapato Creek are within a 100- or 500-year floodplain; Hylebos Creek is within a 100-year floodplain and areas near unnamed creeks and ditches such as Fife Ditch are within a 500-year floodplain

See Figure 22.



Source: City of Tacoma, Pierce County



Erosion and Landslide Hazard Areas

-  Representative Trail Alignment
-  Rail

-  Erosion and Landslide Hazard Area

Steep Slopes

-  > 40%
-  < 25%
-  25% - 40%

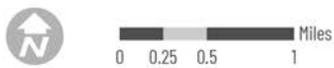
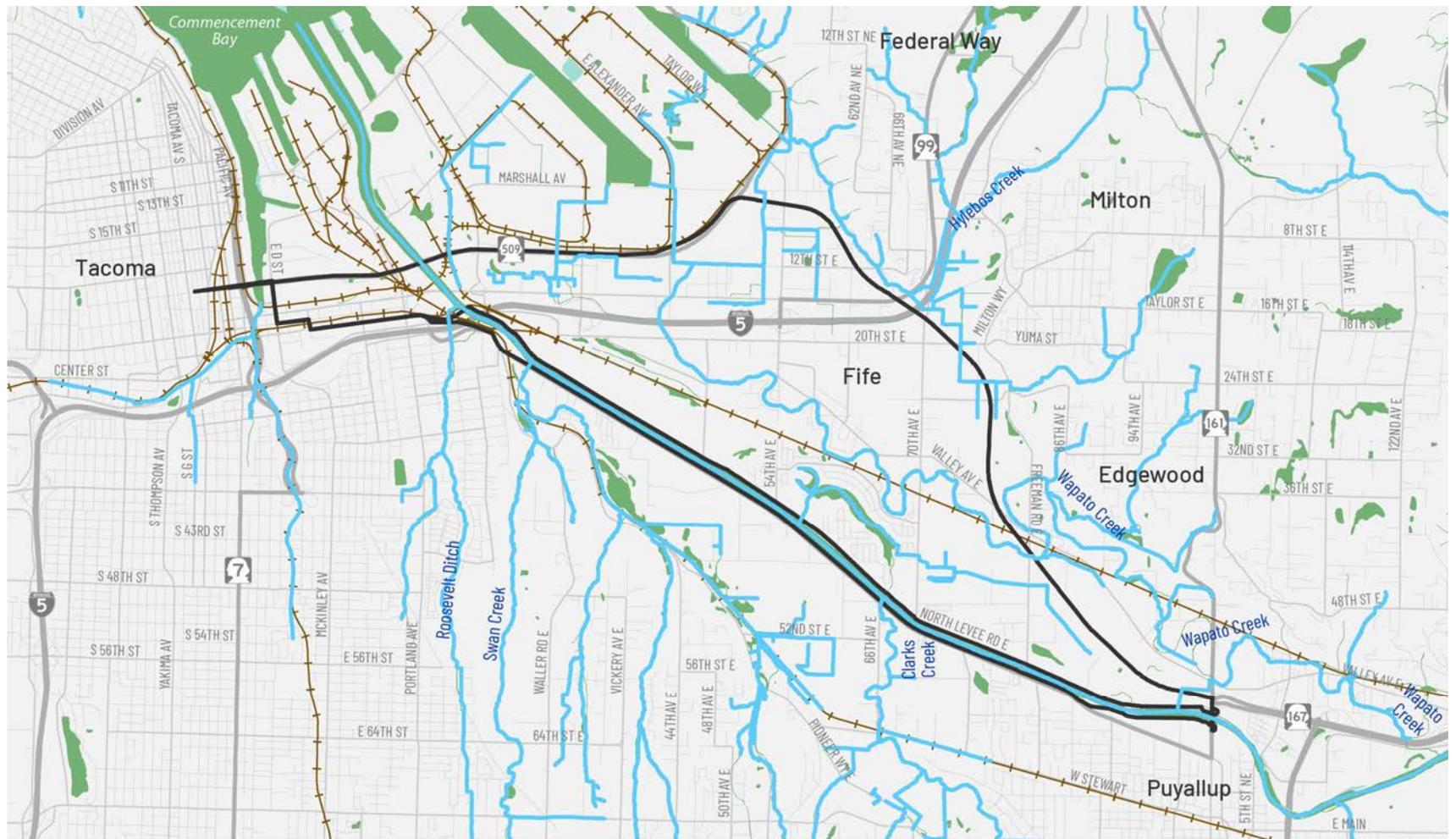


Figure 20 Erosion and Landslide Hazard Areas



Source: National Wetlands Inventory, Pierce County, City of Tacoma

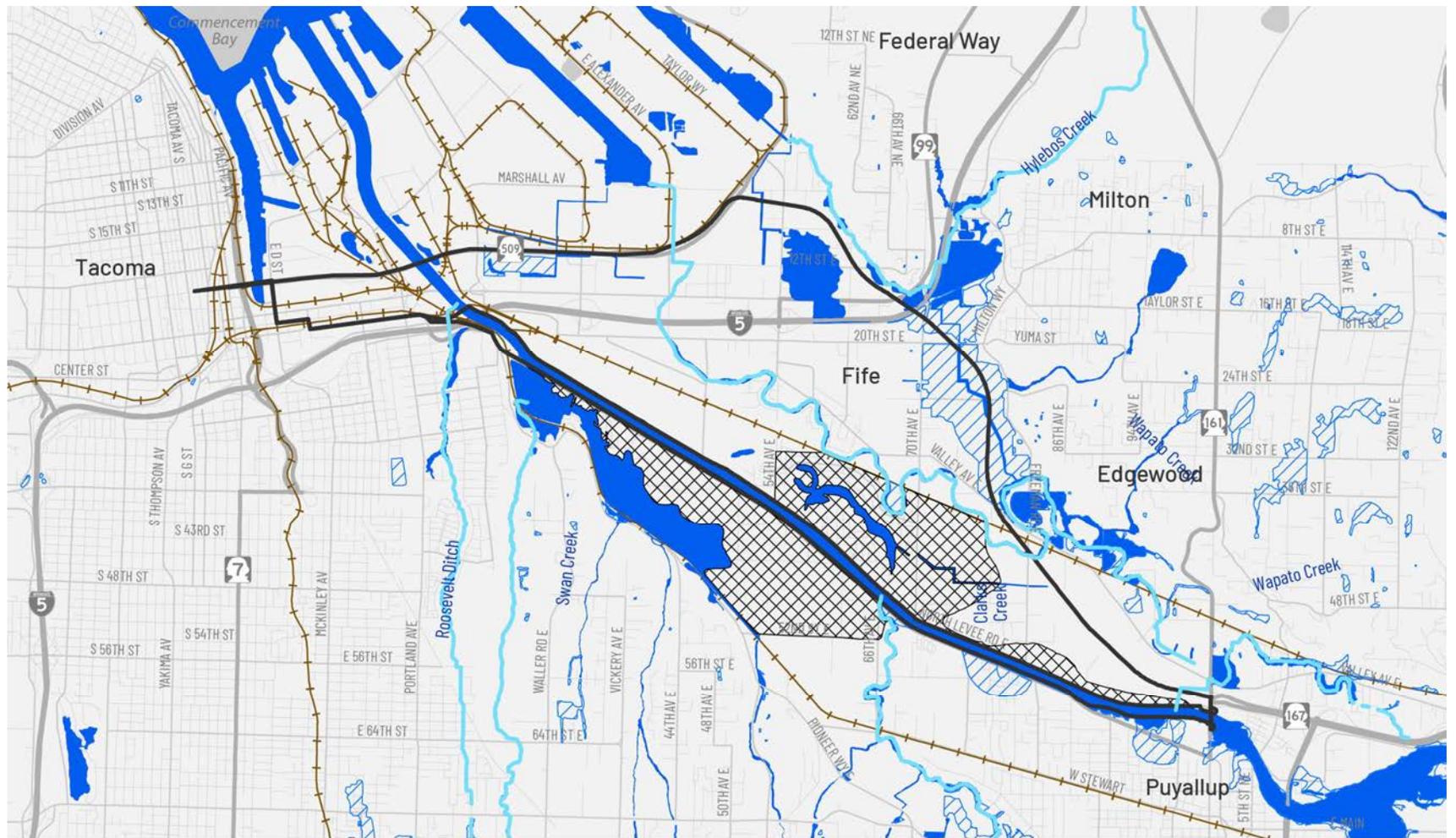


Wetlands and Streams

- Representative Trail Alignment
- Rail
- Rivers/Streams
- Wetlands



Figure 21 Wetlands and Streams



Source: Pierce County, Washington State Department of Ecology Levee Inventory



Floodplains

- Representative Trail Alignment
- Rail
- Rivers/Streams
- De-accredited Levee Protection Area
- 500-year Floodplain
- 100-year Floodplain

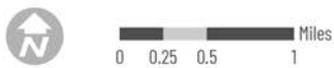


Figure 22 Floodplains

Land Use Context

Levee Road

Land uses adjacent to Levee Road route alignment include a mix of industrial, residential and commercial uses along the main alignment adjacent to the Puyallup River. The land uses within the industrial area include agricultural use. The optional alignments approaching downtown Tacoma and the port are within primarily industrial with some commercial uses.

The representative alignment connecting the existing informal levee trail along the north side of the Puyallup River provides the opportunity for an attractive and aesthetically pleasing trail. Levee Road is a two-lane country road with relatively low traffic volumes and slower speeds. On the opposite side of Levee Road, agricultural uses still provide open green spaces and an appealing viewshed. The Levee Road Options A and B in the northern segment are less compatible with existing land use and less aesthetically pleasing. Existing port and industrial land uses, transportation infrastructure, and vehicle, freight and rail traffic present conflicts for trail users.

River Road

Land uses adjacent to River Road route alignment include residential and commercial uses at the south end and north ends of the alignment with rural/agricultural/park uses along the extent of the main alignment adjacent to the Puyallup River. The land uses along the optional alignments approaching downtown Tacoma and the port are primarily industrial with some commercial.

The representative alignment connecting the existing Riverwalk Trail along the Puyallup River provides the opportunity for an attractive and aesthetically pleasing trail despite the adjacency to a principal arterial with high volume traffic and posted speed limits up to 50 mph. At the northern end of the representative alignments, including Options A and B, near the Port of Tacoma, the surrounding land uses are less compatible and less aesthetically pleasing. Existing port and industrial land uses, transportation infrastructure, and vehicle, freight and rail traffic present conflicts for trail users.

New SR 167

Land uses adjacent to the new SR 167 route alignment include a mix of industrial, commercial, and residential uses along the new alignment. The land uses within the industrial area include agricultural use. The alignment along SR 509 near the Port of Tacoma is proximate to industrial uses.

This route would parallel the general alignment of the new SR 167 facility but would be separated from the freeway. The surrounding agricultural land uses near Fife provide opportunity for some appealing green spaces. While the new SR 167 roadway has the potential to impact the feel and aesthetics of the trail due to traffic and noise, the separation of the trail could mitigate some of the effect. Where the trail diverges from the roadway alignment at the elevated freeway structure, the trail would intersect local roads and travel through a mix of agricultural and industrial land uses. At the northern end, approaching the Port of Tacoma, the route would also interact with industrial land uses and associated freight and rail traffic which presents conflicts for trail users and may be less appealing.

See Figure 23.



Figure 23 Land Use

Threatened and Endangered Species

The existing condition of threatened and endangered species was considered for the study area that encompassed all three (3) alignments. A review of the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation database indicates there is the potential presence of federally listed threatened and endangered species, protected under the Endangered Species Act (ESA), near the study area within Pierce County. The federal listing includes Gray Wolf (proposed endangered status), North American Wolverine (proposed threatened status), Marbled Murrelet (threatened), Streaked Horned Lark (threatened), Yellow-billed Cuckoo (threatened), Oregon Spotted Frog (threatened), and Bull Trout (threatened).

There are three threatened and endangered plant species with the potential to occur in the study area which include Golden Paintbrush, Marsh Sandwort, and Water Howellia. The Gray Wolf, Marbled Murrelet, Yellow-billed Cuckoo, and Oregon Spotted Frog are also classified as endangered by the Washington Department of Fish and Wildlife (WDFW). The determination of the presence

of these threatened and endangered species in the project area would require a biological survey to assess the available habitat required to support these species as well as habitat for migratory birds.

Critical habitat on Puyallup River has been federally designated by the US Fish and Wildlife Service for Bull Trout. The Puyallup River provides important habitat to fish species and provides a connection to the marine habitat of the Puget Sound. Critical habitat identified in the Puget Sound and Puyallup River for Puget Sound Chinook Salmon, Puget Sound Steelhead, and Rockfish in Puget Sound. Essential fish habitat is mapped for salmon species on the Puyallup River including Chinook, Coho, and Pink salmon. Critical habitat for Puget Sound Chinook Salmon is present in a portion of the Puyallup River.

Cultural and Historic Resources

The existing condition of cultural and historic resources was considered for the study area that encompassed all three (3) alignments. Available data and information that has been documented in the general study area was reviewed to identify existing resources. The cultural resources survey of the SR 167

extension project area indicates that the areas within the Puyallup River basin are rich with cultural resources. Several Puyallup-Nisqually villages were potentially located near the SR 167 project as well as the Wapato, Hylebos, and Clarks Creek waterways at the Puyallup River, per the survey report, NEPA Re-Evaluation of the Washington State Department of Transportation SR 167 Extension Project – Puyallup to SR 509, Pierce County, Washington (October 2017). Within the SR 167 alignment, the survey identified:

- ▶ 6 National Register of Historic Places (NRHP) eligible historic properties
- ▶ 1 prehistoric site eligible for listing
- ▶ 1 resource (the Carson Chestnut Tree) eligible to Washington Historic Register (WHR)
- ▶ 2 properties with culturally sensitive grounds for the Puyallup tribe

A review of the Washington Information System for Architectural and Archeological Records Data (WISSARD) predictive model for environmental factors with archaeological resources indicates “survey highly advised for high to very high-risk areas” which includes all the representative route alignments.

Several bridges determined eligible to NRHP include:

- ▶ Milwaukee Railroad-Puyallup River Bridge
- ▶ Puyallup River Bridge (Highway 99/Puyallup Ave/Eells South)
- ▶ Chicago, Milwaukee, St. Paul & Pacific S Turn Trestle Bridge (E 25th Street, between East K Street and East G Street).
- ▶ George Milroy Bridge (SR 167 and 66th Avenue East)

Other eligible resources for listing to NHRP include the Church of the Indian Fellowship (at 2232 E 28th Street). The Indian Cemetery, at Highway 99, is listed on the WHR.

10 Cost Comparison

To develop order of magnitude costs to compare the alternatives at a conceptual level with one another, a 12-foot wide linear shared use pathway was created in Civil 3D to represent the footprint of each of three alternative alignments. This shared use path footprint was then overlaid on a topographical surface to determine the impact on the available right-of-way along River Road, Levee Road and the New SR 167.

This method illustrates areas of significant capital investment, including:

- ▶ Retaining walls and/or earthworks that would be required to construct the trail alongside the river.
- ▶ Significant crossings or underpasses that would be needed to maintain trail continuity
- ▶ The total length of each trail to be constructed and maintained, excluding areas that can leverage existing trail networks.

Key Capital Cost Indicators

The following cost indicators were highlighted during this first phase of alignment development.

Levee Road

- ▶ Bicycle and Pedestrian Trail for approximately 8.2 miles (via Fishing Wars Memorial Bridge) / 7.5 miles (via new bridge connection)
- ▶ Potential for two bicycle and pedestrian bridges at:
 - 66th Ave E bridge (reconfigure)
 - Puyallup River and E Bay St/ E 25th St
 - Underpass where the trail crosses the railroad at-grade
- ▶ Retaining Walls
- ▶ Fencing

River Road

- ▶ Bicycle and Pedestrian Trail for approximately 5.7 miles
- ▶ Potential for three bicycle and pedestrian bridges or bridge widening at:
 - Clarks Creek and under the 66th Ave E bridge
 - Swan Creek
 - E Bay St/ E 25th St
- ▶ Retaining Walls
- ▶ Fencing

New SR 167

- ▶ Bicycle and Pedestrian Trail for approximately 9.4 miles
- ▶ Proposed trail along the highway grading line within the SR 167 right-of-way
- ▶ Fencing

Property Acquisition

Property acquisition will be a key cost driver. During the route refinements process, property acquisition will be estimated for the refined alignments based on existing right-of-way and parcel data.

11 Route Refinements

The three representative alignments and options for routing into downtown Tacoma were further refined to develop the alignments to be evaluated in the alternatives analysis. The refinements were developed based on GIS data layers such as property and right-of-way boundaries, topographical data, CADD drawing overlays, and data collected during field site visits. The refinements were presented at the Stakeholder Advisory Group (SAG) meeting in November 2019 and further revisions were made based on the SAG input.

The most significant recommendation made by the SAG was to add a new Levee Road alignment along the north side of Levee Road as an alternative to the river side Levee Road alignment option. While the new Levee Road North alignment was not included in the Existing Conditions assessment, the conditions were considered approximately the same for the one-quarter mile study that was done for the Levee Road South alignment. Additional data required to evaluate this alignment was collected as needed.

A total of 4 main alignments with options for routing into downtown Tacoma were evaluated.

Levee Road South

As shown in Figure 24, the main alignment along Levee Road South follows the existing informal unpaved trail on the Puyallup River Bench from the connection at Meridian Avenue to approximately the intersection of Frank Albert Road, where 3 options were considered for routing to downtown Tacoma, on the west side of the Puyallup River.

The alignment along the river bench provides a 12-foot wide trail for the extent of the path which requires construction of retaining wall, into the levee structure itself, to provide sufficient width, as well as fencing on the river side to meet trail standards for safety along a slope.

This alignment provides a fully separated 12-foot wide trail with retaining wall and fencing along the river side and would not require right-of-way acquisition; however, would require permit and easements from Pierce

County to build on the existing unpaved trail and on the levee as well as a permit from the US Army Corps of Engineers (USACE) to build on the levee segment within their jurisdiction. Typical sections for this segment of trail are shown in Figure 24.

Option A

As shown in Figure 24, the Option A routing follows the existing unpaved trail and then continues along the existing paved roadway on the Union Pacific Railroad private property. This route would require a rail crossing on the railroad property. A railroad underpass trail segment is shown in Typical Section 6 in Figure 24.

A new bicycle/pedestrian bridge crossing would be needed to connect from the east side of the Puyallup River to downtown Tacoma. A new bridge would need to span the river and railways and would include a ramp to/from the bridge on both sides of the river to provide access for all ages and abilities.

This section of trail would provide a separated 12-foot wide shared path bridge crossing with ramp access. The trail segment for the bridge is shown in Typical Section 7 in Figure 24.

After the river bridge crossing and ramp connection, the trail connects to E Q Street and then continues west on E Bay Street, and to the Portland/Puyallup transition loop.

At the transition loop, Options A, B and C share the same alignment. The existing conditions and parcel data indicate that the transition loop segment is slightly constrained by the existing right-of-way, allowing for an 8-foot wide path through this area, as shown in Typical Section 9 in Figure 24.

The trail continues west along the Puyallup Avenue corridor, with a 12-foot width, to E D Street, and north to the Thea Foss Esplanade. Typical Section 10 in Figure 24 shows the Puyallup Avenue trail segment.

Option B

As shown in Figure 24, Option B would cross Levee Road at Frank Albert Road and continue north along the local roadway to 20th Street E and would continue east to reconnect to the Union Pacific Railroad property. The trail would connect to the railroad property at-grade rail crossing on 20th Street E and would connect to the new bicycle/pedestrian bridge crossing as shown for Option A, with the same routing into downtown Tacoma.

Option C

As shown in Figure 24, Option C would also cross Levee Road at Frank Albert Road and continue north along the local roadway to 20th Street E and would continue east. Option C connects via 20th Street E to Pacific Highway E and would continue east to the Eells Street Bridge and Fishing Wars Memorial Bridge to connect to the Portland/Puyallup transition loop to the Puyallup Avenue corridor, with the same

routing into downtown Tacoma as for Options A and B.

The trail continues west along the Puyallup Avenue corridor to E D Street, and north to the Thea Foss Esplanade, as it does for Options A and B.

Levee Road North

As shown in Figure 25, the main alignment along Levee Road North follows along the north side of Levee Road.

This alignment would provide a 12-foot wide trail and opportunity for separation, which would require property acquisition. A roadside ditch along this alignment would need to be either relocated or enclosed in a culvert to accommodate the trail. The typical sections for this alignment is shown in Figure 25.

Options A, B and C are as described and shown for Levee Road South.

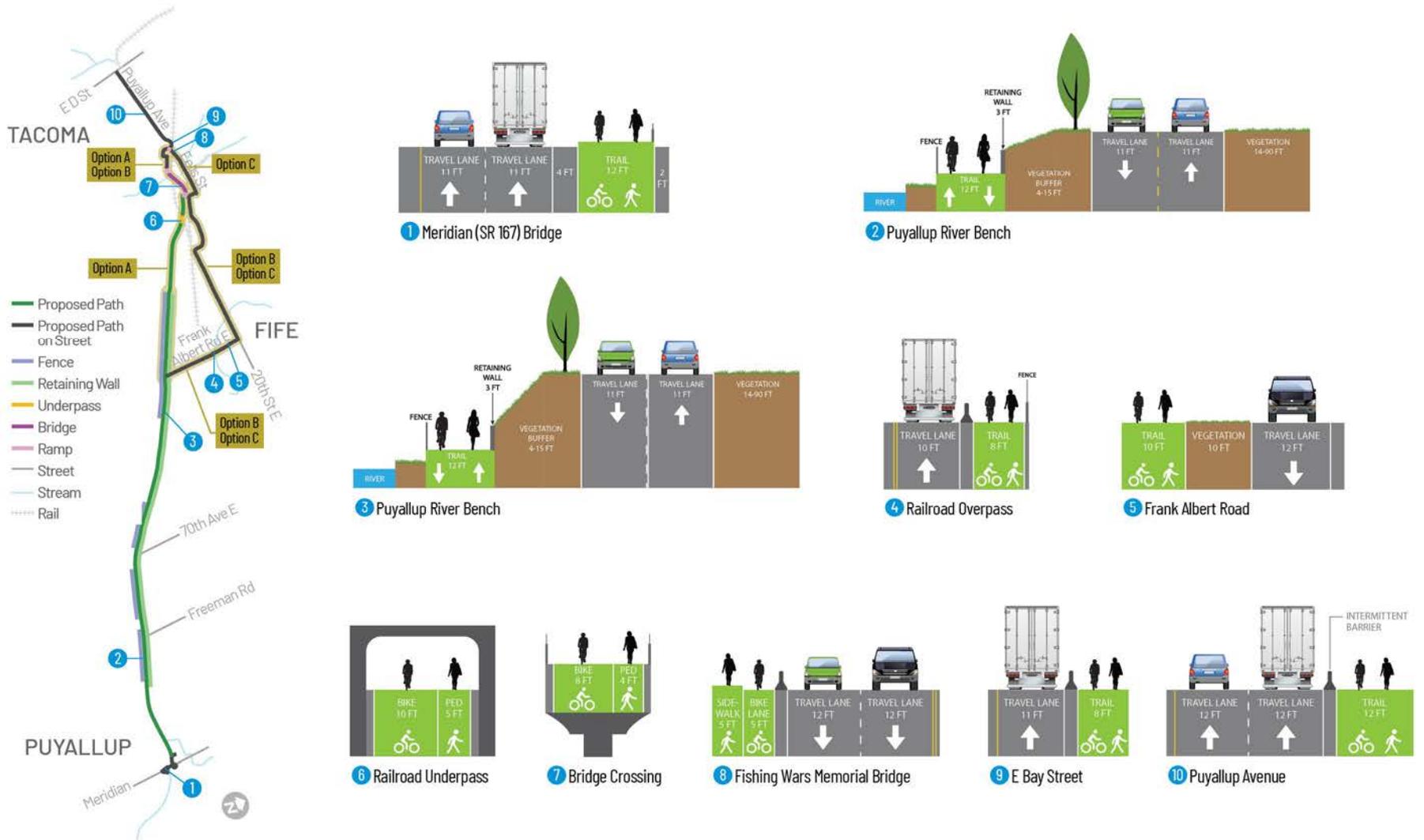
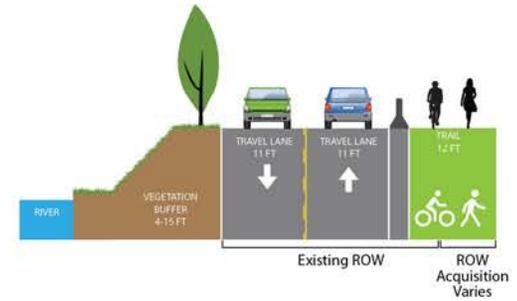
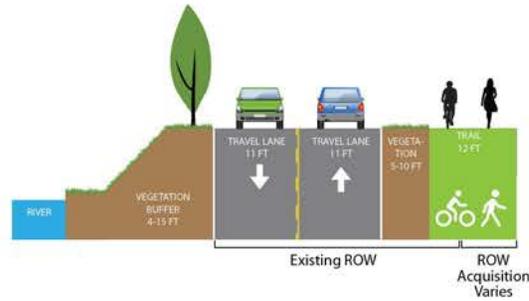
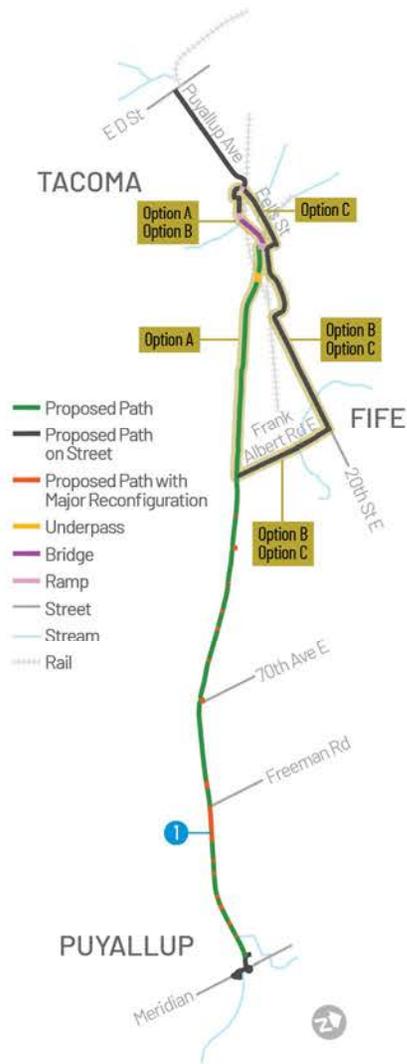
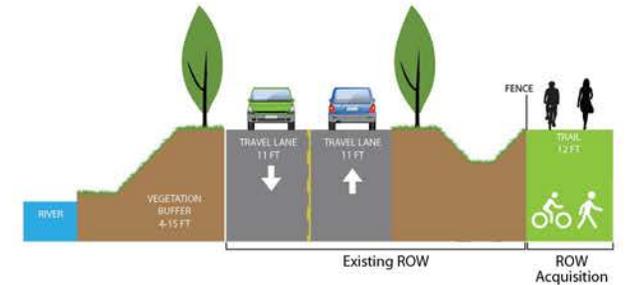
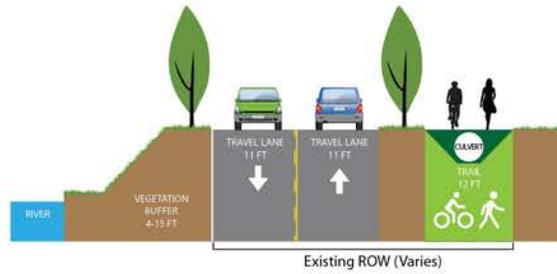


Figure 24 Levee Road South Alignment with Typical Trail Sections



On most of Levee Rd



1 Option for ditch culvert or ditch relocation

Figure 25 Levee Road North Alignment with Typical Trail Sections

River Road

As shown in Figure 26, the main alignment is located on the north side of River Road along the Puyallup River between the existing roadway and riverbank. The trail alignment maximizes the existing right-of-way outside of the roadway by repurposing the roadway shoulder and extending the paved section to include a shared use path.

Given the existing right-of-way constraints, segments of this alignment require major and minor roadway reconfiguration. In some areas, the right-of-way constraints would require major roadway reconfiguration such as repurposing a traffic lane, or the center two-way left turn lane to accommodate a 10-12-foot wide trail as shown in Typical Section 1 in Figure 26. In other areas, minor roadway reconfiguration would be required, such as re-striping, to shift the roadway to repurpose the existing roadway shoulders as shown in Typical Section 2 in Figure 26. Further discussion of these reconfigurations is included in Section 2 Alternatives Evaluation.

In addition, there are segments of the roadway that are constrained by existing

bridges over ditch and railways. The approach to the River Road bridge segment over the railway south of Pioneer Way was to build a separate bicycle/pedestrian bridge adjacent to the existing roadway bridge to allow for a full 12-foot wide shared use pathway at this gap, as shown in Typical Section 3 in Figure 26.

The existing conditions and parcel data indicate that the segment on E Bay Street is constrained by the existing right-of-way, allowing for an 8-foot wide path through this area immediately adjacent to the railway that is on an elevated structure, as shown in Typical Section 4 in Figure 26.

Option A

As shown in Figure 26, Option A continues west on E 26th Street, from E Bay Street, requiring a difficult crossing of E Portland Avenue which is currently unsignalized and without pedestrian crossing. The route continues west on E 26th Street to E G Street, then north to E 25th Street, west to E D Street, then north to the Thea Foss Esplanade. The 12-foot wide separated trail segment along the E 26th Street segment is shown in Typical Section 5 in Figure 26.

Option B

As shown in Figure 26, Option B crosses below the railway on E Bay Street and connects north to the Portland/Puyallup transition loop, avoiding the need to cross E Portland Avenue. As mentioned in the Levee Road alignment options, the transition loop segment is slightly constrained by the existing right-of-way, allowing for an 8-foot wide path through this area. The trail segment at the loop is shown in Typical Section 9 in Figure 24.

The trail continues west along the Puyallup Avenue corridor to E D Street, and north to the Thea Foss Esplanade. The 12-foot wide separated trail segment along Puyallup Avenue is shown in Typical Section 6 in Figure 26.

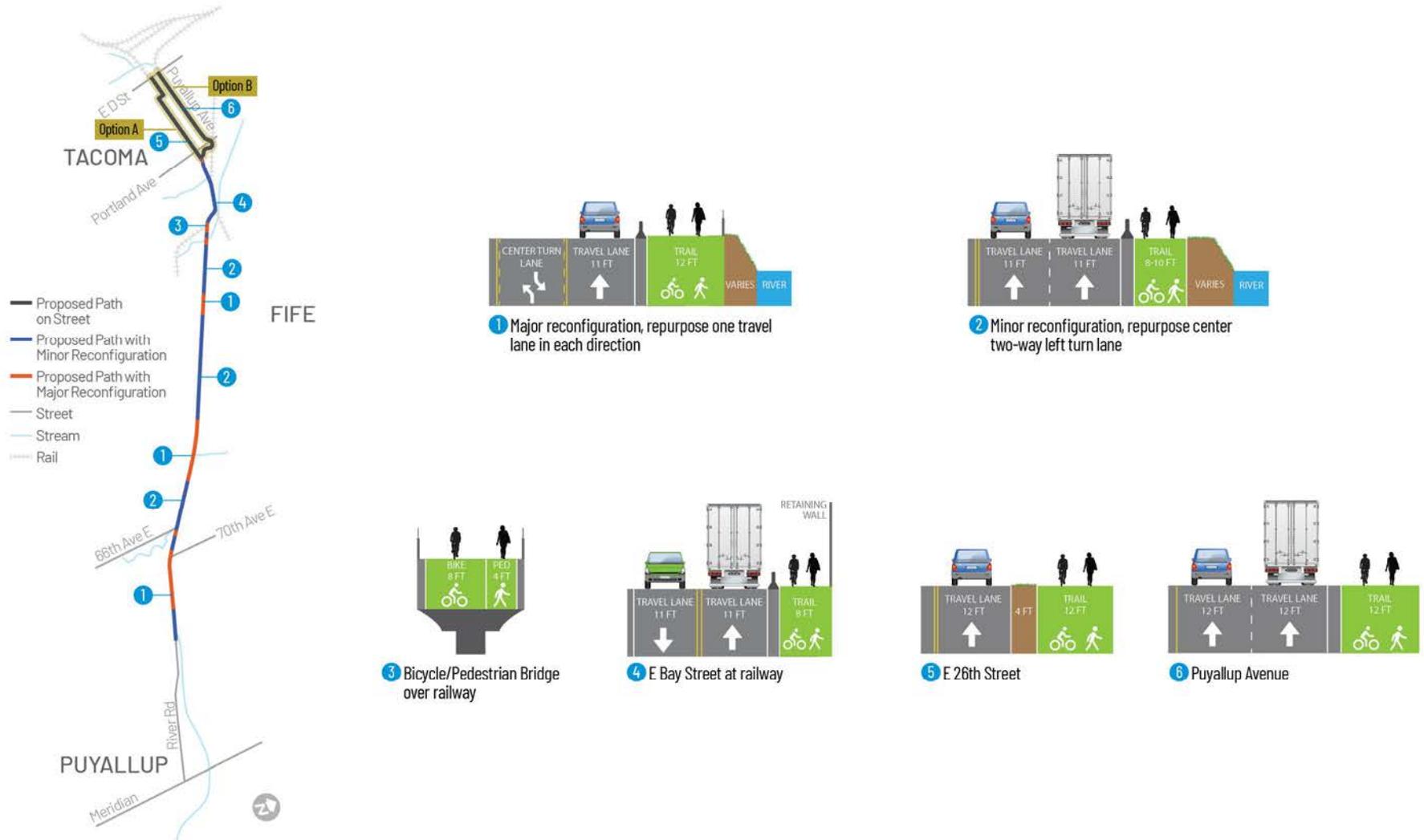


Figure 26 River Road Alignment with Typical Trail Sections

New SR 167

As shown in Figure 27, the main alignment is located along the new SR 167 roadway alignment from Meridian Avenue, through Fife, to the SR 509 spur and into downtown Tacoma. The trail alignment generally follows the new SR 167 roadway, within the right-of-way acquired by WSDOT for the SR 167 Completion Project. The 12-foot wide, fully separated trail is along the south side of the new SR 167 until Freeman Road, when the roadway facility continues on an elevated structure, and the trail would remain at-grade and continue on local streets, connecting north on Freeman Road to Valley Avenue E.

On Freeman Road, there is one difficult at-grade rail crossing and the crossing at Valley Avenue E is currently signalized. At this juncture, the trail shifts to the north side of the new SR 167 roadway and again continues along the roadway alignment.

The trail connects to the Interurban Trail north of 20th Street E and connects to the planned trail segment between E 20th Street and the SR 509 spur to Alexander Avenue as shown in Figure 27. This trail segment is the SR 167 Bicycle and

Pedestrian Subcommittee recommended alternative and is being planned (and would be funded separately) under the SR 167 Completion Project. This segment is shown in Figure 27 as a dotted green line.

The new SR 167 trail segment considered in this study is shown in Typical Sections 1 and 3 in Figure 27. The Freeman Road segment is shown in Typical Section 2 and the SR 509 spur is shown in Typical Section 4 in Figure 27.

Option A

As shown in Figure 27, Option A departs SR 509 and continues south on Alexander Avenue. There is a significant right-of-way constraint at SR 509 and Alexander Avenue due to the bridge crossing of the Wapato Ditch which constrains the trail to a 4-foot width for approximately 200 feet. Typical Section 5 shown in Figure 27 illustrates the 4-foot wide trail at this point.

Existing right-of-way along Alexander Avenue allows for a separated 12-foot wide trail (see Typical Section 6 in Figure 27) to Pacific Highway E. Option A continues west on Pacific Highway E with a 12-foot wide separated trail profile as shown in Typical

Section 7 in Figure 27. This alignment crosses the Puyallup River via the Eells Street Bridge and the railways via the Fishing Wars Memorial Bridge. While the Eells Street Bridge is planned for reconstruction, in its current condition the bridge does not provide sufficient right-of-way for a shared use path. This presents a gap in the trail alignment for the near-term. However, the Fishing Wars Memorial Bridge, opened in September 2019, provides a sidewalk and sufficient width for a bike lane. While there is enough right-of-way for a 5-foot bike lane in the future, there is no striping on the roadway designating the bike lane as currently there is no connection on either end of the bridge. The trail segment at the Fishing Wars Memorial Bridge is illustrated in the Levee Road alignment in Typical Section 8 in Figure 24.

After crossing the river and rail, Option A would connect to the Portland/Puyallup transition loop via a ramp connection. As mentioned in the Levee Road and River Road alignment options, the transition loop segment is slightly constrained by the existing right-of-way, allowing for an 8-foot

wide path through this area. The trail segment at the loop is shown in Typical Section 9 in Figure 24. Alternative design options for this loop could be considered, including the conversion of travel lanes into protected space for active transportation users.

Option A continues west along the Puyallup Avenue corridor to E D Street, and north to the Thea Foss Esplanade. The 12-foot wide separated trail along Puyallup Avenue is shown in Typical Section 9 in Figure 27. Other design options for this segment, including a two-way protected cycle track and sidewalk, would be considered in future phases of this project.

Option B

As shown in Figure 27, Option B remains on the south side of SR 509 until the Port of Tacoma/12th Street E off ramp, where the trail alignment goes south to the intersection, crossing 12th Street E south, and continuing back north toward SR 509 to the south side of S Frontage Road.

The alignment remains on the frontage road until the off ramp just west of Milwaukee Way, where the trail reconnects to the south shoulder of the SR 509 facility in order to make the crossing over the railways and Puyallup River. This reconnection point presents a difficult crossing given the heavy freight use and high traffic speeds in this area.

The trail remains on the SR 509 shoulder, with right-of-way constraints that would allow for a maximum trail width of 10 feet and would require a physical barrier separation from the adjacent high-speed traffic traveling the state route. The trail segment on the SR 509 roadway shoulder is shown in Typical Section 8 in Figure 27.

West of the railways, the trail crosses one SR 509 off-ramp to connect to the north side of E 21st Street that is south of SR 509. The off-ramp crossing presents another difficult crossing for trail users. The Option B alignment continues west on E 21st Street to E D Street, and south to the Thea Foss Esplanade at Dock Street.

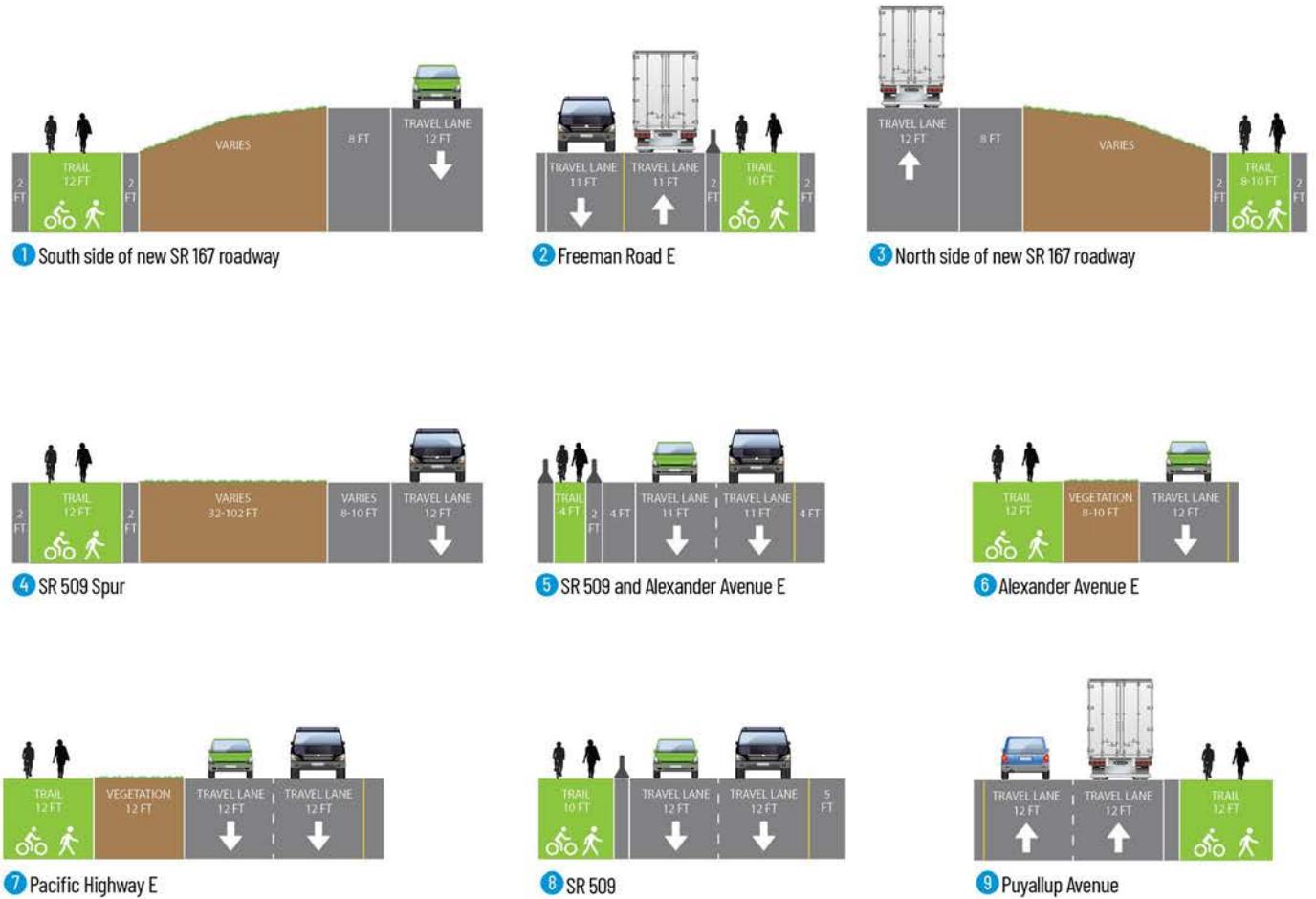
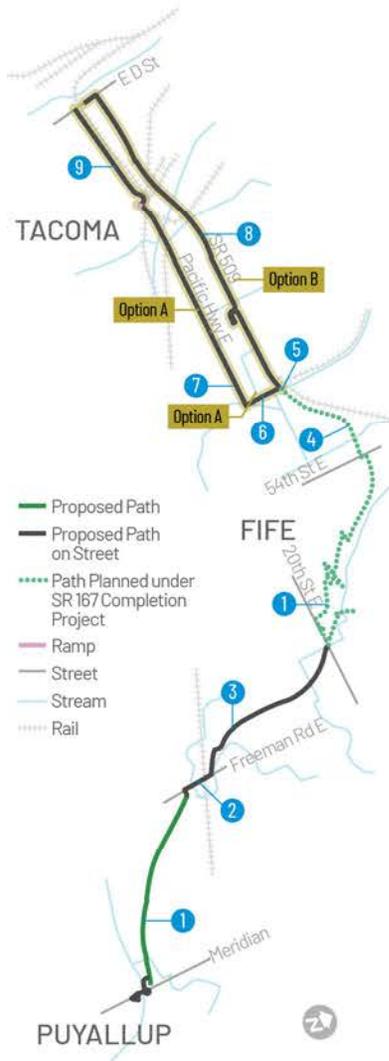


Figure 27 New SR 167 Alignment with Typical Trail Sections

12 Alternatives Evaluation

A total of four main alignments with routing options to downtown Tacoma were evaluated to determine how effectively each alternative met the objectives of the criteria developed by the SAG. The criteria include:

- ▶ Safety
- ▶ Connections
- ▶ Accessibility
- ▶ Equity
- ▶ Environment and Community Fit
- ▶ Cost

Data collected during the existing conditions evaluation and site visits informed the evaluation and each alternative was rated on a scale of 1 to 5 to assess how effectively the alternative and option met the objectives (1 being the least effective and 5 being the most effective). The criteria were not weighted, therefore had equal impact on the overall rating of the alternative. The rating includes an overall score for each criterion.

The effectiveness of each downtown Tacoma route option was evaluated, and the best performing option was then paired with a main alignment to compare the

alternatives. The 4 alignments shown in Figure 28 are:

- ▶ Levee Road South (with Option C)
- ▶ Levee Road North (with Option C)
- ▶ River Road (with Option B)
- ▶ New SR 167 (with Option A)

The complete detailed Alternatives Evaluation and Rating Matrices for all alignments and options, are provided in Appendix B. The Alternatives Evaluation included additional traffic analysis to assess the feasibility of the River Road alignment. This analysis included options for reconfiguring travel lanes within the existing roadway to accommodate a shared use path (commonly known as a “road diet”). These findings are discussed in this section and an Executive Summary of the traffic analysis is provided in Appendix C.

Cost Estimates

A planning level cost estimate was included for all the alternatives, as cost was a criterion for the near-term implementation objective for the future trail. General

assumptions for the cost estimates for all the alternatives include:

- ▶ Trail costs were estimated for a 12-foot wide paved trail for the entire length of each route (unless otherwise noted)
- ▶ Cost estimates do not include amenities (such as lighting, restrooms, benches) or physical barriers for trail separation
- ▶ Estimates were based on WSDOT’s Planning Level Cost Estimate (PLCE) tool (in 2016 dollars that were escalated to 2019 dollars)
- ▶ Right-of-way costs were estimated based on available property values provided by Pierce County tax assessor data (2018 tax data)
- ▶ Estimated construction costs included mobilization, utility relocation, clearing/grading, staging, structures, retaining wall, pavement, drainage, stormwater detention/treatment, roadside fencing/seeding/ restoration, traffic services and safety, workzone traffic control where applicable

- ▶ Total cost estimates included preliminary engineering, construction engineering, right-of-way acquisition, wetland mitigation, miscellaneous costs, construction contingency and sales tax
- ▶ Trail costs do not include projects planned and pursued by local jurisdictions

It is important to note that these are year 2019 cost estimates based on current industry pricing and they do not include inflation costs as the year of construction is not known. Cost estimates for a preferred alignment should consider risk analysis. Project specific cost considerations are discussed in the following section for each alignment. See Appendix D for more

detailed cost estimate and right-of-way impact information.

The following section summarizes the findings of the Alternatives Evaluation.



Figure 28 Refined Alternative Alignments Evaluated in the Alternatives Analysis

Criteria	Objectives	Levee Road South (with Option C)	Levee Road North (with Option C)	River Road (with Option B)	New SR 167 (with Option A)
Safety	<ul style="list-style-type: none"> The route promotes a positive perception of personal safety by users of all ages and abilities The route manages interactions with vehicle and rail traffic particularly at intersections The route has clear sightlines that reduce the likelihood for collisions with other trail users 				
Connections	<ul style="list-style-type: none"> The route provides connections to other active transportation facilities The route provides connections to key destinations The route provides access to key transit connections 				
Accessibility	<ul style="list-style-type: none"> The route is comfortable for cyclists and pedestrians of all ages and abilities The route is direct and intuitive The route's elevation profile is navigable for all users 				
Equity	<ul style="list-style-type: none"> The route is accessible to users who do not drive/have access to a household vehicle The route serves communities experiencing health & transportation disparities¹ The route serves and/or is easily reachable to areas with significant population density 				
Environment and Community Fit	<ul style="list-style-type: none"> The route has a positive social impact The route has a positive environmental impact The route is attractive and aesthetically appealing The route respects and reflects cultural and historic resources 				
Cost	Length of trail to be maintained (miles) ²	8.4	8.4	5.9	9.7
	Approximate total cost in millions (M) ³	\$56M	\$48M	\$30M	\$15M
	Approximate cost per mile in millions (M) based on length of trail	\$7M	\$6M	\$5M	\$2M
	<ul style="list-style-type: none"> The route is feasible to implement in the near-term⁴ 				
Total Assessment Rating		3.4	3.4	3.6	3.5

Footnotes:

¹Source is Washington State Health Disparities map at fortress.wa.gov

²Trail length for SR 167 does not include the segments planned under the SR 167 Completion Project between 20th Street E and SR 509 to Alexander Avenue E (approximately 3.3 miles)

³Trail costs were estimated for a 12 foot wide paved trail for the entire length of the proposed route, unless otherwise noted, and does not include amenities. Costs were estimated using the Planning Level Cost Estimation (PLCE) Tool (2016 dollars escalated to 2019 dollars) and Pierce County tax parcel data (2018 property values). Estimated construction costs include mobilization, utility relocation, clearing/grading, staging, structures, retaining wall, pavement, drainage, stormwater detention/treatment, roadside fencing/seeding/restoration, traffic services & safety, workzone traffic control where applicable. Total cost estimate includes preliminary engineering, construction engineering, right of way acquisition, wetland mitigation, miscellaneous costs, construction contingency, and sales tax. Trail costs do not include projects planned and pursued by local jurisdictions such as the Canyon Road Extension bridge at 70th Street, proposed Puyallup Avenue corridor improvements, Eells Street Bridge replacement, or costs that are associated with shared use paths planned as part of the SR 167 Completion Project. Project-specific cost considerations are as follows:

•**Levee Road South**- Cost includes retaining wall, fencing, bike/ped ramp modification (at Eells Street Bridge), right of way acquisition, wetland mitigation

•**Levee Road North**- Cost includes fencing, new culvert or ditch rerouting, bike/ped ramp modification (at Eells Street Bridge), right of way acquisition, wetland mitigation

•**River Road**- Cost includes new pedestrian bridge (over the railway south of Pioneer Way), pavement marking removal, some roadway re-channelization. Cost does not include potential separation barriers.

•**New SR 167**- Clearing/grading, drainage, stormwater detention/treatment costs were not included for the section of existing shared use sidewalk on Pacific Avenue or the section along the new SR 167 roadway, which would be included in the roadway construction costs. Costs do not include share use path segment between 20th St E and SR 509 to Alexander Avenue E, planned as part of the SR 167 completion project.

⁴Near-term feasibility considers total cost as well as other criteria metrics in assessing reasonableness to invest in next steps for implementation; Projects less than \$15M (more effective); >\$15M (moderately effective); >\$25M (less effective)

Figure 29 Alternatives Evaluation Rating Summary

Levee Road South with Option C

The Levee Road South main alignment along the existing unpaved trail on the Puyallup river bench presents an opportunity for a direct route with an aesthetic river side shared use trail without roadway crossing conflicts for trail users. However, the feasibility of this alignment is significantly impacted by the river flooding that occurs; directly impacting the investment and on-going maintenance requirements of the trail. The construction of the shared use path along the existing unpaved trail may not be permitted by Pierce County due to the impact to the levee itself, which requires retaining wall structures, as well as impediments to the County's access for maintenance of the river bench and levee.

Option C was the best performing option for routing into downtown Tacoma. Options A and B both require a new bridge crossing over the Puyallup River and railways which is a significant capital cost and presents environmental impacts and permitting challenges. Additionally, the use of Union Pacific Railroad property for trail access may not be permitted which makes the feasibility of these options uncertain.

Option C presents an opportunity to cross the river and railways on the existing Eells Street Bridge and Fishing Wars Memorial Bridge; however, the bridge crossing at Eells Street presents a gap in the 12-foot shared use path due to its current right-of-way constraints.

As shown in Figure 29, the total assessment rating for the Levee Road South alignment with Option C was 3.4 out of 5. In comparison with the other alternatives, this alignment rated well for connections, accessibility and equity criteria but rated poorly for the cost criteria, being the most expensive alignment to implement, with an estimated total of approximately \$56 million.

In addition to the assumptions described under Cost Estimates, the Levee Road South alignment costs included:

- ▶ Retaining walls and fencing
- ▶ Bicycle and pedestrian ramp modifications to connect to Eells Street Bridge
- ▶ Right-of-way acquisition
- ▶ Wetland mitigation costs

Costs did not include Eells Street Bridge reconstruction.

Levee Road North with Option C

The Levee Road North main alignment was recommended by the SAG as an alternative to the alignment on the river bench to avoid the flooding issues. This alignment presents an opportunity for a direct route between Puyallup to Tacoma, however, the feasibility of this alignment is significantly impacted by property impacts requiring right-of-way acquisition, associated costs, and potential property owner controversy. In addition, the environmental impacts are significant for wetlands and a potential jurisdictional roadside ditch presents mitigation costs and permitting challenges.

Again, Option C was the best performing option for routing into downtown Tacoma and the evaluation of these options is the same as discussed for Levee Road South.

As shown in Figure 29, the total assessment rating for the Levee Road North alignment with Option C was 3.4 out of 5. In comparison with the other alternatives, this alignment rated well for safety and equity criteria but rated poorly for the cost criteria, being the second most expensive alignment to implement, with an estimated total of approximately \$48 million.

In addition to the assumptions described under Cost Estimates, the Levee Road South alignment costs included:

- ▶ Fencing
- ▶ New culvert or ditch rerouting
- ▶ Bicycle and pedestrian ramp modifications to connect to Eells Street Bridge
- ▶ Right-of-way acquisition
- ▶ Wetland mitigation costs

Costs did not include Eells Street Bridge reconstruction.

River Road with Option B

The River Road main alignment presents an opportunity for the most direct route between Puyallup and Tacoma along the riverside of River Road and avoids the need for a river crossing. This route provides good connections to residential and commercial land uses west of River Road as well as key transit connections. The feasibility of this alignment is significantly impacted by the right-of-way constraints between the roadway and the river bank as well as the existing conditions of River Road which include high traffic volumes and speeds. The feasibility of this alternative presents a

challenge due to the need for further analysis of future roadway conditions, after the new SR 167 is open to traffic, and the unknown impacts of reconfiguring of River Road. In addition, the future turn back of the roadway to the local jurisdiction(s) by WSDOT presents an unknown roadway classification and condition as well. Additional traffic analysis was performed to address these unknowns at a high-level to inform the feasibility of this alternative. This is discussed below.

Of the two options evaluated, Option B was the best performing option for routing into downtown Tacoma. Option A presented a difficult, uncontrolled crossing at Portland Avenue as well as many driveway conflicts and industrial uses along E 26th Street. The slope on E 26th Street may also be difficult for trail users of all ages and abilities.

Option B provides an opportunity to connect to the improvements proposed by the city of Tacoma along the Puyallup Avenue corridor. This option avoids the difficult Portland Avenue crossing and still provides a direct route into downtown.

As shown in Figure 29, the total assessment rating for the River Road alignment with Option B was 3.6 out of 5. In comparison with the other alternatives, this alignment rated well for connections, accessibility, and equity criteria but rated poorly for safety, environment and community fit, and cost criteria. While not the most expensive to implement, the estimated total cost is approximately \$30 million.

In addition to the assumptions described under Cost Estimates, the River Road alignment costs included:

- ▶ New bicycle/pedestrian bridge (over railway south of Pioneer Way)
- ▶ Pavement marking removal
- ▶ Minor roadway rechannelization
- ▶ Right-of-way acquisition

Costs did not include physical barrier separation which may be an optional feature of the trail depending on the available space between the roadway and trail and posted vehicle speeds on the adjacent roadway.

Traffic Analysis

The River Road design that was evaluated through the Alternatives Analysis looked at ways to build a trail between the existing

road and the river, with no impacts to the existing road configuration. However, upon seeing the costs and design constraints associated with this approach, members of the SAG requested additional analysis of a “road diet” option for River Road.

A high-level traffic analysis of River Road was performed to determine the feasibility of roadway reconfiguration to accommodate a shared use path. An Executive Summary of the findings is included in Appendix C.

Overall, the high-level findings provide some insight into the feasibility of reconfiguring River Road to accommodate a shared use path; however, further analysis would be needed to understand the functionality of River Road once the new SR 167 roadway opens. This option did not go through the full Alternatives Analysis so it was not scored against the other alternatives and there are no cost estimates available.

To better understand the feasibility of the River Road trail main alignment for this study, a preliminary traffic analysis was conducted for the trail segment of River Road between Pioneer Way and 20th Street

NW (approximately 4 miles). The team evaluated the following:

- ▶ Existing safety conditions
- ▶ Impacts to travel time for posted speed modifications
- ▶ Impacts for proposed 3-lane roadway configuration (removal of one travel lane in each direction while maintaining the two-way center turn lane)
- ▶ Impacts for proposed 4-lane roadway configuration (removal of two-way center turn lane (with controlled intersections))

The findings indicate that River Road in its existing condition experiences a significant number of vehicle crashes, according to WSDOT’s 5-year crash data (2012-2016) which includes serious injury or fatalities along the corridor between Pioneer Way E and 18th Street NW.

A contributing factor to the safety issues on the congested corridor is the posted speed limits which are 45-50 mph in the segment between Pioneer Way and 20th St NW. The study team evaluated the impact to travel times that would result from reduced posted

speed limits for this 4-mile segment. The existing travel time at the 45-50 mph speed limits show a total travel time of 5 minutes during “free flow” traffic. The findings indicate that the travel time increases to 6.2 minutes with a reduced posted speed limit of 40 mph, and 7.1 minutes with a reduced posted speed limit of 35 mph through the same 4-mile segment on River Road. Overall the travel time increases 1-2 minutes for the safer posted speeds.

3-lane Option

The 3-lane roadway option would re-purpose the existing right-of-way for a 12-foot wide trail and would provide a 10-foot wide buffer, or separation from the travel lanes. This option removes a travel lane in each direction and maintains the center two-way left turn lane. The River Road 3-lane Option would:

- ▶ Balance bike, pedestrian and vehicle travel modes
- ▶ Provide sufficient space for a 12-foot wide fully separated path along the river
- ▶ Provide increased visibility and safety from the trail user perspective
- ▶ Maintain left turn access for vehicles

According to the preliminary traffic analysis findings, River Road would continue to experience high traffic volumes even once the new SR 167 roadway facility is open, and with the removal of one travel lane in each direction, the resulting increase in traffic congestion could potentially double the travel time in this corridor.

The evaluation of the 3-lane option also included access management at 4 intersections by either traffic signals or roundabouts. This analysis showed increased congestion at the existing signal at 66th Avenue E for north and southbound traffic.

4-lane Option

The 4-lane roadway option would re-purpose the existing right-of-way for a 12-foot wide trail which would be separated from the travel lanes by a physical barrier. This option maintains the two travel lanes in each direction and removes the center two-way left turn lane, which restricts left turns or U-turns to key intersections only. The River Road 4-lane Option would:

- ▶ Balance bike, pedestrian and vehicle travel modes

- ▶ Provide sufficient space for a 12-foot wide trail along the river separated by a physical barrier
- ▶ Provide formalized left turns to improve safety performance by eliminating two-way left turn lane and slowing traffic speeds
- ▶ Provide increased visibility and safety from the trail user perspective
- ▶ Maintain two travel lanes in each direction

According to the preliminary traffic analysis findings, keeping two travel lanes in each direction maintains similar operations performance even with the restricted left turn access which would require some out-of-direction travel. The traffic signals or roundabouts at key intersections allow access and are shown to maintain acceptable traffic flow.

Similar to the 3-lane option, the analysis of the 4-lane configuration also shows increased congestion at the existing signal at 66th Avenue E for north and southbound traffic; however, the congestion for the 4-lane options is not as significant. Traffic patterns in the area would be most affected by the 3-lane option with some trips diverted

to alternative routes. Some of these routes, such as Meridian Avenue, are already congested and would therefore experience added pressure.

New SR 167 with Option A

The New SR 167 main alignment presents an opportunity to connect Puyallup, Fife and Tacoma as well as making two regional trail connections with the Riverwalk Trail and the Interurban Trail. The New SR 167 alignment is the only alignment that also connects to Fife. In addition, the alignment connects to the trail segments that are being planned under the SR 167 Completion Project, as recommended by the SR 167 Bicycle and Pedestrian Subcommittee.

The near-term feasibility of this alignment is most significantly impacted by the cost-efficiencies associated with the SR 167 Completion Project. This trail alignment has sufficient right-of-way for most of the route to build a fully separated 12-foot wide trail, requiring no property acquisition because WSDOT has purchased enough land to accommodate the construction of the new SR 167 roadway facility. Another cost efficiency is the 3 miles of trail that are being planned and funded separately under the SR

167 Completion Project. This segment is shown in Figure 27 as a dotted green line.

This alignment is the longest and least direct connection between Puyallup and downtown Tacoma and presents several difficult crossings, the most significant being the at-grade railroad crossing on Freeman Road. Other difficult crossings include Valley Avenue E, and the roundabout crossings at Pacific Highway and 54th Avenue E. There is one gap in the trail connection at the SR509 spur/Alexander Avenue intersection, where the trail width is significantly constrained by the existing roadway and the Wapato Ditch.

Of the two options evaluated, Option A was the best performing option for routing into downtown Tacoma. Option B, continuing on SR 509, presented significant safety concerns and accessibility for trail users of all ages and abilities. The route is adjacent to high traffic volumes and speeds on the state route and requires off-ramp crossings. This option would require significant coordination with

WSDOT for partial use of this facility for active transportation.

Option A provides an opportunity to connect to the improvements proposed by the City of Tacoma along the Puyallup Avenue corridor. However, the bridge crossing at Eells Street presents a gap in the 12-foot wide shared use path due to its current right-of-way constraints.

As shown in Figure 29, the total assessment rating for the New SR 167 trail alignment with Option A was 3.5 out of 5. In comparison with the other alternatives, this alignment rated well for connections, equity, and cost criteria but rated poorly for safety, accessibility, and environment and community fit criteria. The cost estimate is the least expensive of all the alternatives to implement due to the cost efficiencies described. The estimated total cost was approximately \$15 million.

In addition to the assumptions described under Cost Estimates, the New SR 167 trail alignment costs did not include:

- ▶ Eells Street Bridge replacement
- ▶ Clearing/grading, drainage, stormwater detention/treatment (for segments along new SR 167 roadway (assumed to be included in the SR 167 Completion Project) or sections of the existing shared use sidewalks on Pacific Highway
- ▶ Trail segment being planned under the SR 167 Completion Project (between 20th Street East and SR 509 to Alexander E) and championed by the cities of Fife and Tacoma
- ▶ Right-of-way acquisition costs not included for the segment of the trail within the project footprint of the SR 167 Completion Project, which has been purchased by WSDOT for roadway construction

13 Environmental Review

For project actions taken by local, state and federal agencies, environmental review is a required process for implementing a project. Depending on the project selected and funding sources, the trail project would be expected to be required to comply with the National Environmental Policy Act (NEPA) and/or the Washington State Environmental Policy Act (SEPA). The following briefly describes these environmental review processes. Funding sources and the project proponent (or lead agency) must be identified to determine whether the federal NEPA process and/or state SEPA environmental review process is required.

NEPA requires that all actions sponsored, funded, permitted, or approved by federal agencies are reviewed to ensure that environmental effects are considered in the planning and decision-making process. Environmental effects considered may include air quality, ecological impacts, environmental justice, floodplains, habitat, and wetlands for example.

The NEPA process has three classes of action; Categorical Exclusion (CE)/Documented Categorical Exclusion (DCE), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Generally, completing a CE/DCE requires the least amount of time and effort and completing an EIS requires the most. As shown in Table 5, a project's class of action depends on the type of work/action that is proposed and the following three main factors: impacts, public and agency controversy, and the number of alternatives/options being evaluated.

Similarly, SEPA helps state and local agencies identify environmental impacts likely to result from projects and decisions. The SEPA rules direct state and local agencies to consider environmental information and to identify and evaluate impacts, alternatives and mitigation measures. Unless a proposed action meets a state categorical exemption, as identified in Washington Administrative Code (WAC) 197-11-800, SEPA is required for a proposal

that involves a government action, such as construction.

Projects requiring SEPA review will require a completed environmental checklist. The lead SEPA agency will issue a Determination of Nonsignificance (DNS) or a mitigated DNS (MDNS) for those proposals that are not likely to have a significant adverse effect or if sufficient mitigation is included. If mitigation cannot be identified, an SEPA EIS would be required to assess the proposal and identify alternatives or measures to reduce or avoid environmental impacts. Prior to conducting the SEPA EIS the agency will issue a Determination of Significance (DS)/Scoping notice for agency and public review to help identify the key environmental issues that should be evaluated.

The NEPA/SEPA process will depend on the project type as well as the funding selected for an implementation project. The environmental review process occurs concurrently with preliminary engineering so that sufficient project definition is available to inform the impacts assessment

as well as providing an opportunity to avoid, reduce or mitigate environmental impacts during project design.

Based on the existing conditions data collected for the Tacoma to Puyallup Trail Alternatives Evaluation, all alignments may result in potential environmental impacts to:

- ▶ Property and access
- ▶ Floodplains, streams, and wetlands

- ▶ Biological resources
- ▶ Historic and cultural resources

The NEPA class of action is determined by the number of alternatives and options that are considered, so project selection and definition are the next important steps toward identifying the NEPA class of action required.

Once the project, project proponent, and funding sources are identified, early review of the critical environmental issues and potential impacts will help identify the appropriate NEPA/SEPA class of action and requisite environmental documentation to obtain environmental clearance for the project.

Table 5 NEPA Class of Action Summary

Factors	Documented Categorical Exclusion	Environmental Assessment	Environmental Impact Statement
Impacts	Known, Not Significant	Unknown if Significant	Known, Significant
Public and Agency Controversy	Low	Moderate	High
Project Alternatives/Options	1	1 or more	1 or more

14 Potential Funding Sources

Of the four alternatives evaluated, two of the routes follow state highway alignments (existing SR 167 River Road and new SR 167) along much of their paths. The other route follows the north side of the Puyallup River along Levee Road and other local arterial streets, including a new or repurposed Puyallup River bridge. The alternative routes range from about 6 miles via River Road to more than 9 miles following the new SR-167. Costs for these options range from \$15 million to \$56 million.

Major differences exist in the funding of state route projects versus local projects. State routes and trails in state route alignments are mostly funded by legislative action in the state transportation budget either by phase or in their entirety. Portions of some of the trail routes lie in multiple cities and unincorporated Pierce County. Cities make improvements to state routes within their boundaries while counties rarely improve state routes in unincorporated areas. City projects on state routes normally employ city funds combined with state and federal grants. WSDOT provides funding to some of these projects, typically with preservation

funds. Occasionally, local projects are provided a portion of their funding from direct Legislative appropriations in the state transportation budget.

Consequently, ownership of the route (state, city, or county) and sponsorship of the project (state or local) have great influence on funding mechanisms and opportunities. A state trail project on a state route could be funded entirely by legislative action. These funding actions occur annually, but to a larger extent in odd years during biennial budget adoption. Far more legislative actions occur from time to time with transportation tax increases. Alternatively, a locally sponsored project would commonly rely primarily on the local city to provide funding through a Capital Improvement Program and grant fundraising.

Local projects are typically funded within city or county budgets and with federal and state grants. Analysis of the commonly used grant sources provides insightful information about the types of projects and typical funding amounts awarded in prior years. Grant sources have limitations on available

funding, making it particularly difficult to accumulate full funding for large scale projects. By any standard, Tacoma to Puyallup trail connection is a large-scale active transportation project in both cost and length. Large scale infrastructure projects have different success factors and complexity compared to lower cost projects, which may require only a single budget action. Many barriers exist to successfully funding large projects, but some large trail projects do get funded. Successfully funded projects exhibit the common factors that ensure maintenance of effort, see Figure 30.

Strategic Considerations for Large-scale Project Funding

Funding major infrastructure projects requires skill and strategy. Large scale projects usually cannot be funded exclusively with grants because the maximum program awards are simply not large enough. Infrastructure funders should not use the model of a non-profit campaign, where all contributions are added to a thermometer on the wall. Instead, funding should be dynamic and accumulated according to a

known financial plan which is progressively updated as pursuits succeed or fail. A fundraising financial plan promotes awareness of the types and amounts of funding necessary to assemble actionable funding.

Infrastructure funding sources fall into three broad categories, including specific project actions, repeating grant sources, and unique “one-offs,” see Figure 31. One-offs frequently happen, but do not follow any repeatable schedule.

Project-specific Actions

Funding from specific project actions usually comes from local or state budget allocations made in Capital Improvement Programs and other project lists making direct appropriations from existing or new revenue, including bonds. Such actions are within the power of local councils and commissions or the state Legislature and repeat annually or biennially. Specific project actions, particularly large budget allocations, often wait until a “Tipping Point” is achieved. Tipping Point is the time at which the urgency of the project, its support, and its fundability converge to spur action of the

majority. Local agencies typically pursue grants and other external funding sources until the Tipping Point is reached.

Revolving Grants

Grants for active transportation projects frequently come from state and federal programs either specifically designated for or including eligibility for sidewalks, bike lanes, and trails. Some of these programs are specific to recreational trails while others exclude funding for recreational trails, while still allowing shared use paths adjacent to streets and highways. State grant funding for trails comes from both the transportation and capital budgets. Federal grants for active transportation have previously come from various programs, but currently come primarily from the Surface Transportation Program (STP) administered locally by the Puget Sound Regional Council and WSDOT Local Programs. The United States Department of Transportation (USDOT) also operates the INFRA and Build programs, repeating grant opportunities directly selected by the USDOT. Grant funding sources and typical funding levels are discussed below.

“One-offs”

Unique funding actions from one-off sources occur frequently in larger scale projects. In fact, they may be the only way to accumulate funding at scale when project costs are higher than typical. Analysis of historical projects back to 1990 showed one-offs to be 20-25 percent of local project funding.

These sources may include non-repeating budget actions, development contributions, and appropriations from agencies not normally funding transportation projects. Non-repeating budget actions are outside the normal annual or biennial funding levels for comparable projects. Examples include the federal American Recovery and Reinvestment Act (ARRA) and even the list of trail projects in the Connecting Washington new law budget in 2015. These funding actions are non-repeating because they relied on tax increases and/or allocated funding not typically seen in annual budget actions.

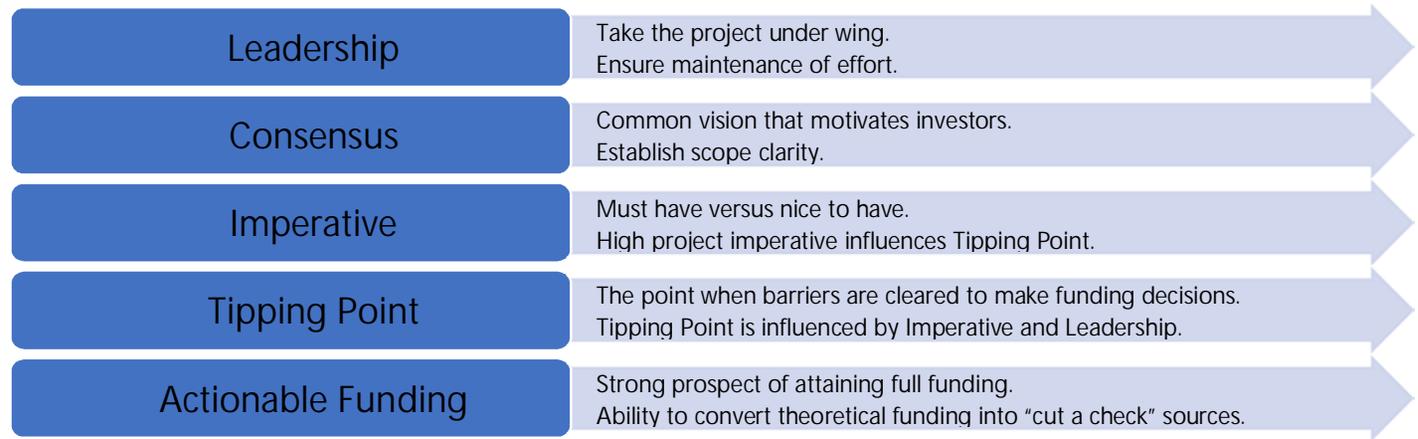


Figure 30 Success Factors for Funding Major Infrastructure Projects

Project Specific Actions	Revolving Grants	"One-offs"
<ul style="list-style-type: none"> • Specific appropriation to the project (state or local). • Bond issue for the project. • Often based on a "tipping point". • Can be complicated with multi-jurisdictional projects • Example: Port Orchard Tremont St. 	<ul style="list-style-type: none"> • Applications-Award Process. • Generally reliable repeating cycles. • Difficult to accumulate large amounts. • Gets harder as funding sources are tapped. • Often results in staging project. • Example: TIB, PSRC, FMSIB 	<ul style="list-style-type: none"> • Many examples of one-time funding events. • Major development contributions. • New law budget appropriations to local projects. • Not infrequent, but largely unpredictable. • Examples: ARRA, Connecting Washington, direct benefit contributions like Ports and Sound Transit.

Figure 31 Types of Infrastructure Funding Sources

The Challenges of Scale

High cost transportation projects, those in the tens of millions of dollars, often must be segmented into feasible subprojects because it is difficult to accumulate funding when the total project cost exceeds the capacities of annual budget processes and grants. Trail projects funded by mostly repeating sources tend to be small scale (\$500,000 to \$2,000,000). Large trail projects may be implemented in shorter segments because funding rarely comes from repeating sources in amounts greater than \$5 million. The Tacoma to Puyallup regional trail connection is a major project regardless of route as options range from \$15 to \$56 million, three to eleven times the size of typical high-end trail funding. Consequently, segmentation is a key strategic consideration. If the project is implemented in segments, as many trail projects are, the segments should strive for connectivity between natural termini. Segments that terminate in unnatural locations, like in the midblock between major cross-connections, tend to underperform in grant ratings because they lack independent utility.

The proponents should decide if funding will be pursued for the entire project at one time or in segments over successive years. Segmentation is two-sided. Grant administrators tend to prefer holistic investments, where scale economies and functionality are maximized. However, funding is often simpler to achieve with segmentation because smaller scale segments are more consistent with the maximum grant amounts normally available from repeating sources.

Street Project or Trail Project?

Funding efforts should pay close attention to street-adjacent trail segments. A trail is street-adjacent if it is close enough to the street to perform the function of the sidewalk. Street projects compete in much larger funding pools than trail projects. Street funding sources usually include or require sidewalks and those facilities can be shared-use paths or wide sidewalks. The cost of street improvements must be incorporated into the grant application, but such combined street and trail needs do exist in the project area. The larger funding pool means that street-adjacent segments of the project should be pursued as street grant

applications with an incorporated trail when combined needs exist although opportunities to pursue trail grants should be considered too.

“Reasonable Claim” Standard

Requesting funding from the wrong grant source or even too much funding from the right grant source is extremely common and frequently leads to failure. Applicants should consider typical funding levels and how well the project fits the criteria before deciding to pursue particular grants. Past grant awards provide a good indication of successful project types and award levels. Grant success is further enhanced if the type of project and funding level meets the following standard:

Investment ready. The timing is right for successful implementation.

Right type of project. Good fit to criteria for the specific funding source.

Right amount of money requested. Within a reasonable funding level compared to typical awards.

Strong prospect of attaining full funding. Grantors have a business need for funding to be successfully used. They will avoid projects with low funding reliability.

Independent utility. Projects are whole or functionally independent segments, complete between natural termini.

Efficient to produce and sustainable. Many grant programs expect or reward sustainable design.

Project-compliant CIP

All project partners should review their current Capital Improvement Program (CIP) projects and preservation activities to ensure coordination with trail plans. Planned CIP projects represent an opportunity to implement trail sections within already budgeted projects. Opportunities could be missed if 5-foot sidewalks are installed according to standard when trail connectivity would be served by a multi-use path. Preservation activities like blading shoulders to add extra width may be done in resurfacing projects and can contribute to realization of the plan, often with minimal marginal cost.

Prospects for Full Funding

This report assesses funding prospects for the Tacoma to Puyallup regional trail connection based on the Strategic Considerations above and the typical outcomes of various funding sources and

programs used to fund trail projects. State highway projects funded by the Legislature rarely rely on grants, so the analysis below applies mainly to locally sponsored projects on state highways or local streets. The Legislature could also authorize toll revenue. In either case, funding sources from local budgets, grants, and other one-offs may or may not factor into a state funded project.

Local Partnership Contributions

Funding for locally owned capital projects mostly comes from internal funds either dedicated to the project purpose or generally available for allocation by the council or commission. Larger projects can easily overwhelm the capacity of available capital funding so other sources like grants are required or the project may not proceed.

Direct budget allocations to the Capital Improvement Program (CIP) are most frequently used, but other sources of local funding may include bonds, special levies, development impact fees, and Transportation Benefit Districts. The Tacoma to Puyallup regional trail connection is multijurisdictional so local funding could include budget allocations by any of the partner agencies. Particularly, agencies

providing funds for trail segments that fall within the agencies' own boundaries. In any case, local funding is almost certainly required in addition to grant sources.

Many local agencies choose to establish Transportation Benefit Districts (TBDs) when direct budget allocations are insufficient to cover CIP priorities. TBDs offer a range of taxing authorities, some voted and some councilmanic, see Figure 27. TBDs widely employ the councilmanic Vehicle License Fee authority although Initiative-976 will eliminate that power if it goes into effect. Voted sales tax is also used in some existing TBDs. Vehicle tolls on state highways and local streets may be imposed, however, no existing TBDs use the local authority for vehicle tolls (47.56.078 RCW). This source could be considered in the Tacoma to Puyallup Trail corridor where tolling is planned on new SR-167. Considerable work would be necessary to clarify existing authority, but a local toll increment on already planned SR-167 tolls could have substantial fundraising capacity depending upon rate and bonding.

Revolving Grants

State and federal grants represent a principle funding source for municipal infrastructure. Funding programs may allow only trail or sidewalk projects while other programs allow them or incorporate them with related infrastructure like streets. The recent history of successful trail grants provides guidance about the funding potential and typical amounts available from these commonly used programs. Other programs not listed here occasionally fund trail projects, but such instances are rare enough to be considered “one-offs.”

Table 6 shows nine programs with a documented history of providing funding for trails or street-adjacent paths. Typical funding levels suggest grants \$1 to \$2 million per project or project segment. A few rare cases exist of very large grants in the \$15 million to \$20 million range. Changes in economic conditions and transportation funding authorities may influence availability of these funding sources.

Overall, the assessment indicates repeatable pathways for funding regional trail projects. The typical amounts of grant funding are low compared to the scale of the Tacoma to Puyallup regional trail connection project. Consequently, full project funding would require significant partner contributions, unpredictable one-off sources, and/or division of the project into more easily funded segments.

Grant applications require staff time, technical analysis, and funding. Generally, federal grants require substantially more effort and expense than local grants. Pursuit costs range from a few thousand dollars for state grants to tens of thousands for USDOT applications.

Table 7 summarizes pros and cons of the grant sources. Each title box contains a summary of key considerations. The two categories yielding more than \$10 million are both extremely rare. Overall, the analysis shows a consistent flow of grant funds to trail projects, albeit at funding levels well

below what is needed for a major corridor, typically having an accumulated high-end yield of up to \$5 million. With effective management and quality grant writing, there is a reasonable prospect of achieving several million dollars in a funding cycle and repeating that success in more than one grant cycle. Some grant cycles are annual while others are biennial or following other schedules based on budget availability.

Accordingly, the funding potential of the Tacoma to Puyallup Trail is positive at the \$15 million level over a period of six years. The timeframe could be accelerated by increasing allocations from Project Specific Sources (partner contributions) or if a large one-off source materialized.

The higher cost alternatives have no clear path for accomplishing full funding with currently available cyclical programs.

Table 6 Typical Funding Levels from Repeating Grant Sources

Potential Grant Source Typical High-end Grant Recommendation	Typical High End Dollar Amount (\$)	Comments
USDOT Build	\$17,000,000	Low success rate
PSRC Regional & Countywide	\$2,000,000	Local control in Countywide process
WSDOT Pedestrian-Bicycle Program & Safe Routes to School	\$1,400,000	
TIB Urban Sidewalk Program	\$500,000	Street adjacent
TIB Complete Streets Award (recognition award)	\$700,000	Could be used in interagency coordination
TIB Urban Arterial Program	\$4,000,000	Program includes street improvement
Recreation Conservation Office	\$1,000,000	Restricted when street-adjacent
Legislative Capital Budget-Commerce	\$2,000,000	Includes local projects of all types
Legislative Transportation Budget- Local Programs	\$2,000,000 (current revenue budget) \$15,000,000 (new revenue budget)	Some recent high funding levels are one-offs

Table 7 Funding Opportunities Pros & Cons

Source Typical High-end Grant Recommendation	Pro	Con
USDOT Build- high yield, most expensive to pursue, lowest success rate		
\$17,000,000 High grant amount suggests attempt	<ul style="list-style-type: none"> ▶ Largest Grants ▶ Reasonable comps 	<ul style="list-style-type: none"> ▶ Low success rate ▶ High pursuit costs ▶ Higher build costs using federal funds ▶ May compete with other pursuits like Gateway
PSRC Regional, Countywide, TAP (Federal)- long pursuit cycle, open now, reasonable outlook for success		
\$2,000,000 Or up to \$4,000,000 when funding with street projects Pursue funding for design, ROW or segment implementation	<ul style="list-style-type: none"> ▶ Strong local control in Countywide Process ▶ Project connects urban centers ▶ Project is in Regional Plan 	<ul style="list-style-type: none"> ▶ Higher build costs using federal funds ▶ Lengthy application cycle
WSDOT Pedestrian and Bicycle Program- reasonable to pursue, highly competitive		
\$1,400,000 Reasonable to pursue, Cycle may be delayed due to I-976	<ul style="list-style-type: none"> ▶ Some T2P segments are good candidates ▶ Project is in draft statewide nonmotorized plan ▶ Easy application 	<ul style="list-style-type: none"> ▶ I-976 Impact ▶ Legislative list approval delays use ▶ Long wait for Legislative review
Washington State Transportation Improvement Board Urban Sidewalk Program- easy to pursue, limited applicability to street segments with high sidewalk/path fit to criteria		
\$500,000 Not reasonable to pursue except for limited segments where criteria fit.	<ul style="list-style-type: none"> ▶ Easy application and project management 	<ul style="list-style-type: none"> ▶ Limited to street adjacent segments ▶ Few local generators ▶ Limited amount of funding per project ▶ No design only funding
Washington State Transportation Improvement Board Urban Arterial Program- moderate level of effort, limited applicability due to street-adjacent limitation		
\$4,000,000, but includes street elements with path elements Pursue only for street-adjacent segments with strong TIB criteria fit	<ul style="list-style-type: none"> ▶ Higher funding levels ▶ Easy project management ▶ Some street segments would be good candidates 	<ul style="list-style-type: none"> ▶ Grant includes combined street and sidewalk ▶ No design only funding

Source Typical High-end Grant Recommendation	Pro	Con
Washington State Transportation Improvement Board Complete Streets Program - easy to pursue, low funding level, potential to combine with awards to multiple agencies, I-976 impacts.		
\$700,000, but up to \$1,000,000 possible Tacoma and Pierce County have established eligibility. Reasonable to establish eligibility and pursue in coordination with other agencies.	<ul style="list-style-type: none"> ▶ Multiple agency's awards could be put on same corridor ▶ Self-directed to any walk, bike, access to transit or streetscape project 	<ul style="list-style-type: none"> ▶ I-976 Impact ▶ Must establish eligibility
Washington State Recreation Conservation Office - reasonable to pursue, open now, competitive		
\$1,000,000 Pursue with a focus on non-street-adjacent segments. Bridge would be possible.	<ul style="list-style-type: none"> ▶ Strong prospect for non-street adjacent segments 	<ul style="list-style-type: none"> ▶ Must be 10' from street edge ▶ Relatively few awarded projects ▶ Right-of-Way acquisition is a funding channel
Legislative Capital Budget Request - easy to apply but requires lobbying, reasonable prospect for success		
\$2,000,000 Pursue for design, segment implementation or match.	<ul style="list-style-type: none"> ▶ Direct to Legislator ▶ Easy, brief application ▶ Wide array of local project types 	<ul style="list-style-type: none"> ▶ Trails compete against many project types ▶ Relatively few trails awarded
Legislative Transportation Budget Request - easy to request, requires lobbying, limited prospects for success particularly in even years and I-976 impacts		
\$2,000,000 projects are sometimes included in current law budget, but up to \$15,000,000 observed only during new law Connecting Washington budget. Reasonable to discuss with delegation. Unlikely to develop under a current law budget with I-976 impacts.	<ul style="list-style-type: none"> ▶ Direct to Legislator ▶ House Chairman is local to Pierce County ▶ Easy to request 	<ul style="list-style-type: none"> ▶ I-976 Impacts ▶ Very few projects added in even years ▶ High award levels are atypical ▶ Larger trail projects usually only funded during new law budgets.

Early-action Fundraising Recommendations

1. Confirm project definition
2. Determine whether funding will be pursued as a state or local project
3. Pursue design funding
 - a. Estimate design costs.
 - b. Apply to transportation, capital budget, or Puget Sound Regional Council.
4. Identify partner match if pursuing local sources
5. Develop a project specific fundraising financial plan
6. Establish Complete Streets eligibility.

15 Implementation and Next Steps

The intent of the Alternatives Evaluation was to determine the merits of each of the proposed alignments for an implementation project and to recommend next steps to the partnering agencies in the SAG. The Alternatives Evaluation findings were shared with the SAG at the meeting in February 2020 and a discussion of implementation and next steps followed. A complete summary of the SAG meeting is provided in Appendix A.

The following next steps were developed in coordination with the SAG. Generally, the SAG members reached consensus on the following:

- ▶ Levee Road South alignment presents a significant flooding risk as well as significant costs; therefore, is not a feasible option to continue to pursue as a priority project of the SAG.
- ▶ Levee Road North alignment presents significant property and wetland impacts, as well as significant costs; therefore, is not a feasible option to continue to

pursue as a priority project of the SAG.

- ▶ River Road alignment leaves a lot of unanswered questions, the most significant being the future ownership of River Road once the new SR 167 facility opens in 2028. The River Road alignment studied as part of the Alternatives Analysis between the road and the river with no impacts to roadway configuration has significant infrastructure constraints and high costs, leading the SAG to decide against pursuing that design further. However, the Road Diet alternative was determined to be worthy of additional analysis in the years ahead, especially given existing safety concerns on River Road. The traffic analysis covered in the scope of this study does not provide sufficient information to develop an implementation project definition for this alignment. This alignment would require funding for further study and merits future analysis as

decisions about the future of River Road are made. Given that the construction of improvements along River Road would be unlikely to move forward until after the new SR167 is opened (2024-2028), the SAG decided to continue discussions around the future of this corridor while moving forward with the new SR 167 trail alignment as the priority project.

- ▶ The New SR 167 trail alignment provides opportunity for a near-term implementation project for a regional connection. As the segment between Puyallup and Fife is incorporated into the scope of the Puget Sound Gateway Program, there is an opportunity to continue that partnership with WSDOT. Funding should be pursued to carry this alignment forward in the near-term to develop a project definition in partnership with the SAG and the community forum. The intent would be to develop a sufficient project scope, possibly a folio, for the SR

167 trail project to begin project funding discussions by September 2020 for consideration in a possible 2021-2023 Washington State Transportation funding package. The next step is for the SAG members to discuss and agree on

funding for the next phase of project development for the SR 167 trail project. The SR 167 Trail Assessment phase would be scoped and budgeted for SAG review and approval.

The SAG determined that the existing membership and representation would remain intact to continue to define the next steps for the SR 167 trail alignment and maintain momentum for the regional trail connection between Puyallup and Tacoma.

Appendix A

Meeting Summaries

Community Forum Event Summary



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Overview

The Tacoma to Puyallup Regional Connection Route Analysis Study (T2P Study) hosted a public event to share information and solicit knowledge and feedback from the community about active transportation needs, issues and concerns in the study area.

The T2P Study is a multijurisdictional effort to explore best options to create a connected active transportation network in Pierce County, in the vicinity of the SR 167 Completion Project. The route analysis is evaluating three possible routes for the Tacoma to Puyallup Trail:

- SR 167 future alignment
- Levee Road, north of Puyallup River
- River Road, south of Puyallup River

The purpose of the event was to glean ideas and understand contextual issues/concerns from the Pierce County community who will use the trail. The open house and discussion tables provided forum participants various opportunities for early input on the three route alignments with decision-makers present.

Event details

Date: Thursday, June 27, 2019

Time: 5:30-8:00 p.m.

Location: Pioneer Park Pavilion,
Puyallup, WA

Format: Open house with
presentation, small group discussions

Attendees: 114



Attendees discussed the future of the Tacoma to Puyallup Regional Trail after hearing from local decision-makers.

Advertising and notification

The project team reached communities in the study area primarily through community organizations and a news story in the Tacoma News Tribune. Project team members sent 32 email invitations to community organizations and associated listservs and equipped SAG members with a poster and draft email language to mobilize their networks.

The project team also distributed posters at active transportation hubs and community organizations in Tacoma, Fife and Puyallup.

Event format

The Community Forum provided multiple ways to access information and diverse opportunities to give input.

Open house

Upon entrance, attendees signed in and received a comment form and questionnaire. They were directed to an open house with display boards and maps of the study area. Project team members answered questions at display boards, engaged attendees in conversation about their experience with active transportation, and directed them to submit their written feedback at the comment table.

The display boards included basic study information, route option maps and elevation profiles, route analysis timeline, and possible trail design treatments.

A large table in the middle of the open house had roll plots of the study area. Participants used sticky notes to make comments directly on the map.

Presentation

Several members of the T2P Stakeholder

Advisory Group (SAG) made a presentation to attendees after they were seated at round tables of eight people.



Route analysis lead, Daniel Turner, engaged in conversation with attendees over the route map.

Puget Sound Gateway Program Administrator, Craig Stone, welcomed attendees and thanked the funding partners and SAG members.

Liz Kaster (Puyallup Watershed Initiative) and Kristina Walker (Downtown on the Go!) discussed the background and need for the study. Four SAG members who participated in the Tacoma to Puyallup Trail Cohort that preceded the SAG – Mayor John Palmer (City of Puyallup), Mayor Kim Roscoe (City of Fife), Andrew Strobel (Director of Planning and Land Use, Puyallup Tribe of Indians) and Secretary Roger Miller (Washington State Department of Transportation) – briefly discussed their enthusiasm for the project and shared about their grant-funded trip to study active transportation in Copenhagen, Denmark.

T2P Route Analysis Lead, Daniel Turner, then described the study timeline and reviewed the routes under evaluation.



Future trail users sat at tables to discuss in-depth the needs and concerns for regional active transportation. One person at each table guided the conversation and another took notes.

Discussion tables

After the presentation, attendees remained at their seats to participate in small group discussions. All 13 table groups discussed the same questions:

1. What about active transportation is most important to you? What could that look like on the Tacoma to Puyallup Regional Trail?
2. Looking at the three routes under consideration, what are your hopes and concerns? Does one route stand out to you?
3. What else should the route analysis take into consideration?

Each table was equipped with a map, a discussion guide, and a note-taking packet to record the conversation. Attendees chose one person from each table to take notes and one person to guide the discussion and keep time.

Online participation

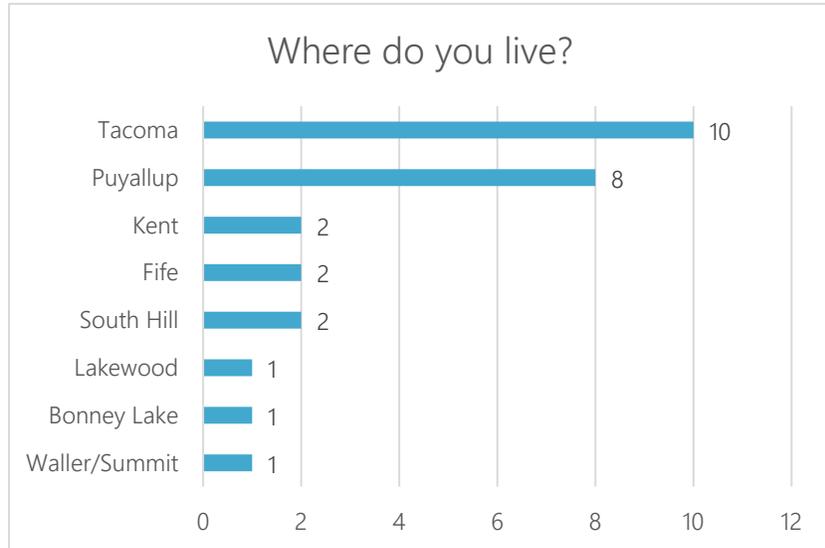
The project team set up a dedicated email address (T2Prouteanalysis@wsdot.wa.gov) to receive feedback from community members who could not attend the event. On July 10, the project team posted PDFs of the display boards on the study's webpage.

Attendee profile

Attendees received a questionnaire at the sign-in table when they entered the event. The project team received 27 completed questionnaires from the 114 attendees.

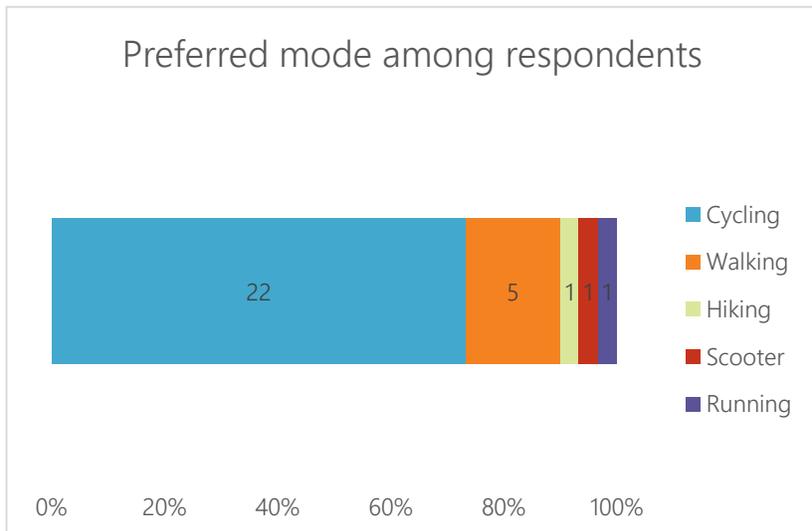
Location

Questionnaire respondents were primarily from Tacoma and Puyallup and primarily accessed active transportation facilities by bicycle. While some attendees arrived in a wheelchair, none of the 27 questionnaire respondents indicated that they used this mode for active transportation.



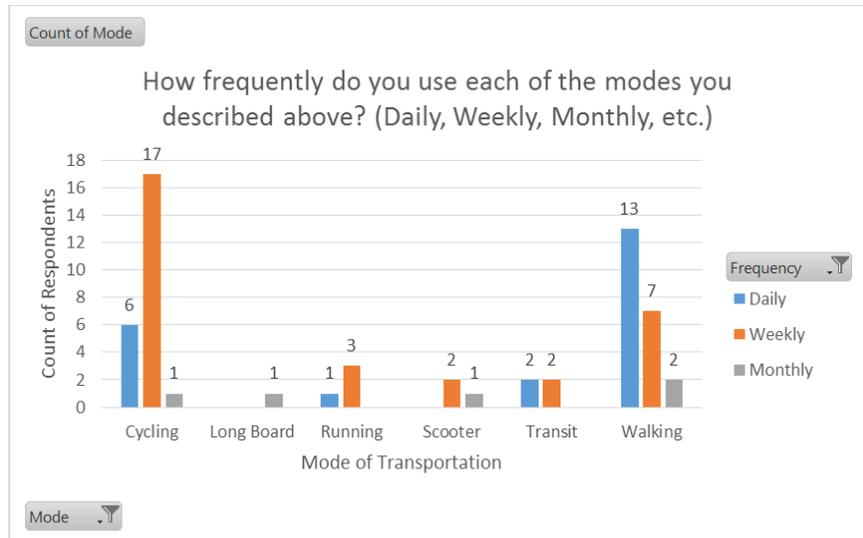
Preferred mode

Most questionnaire respondents indicated using their preferred modes of active transportation either daily or weekly. Respondents who cycle and used transit travelled significantly further distances with greater frequency.



Frequency of use

In general, questionnaire respondents represent a group of individuals who use active transportation frequently, but many do not rely on it for every day commuting.



Opportunities and barriers

Respondents indicated they were limited in their use of active transportation by issues of safety, accessibility, and convenience.

Top 6 Responses to "What prevents you from using active transportation more frequently?"	
Response	Count
Traffic	6
Time constraints (long commute, 2 kids < 5, etc.)	5
Available paths/Lack of safe, well-maintained trails	5
Hills	3
Safety	3
Rain	2
Top 6 Responses to "What would help you use active transportation more often?"	
Response	Count
More safe routes	6
Protected trails	4
More trails	4
Better network connection and direct routes	4
Have it close to regional transportation (e.g. buses and trains)	2
Stronger cycling presence in Tacoma/PC and groups/clubs	2
Better bicycle/pedestrian facilities	2

Comment summary

The Community Forum included various opportunities for attendees to engage with the subject matter and give input in different ways:

- Questionnaire
- Comment form
- Discussion groups
- Email

Attendees provided feedback on both the specific routes under evaluation and what is generally important to consider when planning for active transportation. The summary below describes attendee feedback on study context, community needs, and evaluation criteria.

Context and need

Key themes related to the trail's context and need emerged throughout all comment methods.

Safety

- Separation from cars and trucks
- Visibility and lighting
- Concern for and about people living and camping on the trail

Connectivity

- Continuous route
- Proximity to destinations (restaurants, parks, residential areas)
- Trail network connections

Culture

- Consideration of cultural resources
- Recognition that trail is on Puyallup Tribal land; need for partnership with Tribe
- Interpretive signage
- Public art

Access

- Convenient access points
- Amenities (bathrooms, benches, parking)
- Planning for users of all ages and abilities
- Considerations for under-served populations
- Ability to cross Puyallup River

Environmental

- Scenic routes
- Trail maintenance
- Flooding concerns

Routes under evaluation

Attendees provided feedback on the opportunities and barriers related to the three routes under evaluation.

SR 167 future alignment

The SR 167 future alignment received the least positive feedback, with attendees citing barriers of noise, proximity to car and truck traffic, and lack of amenities and destinations.

Opportunities

- Trail connections
- New construction
- Good connectivity to Fife
- Proximity to future light rail

Barriers

- Proximity to freeway traffic
- Too far from destinations
- Indirect route
- Less scenic

Levee Road

Many attendees favored Levee Road due to the lower traffic volumes, opportunities for connections, and scenery. Perceived barriers included seasonal flooding and significance to the Puyallup Tribe of Indians.

Opportunities

- Connections to destinations
- Lower traffic route
- Scenic view of river
- Room for wider paths or bike lanes
- Currently underutilized
- Good visibility

Barriers

- Possible regulatory issues with Puyallup Tribe of Indians
- Potential for flooding
- Issues with river crossing
- Conflicts with fishing
- Poor visibility on path nearest river

River Road

Attendee input suggested River Road is a direct route with many connections to desirable destinations. Input cited traffic conflicts with cars, trucks, and trains as a primary concern.

Opportunities

- Good connections to trails
- Direct route
- Scenic view of river
- Ease of construction
- No river crossing
- Traffic calming effect

Barriers

- Proximity to traffic
- Poor trail connection
- Railroad tracks
- Narrowness of area
- Potential for flooding
- Opposition from drivers/community

Conclusions and next steps

The Community Forum on June 27 in Puyallup provided attendees with information and opportunities to give input on the Tacoma to Puyallup Regional Trail route analysis. Attendees represented individuals likely to use the future Tacoma to Puyallup Regional Trail, but did not necessarily represent all populations in the study area.

The areas of primary concern for this group are safety, connectivity, culture, access, and the environment. The group expressed varying preferences for the Levee Road and River Road trail routes, suggesting the route analysis should look at possible combinations of the two alternatives.

Attendees expressed enthusiasm for the trail in general. Several noted their desire to select the route that could be completed most quickly.

Feedback from the Community Forum will inform the route analysis. The evaluation and implementation plan, once completed, will be shared with attendees who signed in at the event.

Appendices

Appendix A: Discussion analysis

What about active transportation is most important to you? What could that look like on the Tacoma to Puyallup Regional Trail?	Count	Looking at the three routes under consideration, what are your hopes and concerns? (Hopes)	Count	Looking at the three routes under consideration, what are your hopes and concerns? (Concerns)	Count
Connectivity and ease of access (transit, interurban, Sumner, FW, Fife, tie communities together)	11	Safety, separated from traffic	4	Flooding	4
Separate from cars (safety, pleasantness)	10	Scenic, well landscaped, smooth- no tree roots	3	Railroad	2
Safety	8	Following river seems most natural and most preferable	3	Lighting at night	2
Scenery (plus trees as a buffer and for shade)	6	Reasonable implementation timeline	3	Noise	2
Presence of delineated PED and Bike facilities with clear rules	5	Trail on both sides of river / river crossings	3	Concerns came up around homeless encampments, also there are people experiencing homelessness regardless of a trail presence	2
All ages all abilities	5	Connects to regional trail systems and uses river as trail connector hub	3	Delays in project	1
Direct route/speed and efficiency	4	Intuitive signage (history, nature, routes, rules of road)	3	Won't have good connection through Port into Tacoma	1
Amenities (bathrooms, diaper changing, picnic tables, pull-outs away from the flow of traffic, water access ANYWHERE to safely stop out of the way) - commerce along the trail (bike shop, restaurants, etc. or easy access to local commerce, hostels along way)	4	Connect to jobs, dense neighborhoods, and transit centers	3	Won't connect to larger system	1
More users help with safety and crime (visibility vs isolation)	3	Direct connection between Tacoma and Puyallup	2	No horses on trail	1
Maintenance, clean, debris removal	3	Wide enough to accommodate people biking and walking, with painting or different surfaces to help distinguish	2	Cost	1
Good, inclusive, welcoming signage	3	Traffic calming / speed limit reduction on adjacent busy roads	1	Limited access to Fife depending on river crossings	1
Quickest to build/implement	3	Safety accommodations for trail users and homeless	1	Safety from access/passersby awareness	1
Good trail visibility for curves and at intersections	2	Public art component	1	Concerns: access points to any trail which do not involve crossing traffic, having to backtrack	1
Bike parking along and at destination	2	Trail maintenance	1	Tribal lands	1
Seating facilities	2	Environmental impact	1	Adequate space for projected use	1
Goes to destination places (work places, restaurants)	2	Amenities (shade, benches, restrooms, water fountains)	1	New SR 167 alignment - that will change shifts in commercial traffic	1
Safe/efficient crossings	2	Green way linear parks	1	Fishing concerns	1
Good route to/through Port	2				
Cross-river connectivity and access	2				
Good access to prevent isolation on trail	2				
Convenience	1				
Historical markers	1				
Ties to community and culture (e.g. tribal)	1				
Repair areas	1				
Lighting	1				
Continuous and safe surface	1				

Discussion analysis, continued

What else should the route analysis take into consideration?	Count
Seamless connection to communities, shopping areas, parks	4
Separated areas of trail for pedestrians and bicyclists	2
Use existing bridges that are being bypassed to become part of trail	2
Minimize number of cross streets/road crossings	2
Plan for persons experiencing homelessness	2
Ability to get through Puyallup	1
Connect to foothills trail and interurban	1
Safety measures at crossings (e.g. red light cameras)	1
Reasonable implementation timeline	1
Permeable Pavement	1
Develop analysis to consider number of people living close to easy connections to trail	1
Access to transit	1
Avoid choke points with traffic	1
Potential for flooding	1
Add greenway features to trail	1
Good signage (rules of trail use, links to other routes, resources and businesses)	1
Roll out massive education campaign to ease fears and get community input/buy-in	1
Amenities and destinations for refreshment, recreation, transportation	1
Visibility and sight lines	1
Intentionally seek out marginalized and historically under-served populations	1
Conduct route analysis of Pioneer Way	1
Well-designed on and off ramps for alignments	1
Add an arts component (e.g. Puyallup tribal art)	1

Does one of the three trail routes stand out to you?	Count
Levee Road most Favored	2
Multiple routes	2
All three routes	2
SR 167 least favored	1
River Road most favored	1
River Road second most favored	1
SR 167 most favored	1

Appendix B: Comment form analysis

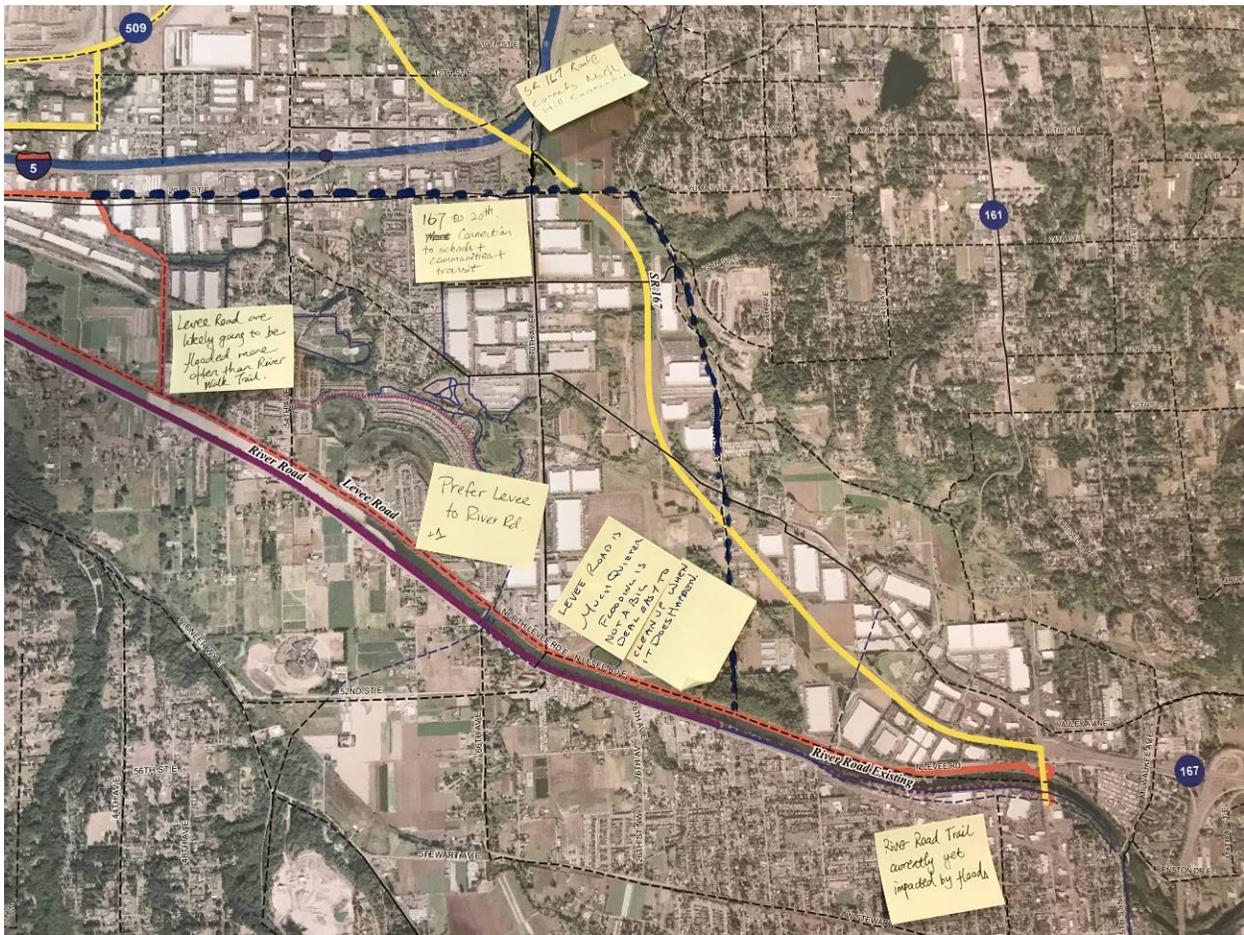
Route #1: SR 167			
Top Opportunities	Mentions	Top Barriers	Mentions
Potential trail connections (e.g. Milton Interurban Trail)	7	Proximity to freeway (e.g. heavy traffic, trucks, noise, etc.)	6
New construction/active transportation facilities	4	Too far a distance	4
Good connectivity (Ruston Way, Fife, etc.)	3	Indirect route	4
Proximity to transit (e.g. light rail)	2	Cost	2
Existing road project (new alignment facilitates project)	2	Less scenic (e.g. lack of tree cover)	2
		Safety concerns (e.g. traffic and road crossing)	2
		Lack of information or detail	2
		Lack of en route amenities (water, rest areas, convenience stores)	2
		Poor connection to Summit	1

Route #2: Levee Road			
Top Opportunities	Mentions	Top Barriers	Mentions
Better connections (e.g. amenities, Fife, 20th St., community center)	9	Potential regulatory issues (sacred designation, tribal government)	5
Lower traffic route	7	Potential for flooding	3
Scenic	5	Narrow > hazardous	3
Quickest completion	2	River crossings	3
Ability to make wider paths or bike lanes	2	Cost (e.g. bridge building)	3
Currently underutilized	1	Crowded area	1
Visibility of the path (from street, homes, business - out of concern of people experiencing homelessness)	1	Difficulty in building	1
Potential for tribal funding contribution	1	Conflict with fishing	1
		Puyallup Bridge not conducive	1
		Traffic	1

Comment form analysis, continued

Route #3: River Road			
Top Opportunities	Mentions	Top Barriers	Mentions
Good connections (e.g. trails, downtown Puyallup, etc.)	7	Proximity to traffic	8
Direct route	6	Isolates communities (Fife/Milton/Edgewood), poor trail connection (e.g. Meridian), and lack of river crossings/need for bridge	4
Scenic view (of river)	3	Railroad tracks	3
Ease of construction	2	Narrowness of area (prevents separated bike path?)	3
No river crossing	2	Potential for flooding?	2
Traffic calming effect	1	Opposition from drivers/community	1
Existing facilities	1	Fishing	1
Improve river as a destination/feature	1	Currently restricted use	1
		Cost	1
		Canyon Road construction might pose problems	1

Appendix C: Open house map



Appendix D: Community Forum poster



Join local decision-makers to help plan a regional trail between Tacoma and Puyallup!



Community Forum

for the Tacoma to Puyallup Regional Trail Route Analysis Study

Thursday, June 27 | 5:30-8 p.m.

5:30 p.m. - Open house

6 p.m. - Presentation

6:30 p.m. - Breakout discussions

Pioneer Park Pavilion

330 S Meridian

Puyallup, WA 98371

*Family-friendly
event with snacks!*

Event location is ADA accessible.

Contact fosterl@consultant.wsdot.wa.gov

for accommodation requests.

This study is evaluating three options for a new regional trail in Pierce County. We are conducting this event to share information and learn about the community's active transportation needs, issues and concerns. Learn more at bit.ly/t2p-trail-study



Appendix E: Community Forum media release

Community forum kicks-off planning for a new regional trail

Study will identify a preferred route for a trail from Tacoma to Puyallup

LOCATION – Efforts to develop a regional trail between Tacoma and Puyallup received a big boost with a Tacoma to Puyallup Regional Trail Route Analysis to assess three options for connecting the two cities. The Tacoma to Puyallup Regional Trail Connection advisory group will host a public event on June 27 to engage the public in a discussion about active transportation needs, issues and concerns to inform the study. The Tacoma to Puyallup Regional Trail Connection will bridge a major gap in the vision for a broader Tacoma to Puyallup Regional Trail network.

The route analysis is funded through a partnership between the Washington Department of Transportation (WSDOT), the Puyallup Tribe of Indians, Pierce County, the cities of Fife, Puyallup, and Tacoma, and Metro Parks Tacoma.

The Community Forum will include a presentation from local decision-makers, including Fife Mayor Kim Roscoe, Puyallup Mayor John Palmer and Washington State Secretary of Transportation Roger Millar, about why they are inspired to make this trail a reality. Participants will have the opportunity to engage in small group discussions with local officials from Fife, Puyallup, Tacoma, Pierce County and the Puyallup Tribe of Indians.

The details of the Community Forum are as follows:

Date: Thursday, June 27, 2019

Time: 5:30 – 8:00 p.m.

Location: Pioneer Park Pavilion, 330 S Meridian, Puyallup

The evening will begin with an informal open house at 5:30 p.m. and will also include a presentation at 6 p.m. and small group discussions at 6:30 p.m. The event will have transportation themed toys, books and activities to engage young participants. The event location is ADA accessible.

The Community Forum is part of a broader outreach effort, which includes the formation of a Stakeholder Advisory Group (SAG), comprised of Washington Department of Transportation (WSDOT), the Puyallup Tribe of Indians, Pierce County, the cities of Fife, Puyallup, and Tacoma, Metro Parks Tacoma, Sound Transit, Downtown On the Go, Port of Tacoma, ForeverGreen Trails, and the Puyallup Watershed Initiative Active Transportation Community of Interest. The SAG met earlier this month to discuss the options and review data, and it will meet twice more this year to evaluate options and make a recommendation. The route analysis will conclude in early 2020 with an implementation and funding plan for making the proposed trail a reality.

Appendix F: Additional event photos







Attachments

Included in package as separate files.

Comment database

Discussion note-taking packets

Questionnaires

Comment forms

Sign-in sheets



Tacoma to Puyallup Regional Trail Connection Route Analysis Study

Meeting Details

Meeting Date: Wednesday, June 5, 2019
Meeting Time: 3 – 5 p.m.
Meeting Location: Centro Latino, 1208 10th Street, Tacoma

Meeting Attendees

Sue Comis, Sound Transit	John Palmer, City of Puyallup
Josh Diekmann, City of Tacoma	Kim Roscoe, City of Fife
Kristi Evans, Tacoma Metro Parks	Craig Stone, Puget Sound Gateway Program Administrator
Lauren Foster, Tacoma to Puyallup Regional Trail Study	Andrew Strobel, Puyallup Tribe of Indians
Steve Friddle, City of Fife	Daniel Turner, Tacoma to Puyallup Regional Trail Study
Dennis Handberg, Pierce County	Jeanine Viscount, Puget Sound Gateway Program
Liz Kaster, Puyallup Watershed Initiative	Kristina Walker, Downtown on the Go
Kurtis Kingsolver, City of Tacoma,	Kevin Yamamoto, City of Puyallup
Roxanne Miles, Pierce County Parks	
Jane Moore, ForeverGreen Trails	

Introduction

Craig Stone, Puget Sound Gateway Program Administrator, welcomed attendees to the first Tacoma to Puyallup Regional Trail Stakeholder Advisory Group (SAG) meeting. He reviewed the agenda, explaining the study team wished to hear from this group to understand the trail's history



and background. The meeting began with attendees discussing what success would look like for the trail study.

What does success look like?

Craig explained this study falls under the Puget Sound Gateway Program umbrella, noting the need to continue the momentum and identify resources to move forward.

Kevin Yamamoto, City Manager for Puyallup, noted Puyallup has a strong interest in regional trail systems. He said Riverwalk trail interfaces with regional county trail systems. Puyallup is a key component and central player in this effort.

John Palmer, Mayor of Puyallup, said he is excited to see this trail move into a design phase, which begins with finding a route that is not only recreational, but accessible for commuting. He said initial success for this study would be landing on a design and cost.

Roxanne Miles, Pierce County Parks, said her vision is to bisect the county, Rainier to Ruston, Tahoma to Tacoma. She noted the Foothills Trail Coalition fought hard to the continuous section from Buckley to Puyallup. This segment is costly and complex, but it's a key ingredient to making this vision a reality. She is also working on an alternate route of the Tacoma Pipeline trail. She is excited that so many things are happening at the same time.

Kristina Walker, Executive Director of Downtown on the Go, said downtown is not successful unless you can get into and out of it.

Steve Friddle, Community Development Director for City of Fife, suggested there should be more than one way along this route.

Josh Diekmann, Traffic Engineer at City of Tacoma, hopes to see shared partnerships and shared vision of what success looks like.

Dennis Hanberg, Director of Public Works for Pierce County, said connective routes are important to regional transportation. He noted the Pipeline Trail and Kushman trail are important pieces of the puzzle. He is on the traffic side working with non-motorized projects. He thinks success would be a group photo on the first section of trail.

Kim Roscoe, Mayor of Fife, was excited to participate in the trip to Copenhagen. Her vision has morphed and changed along the way. Have a council committed to connectivity in the city. She heard a lot about congestion relief from residents and believes this will help. If we can create connections that are utilized by commuters, she thinks that will be a huge win for Fife.

Sue Comis, Sound Transit, works on the Federal Way to Tacoma Dome Link extension. They have three light rail stations on the Tacoma to Puyallup routes map. She said success would be improving access to those three stations. Also personally a bicyclist and walker. Think congestion relief is something, but recreation is really important, too. That's how people start to think about using it for commuting.



Andrew Strobel, Director of Planning and Land Use for Puyallup Tribe of Indians, indicated his interest is based on a prior process in the 1990s to look at completing this trail. At the time the Tribe had some concerns and were protective of fishing rights along the river. The Tribal Council has now moved beyond those concerns and believes this trail is an opportunity for the Tribe to tell its story. Multimodal connections create access for the community to heal and promote the Tribe members' wellbeing. Success will be recognizing cultural resources in the area and working out how the trail interfaces with that.

Jane Moore, Executive Director of ForeverGreen Trails, said her vision is a system of trails that connects all communities in Pierce County so anyone can get anywhere without a car. This would fill a big gap in the trail network in the region. Success would be to have a reasonable plan everyone agrees on to move forward on funding and construction.

Liz Kaster, Manager of Puyallup Watershed Initiative's Active Transportation Community of Interest, believes this trail is of the highest importance. Success is simply moving it forward.

Kurtis Kingsolver, Director of Public Works for Tacoma, said trail systems can connect communities without a barrier, which builds relationships. He would like this trail to help move away from the single occupancy vehicle as the main transportation mode.

Study background and history

Liz Kaster, Puyallup Watershed Initiative, reviewed the study's community and policy support, the Cohort's trip to Copenhagen, and how this trail fits into the Tahoma to Tacoma network.

Craig Stone reviewed the budget proviso directing the Gateway Program to study this trail. Craig described the SR 167 Completion Project and how it relates to the trail alignments. He explained how this group fits into the Gateway process.

Study scope and schedule

Dan Turner referred to a map of the three routes under evaluation and explained the schedule.

He explained the scope of work includes evaluating existing conditions, reviewing evaluation criteria, identifying funding sources, conducting a community outreach event, evaluating and refining alternative alignments, and proposing an implementation strategy.

Roxanne Miles, Pierce County Parks, asked if the evaluation criteria will be applied to all routes, or if a route will be evaluated after it is selected. Liz explained the study will evaluate all three routes to identify a preferred route, but will not preclude anything else.

Discussion

Lauren Foster, Tacoma to Puyallup Regional Trail team, facilitated discussion around the trail's draft purpose and need statement, study goals, and the proposed evaluation criteria. Input included:



Dan walked through contextual information on trail alignments. He reviewed the existing conditions maps and noted the group would have a chance to review these before they develop the implementation plan.

Community Forum

Lauren Foster, Tacoma to Puyallup Regional Trail team, explained the SAG members' role at the upcoming Community Forum event on June 27. She explained the SAG will be co-hosts and representatives of the trail study. Their role is to make attendees feel welcome and answer questions or direct them to a team member.

She asked for volunteers to present at the event, which Mayor Roscoe and Mayor Palmer agreed to. Lauren noted she would send a communication toolkit to all SAG members so they can help advertise the event.

Dan Turner thanked attendees and concluded the meeting.



Tacoma to Puyallup Regional Trail Connection Route Analysis Study

Meeting details

Meeting date: Wednesday, November 6, 2019

Meeting time: 2 – 3:30 p.m.

Meeting location: Fife Community Center, 2111 54th Ave E, Fife, WA 98424

Meeting attendees

Eric Chipps, Sound Transit

Kim Roscoe, City of Fife

Sue Comis, Sound Transit

Marty Scott, Tacoma Metro Parks

Steve Friddle, City of Fife

Sherry Shariat, Puget Sound Gateway
Program

Steve Gorcester, Independent Grant Analyst

Craig Stone, Puget Sound Gateway Program
Administrator

Liz Kaster, City of Tacoma

Lesley Maurer, Puget Sound Gateway
Program

Andrew Strobel, Puyallup Tribe of Indians

Roxanne Miles, Pierce County Parks and
Recreation

Jeanine Viscount, Puget Sound Gateway
Program

Jane Moore, ForeverGreen Trails

Kristina Walker, Downtown on the Go!

John Palmer, City of Puyallup

Introduction

Lesley Maurer, the Tacoma to Puyallup Trail Study Project Manager, opened the meeting by reviewing the status of the study and the study schedule. She explained that the study team completed the existing conditions report, which was provided to the group digitally for comments.



Levee Road opportunities and constraints

Lesley reviewed opportunities and constraints of the Levee Road alignment and noted that some areas along the trail have adequate right of way while some areas are much more constrained. She went over the areas that are feasible for trail construction. Additionally, she made note that the new Canyon Road bridge shared use facilities will help connect the trail on either side of the river.

Lesley noted that there are lower traffic volumes at Frank Albert Road but the overpass is steeper and would present more challenges than other routes. She explained that using a cut-through along Wapato Creek would be challenging because of riparian buffers and wetland habitat. The Levee route is more direct and would work well, but also presents some constraints, such as an at-grade railroad crossing. She explained that the Puyallup Avenue area could be an opportunity for this project because Tacoma plans to improve the corridor. She explained that the route connects well to the Thea Foss Esplanade.

Kristina Walker, Downtown on the Go!, asked for clarity on what it means that the levee has been “de-accredited” by US Army Corps of Engineers. Lesley clarified that a “de-accredited” levee is one that is no longer performing the flood control it was designed to provide. Kristina also asked if the Levee Road alternative could connect to an existing crossing at Eells Street in addition to the option of building a separate bridge crossing.

River Road opportunities and constraints

Lesley then reviewed the River Road alignment and described its opportunities and constraints. There is an opportunity to continue the River Walk Trail, however this would require the trail to be at-grade with the road as the riverbank narrows just north of the existing River Walk Trail. It is a direct route, but it would require a physical barrier to create a separate shared-use path. The existing roadway is constrained on the shoulder in several areas and would therefore need to be reconfigured. The portion of the alignment that crosses the railroad bridge is constrained and would potentially require bridge widening, which increases costs considerably. Lesley noted that there would be some wayfinding constraints for this alignment when navigating into downtown Tacoma, north of Pioneer Way, along E Bay Street and toward E 26th Street as well as Puyallup Avenue.

Sue Comis, Sound Transit, noted that one of the constrained areas (at E Bay Street) is the preferred location for Sound Transit’s Portland Avenue station and this alignment would go directly through that location. Sue said that she would share that information with the study team and added that there are four alignments heading into the Tacoma Dome which could affect the proposed River Road alignment.



SR 167 opportunities and constraints

Lesley described the opportunities and constraints of the new SR 167 alignment. She said that the primary merit of this alignment is that there is enough right of way to build a wide, separated trail. Sue Comis, Sound Transit, asked how far away from the road the trail would be. Craig Stone, Puget Sound Gateway Program, explained that the road will be elevated on fill and the trail would be at the bottom of the fill. He added that the Program purchased enough right of way for a six-lane highway, but practical design reduced the cross section to a four-lane highway, so there is plenty of room to build the trail that would be separated from the roadway facility. Lesley said that cross sections showing the distance between the trail and roadway will be provided in the Route Refinement portion of the presentation.

Kristina Walker, Downtown on the Go!, clarified that "at-grade" in this context means that the train would be at the same elevation as the trail users. Lesley explained that the SR 509 spur revealed some issues with user comfort so close to high volume, high-speed traffic. Kristina asked if there would be enough right of way for a separated space on Pacific Avenue. Kim Roscoe, City of Fife, said that this is an extra-wide sidewalk with planter strips so there is sufficient right of way. Steve Friddle, City of Fife, added that there is an almost 20-foot area, which Andrew Strobel, Puyallup Tribe of Indians, noted could function as a shared use path.

Discussion of route refinements

Lesley explained that the intent of this meeting is to get feedback from attendees so the project team only carries viable routes into their analysis.

Levee Road route refinements

The group discussed the route refinements on Levee Road. Lesley explained a segment of Levee Road with fencing on one side of the trail would potentially require a retaining wall on the west side (at the slope of the roadway). She noted that the elevation of Levee Road is 5 to 10 feet above the trail elevation. Sherry Shariat, Tacoma to Puyallup Regional Trail study team, explained that the study team would recommend a guard rail up along Levee Road where a guard rail is currently missing.

Craig Stone, Puget Sound Gateway Program, pointed out that the Levee trail would flood every year and asked the SAG to provide their input regarding the feasibility of a trail in this location. Andrew Strobel, Puyallup Tribe of Indians, said that it is concerning to build the trail along the river bench because of the likelihood of flooding and subsequent maintenance required. The type of improvements along this alignment would be severely limited. Andrew noted that there are various points where people bring in ATVs to access the river. The Puyallup Tribe is working with Pierce County to increase the number of boat ramps on the river.



Andrew expressed curiosity regarding the constructability of the area, given the erosion and location on the inside of the levee. He asked whether this would be a duplication of Puyallup's trail on the other side of the river. Lesley explained that the River Walk trail ends at the city of Puyallup boundary and that one option would be to continue the trail up to 70th Avenue and utilize the new Canyon Road bridge crossing to access the unpaved trail along the levee. Andrew asked if something prohibited building a retaining wall to bring the trail up closer to Levee Road. Steve Friddle, City of Fife, explained that there is a cost associated with both options and they may pose maintenance challenges.

Sue Comis, Sound Transit, suggested that if you started at Meridian there is an industrial area with many driveways. Lesley said the pathway they mapped tried to keep a continuous 10-foot path.

Liz Kaster, City of Tacoma, offered that a potential solution may be for the existing trail on the River Walk to cross over to Levee Road and make Levee a one-way street for vehicular traffic, dedicating an entire lane to active transportation.

Kim Roscoe, City of Fife, noted that SR 167 and Canyon Road will change the dynamics of the area significantly. Andrew noted that he would like to see the solution engineered to see what maintenance in the event of flooding would look like. The group requested that the study team include the feasibility of an alignment on the north side of Levee Road (at-grade with the existing roadway). Lesley indicated the study team would consider the north side Levee Road alignment in the evaluation.

Sue Comis asked if there were restrictions on lighting near the river given its impact on salmon. Andrew explained that they would need to explore downlighting or lights that face away from the river because it would be disruptive to the fish. He noted that this is why there is not much lighting along River Road or Levee Road currently.

Liz Kaster noted that access to amenities along the route needed to be considered as well. Eric Chipps, Sound Transit, asked what the trail connects to at its eastern terminus. Lesley explained that it connects to the River Walk trail where it crosses Meridian Avenue. John Palmer, City of Puyallup, asked if the trail would have to go up to the roadway at the end of the existing River Walk trail. Lesley said yes and that the lack of existing riverbank is likely why the trail ends at its current terminus which is at the roadway as well as the city of Puyallup boundary.

Andrew added that the Tribe is protective of vegetation along the river, which brings interesting maintenance situations for living trees and obstacles for cyclists. Sherry Shariat pointed out pinch points and places where the alignment is very close to the river. Lesley and Andrew discussed options for how to protect salmon habitat.



Lesley discussed Levee Road Option B, which takes the trail onto Frank Albert East and connects to 20th Street East away from the river and would require a railroad crossing to connect back to the Union Pacific Railroad property and the potential location of a new river crossing. Sue asked if this would be a new crossing and Lesley affirmed that it would be. The group discussed what would be required to create a new crossing, such as a new bridge or repurposing/acquisition of decommissioned existing railroad bridge.

Andrew was curious about an overpass and the potential for BNSF to contribute funding for a grade separated crossing and opportunities with Pioneer Avenue because some cyclists use Pioneer Avenue as a safer alternative to River Road. Jane Moore, ForeverGreen Trails, expressed confusion about Grandview and Pioneer because they are over the river from the area being discussed. Andrew explained that they are important to consider for future linkage and connectivity.

Lesley explained that it may be possible to use an existing rail bridge owned by Tacoma Rail for bike and pedestrian use. Liz spoke with a representative of Tacoma Rail on November 6, who expressed that they are open to discussing using the bridge for the trail, however it is currently an active rail line. Lesley proceeded to go over the Portland Avenue to Puyallup Avenue transition option. Kristina asked if there would be a two-way trail on the north side of Puyallup Avenue. Lesley said they would need to connect into the City of Tacoma Puyallup Avenue corridor plan development.

River Road route refinements

Lesley explained that there are many constraints on the roadway and that there were certain critical locations where a barrier would be needed to separate the trail from traffic. She explained that the connection to East 26th Street is very constrained; however, the area east of Portland Avenue will look very different after light rail is constructed so there may be better opportunities to integrate active transportation.

Liz Kaster, City of Tacoma, commented that she would like to see what it looks like to repurpose one traffic lane on River Road to active transportation in areas with limited available road width in order to avoid widening a bridge. Lesley acknowledged that the repurposing of one traffic lane would probably have significant impact to traffic, but there is room for reconfiguring the existing roadway to get the desired trail width along most of the route, not the entire length. Liz said that the City of Puyallup Comprehensive Plan calls for River Road to be reconfigured to a complete street, which includes some impacts to traffic and lower speeds.

Andrew Strobel, Puyallup Tribe of Indians, asked if the assumption of the River Road scenario is that pinch locations are all within existing WSDOT right of way. Sherry explained that they are



looking into area on the river slope as well. Andrew commented that compared to the other scenario there are significantly fewer pinch points on this side of the river and the elevation is higher, reducing the threat of flooding. Sue Comis, Sound Transit, noted that the cross section is down to six feet, which is “barely a sidewalk.”

Discussion re-visiting Levee Road north-side alignment

Andrew and Kim Roscoe, City of Fife, both said that there are significantly fewer driveway crossings on Levee Road than River Road, but they would require more right of way acquisition. John Palmer, City of Puyallup, asked about the viability of continuing the trail on the north side of Levee Road, past Frank Albert East on the existing roadway. Lesley noted this is a potential constraint because the property is owned by Union Pacific Railroad and Option B on Frank Albert Road would avoid the use of the railroad property.

SR 167 route refinements

Lesley noted that because this new section is not built yet there is a lot of opportunity and ample right of way. This alignment could provide 12-foot trails fully separated from the roadway.

Eric Chipps, Sound Transit, asked about environmental clearance and Craig Stone, Puget Sound Gateway Program, noted that environmental clearance would be the next step in this process.

Liz Kaster, City of Tacoma, explained that the SR 167 Bike/Pedestrian Subcommittee’s recommendation is to connect Northeast Tacoma via the SR 167 alignment. This option has pinch points at the SR 167/SR 509 Spur at Alexander Avenue but there is room to make a connection south to Puyallup Avenue via Alexander Avenue.

Draft evaluation metrics

Lesley presented the evaluation metrics as the meeting ended. She explained the metrics are in the existing conditions report available for review. Lesley asked that everyone review the metrics and provide comments in the Google Doc by Tuesday, November 12.

Next steps

Lesley explained that the team would finalize the evaluation metrics matrix before performing the final analysis. At the next and final SAG meeting, Lesley plans to provide the draft alternatives evaluation to review along with potential funding sources.

Steve Gorcester, Independent Grant Analyst, addressed the group to share his initial thoughts on funding opportunities. He suggested the SAG members make sure any projects currently progressing have forward compatibility with the trail, noting that there’s always something going



on in a project area this large. He also said that this project is creditable toward a \$1 million grant from Complete Streets, per jurisdiction.

The meeting ended at 3:35 p.m.



Tacoma to Puyallup Regional Trail Connection Route Analysis Study

Meeting details

Meeting date: Tuesday, February 18, 2020

Meeting time: 2 – 4 p.m.

Meeting location: Tacoma Municipal Building, 747 Market Street, Tacoma, WA

Meeting attendees

Sue Comis, Sound Transit

Secretary Roger Millar, Washington State

Josh Diekmann, City of Tacoma

Department of Transportation

Steve Friddle, City of Fife

Jane Moore, ForeverGreen Trails

Lauren Foster, Puget Sound Gateway Program

Meredith Neal, City of Puyallup

Steve Fuchs, Puget Sound Gateway Program

Deputy Mayor John Palmer, City of Puyallup

Stevan Gorcester, Independent Grant Strategist

Mayor Kim Roscoe, City of Fife

Erik Hanberg, Metro Parks Tacoma

Andrew Strobel, Puyallup Tribe

Dennis Hanberg, Pierce County

Craig Stone, Puget Sound Gateway Program

Liz Kaster, City of Tacoma

Councilmember Kristina Walker, City of

Kurtis Kingsolver, City of Tacoma

Tacoma

Lesley Maurer, T2P Study Team

Jeanine Viscount, Puget Sound Gateway

Commissioner John McCarthy, Port of Tacoma

Program

Julie Meredith, Washington State Department
of Transportation

Roxanne Miles, Pierce County Parks &
Recreation



Introduction

Craig Stone, Washington State Department of Transportation's (WSDOT) Puget Sound Gateway Program Administrator, opened the meeting with an acknowledgement of the Puyallup Tribe of Indians. He reviewed the study scope and schedule, noting the study is intended to determine the initial step toward implementation. He reviewed the goals and evaluation criteria the group established in earlier meetings, highlighting the standard of accessibility for all ages and abilities.

Route alternatives overview

Lesley Maurer, Tacoma to Puyallup Regional Trail Connection (T2P) study lead, briefly reviewed the routes her team evaluated: Levee Road (north), Levee Road (south), River Road, and SR 167 (new alignment).

She reminded the group that her team evaluated the routes refined in the Stakeholder Advisory Group's second meeting last November.

The Levee Road (south) alignment would run along the Puyallup River side of Levee Road on the south side of the levee. It is the most expensive route, at an estimated \$56 million. Flooding is a concern along this route, which would make maintenance and operations expensive and risky.

The Levee Road (north) alignment would run along the north side of Levee Road to avoid issues with the levee and flooding. Lesley explained this alignment requires right of way acquisitions for a 12-foot wide path and impacts wetlands. It's estimated cost is \$47 million.

The new SR 167 alignment would run along the planned SR 167 from Puyallup to Fife and then follow SR 509 from Fife into Tacoma. The route includes a segment between Fife and the Port of Tacoma that is already included in the SR 167 Completion Project scope. It is the longest and least direct route from Puyallup to Tacoma. This route is the least expensive route at \$15 million, in part because of cost efficiencies by constructing along with the rest of SR 167 Stage 2.

Secretary Roger Millar, WSDOT, commented the new SR 167 alignment is the least direct route from Puyallup to Tacoma, however it would be more direct from Fife to Tacoma (or Fife to Puyallup). He noted Fife has more residences and businesses than the routes along the river, so this route would likely connect higher concentrations of homes and jobs. He noted it also has closer connections to the Interurban Trail, which would benefit the larger regional trail system.

Lesley explained the River Road alignment runs along the Puyallup River on the north side of River Road. The study found this route would require substantial reconfiguration of River Road to build more than an 8 to 10-foot wide path. Lesley presented several options for reconfiguring River Road to accommodate a 12-foot wide path. The estimated cost of the 8 to 10-foot wide path on River Road is \$30 million, not including the road reconfiguration, which would likely be its own project.



Lesley discussed how reducing speeds, adding intersection controls, and/or reducing lanes on River Road could affect travel times for cars and trucks. The group discussed the merits of road reconfiguration.

Alternatives evaluation findings

Lesley Mauer, T2P study lead, asked the group for feedback on the evaluation findings. She noted the draft findings are meant to inform decisions on how to carry one or more alternatives forward. She noted the evaluation criteria were not weighted, which may require a conversation about which criteria are the highest priority.

Lesley explained the cost estimates are the major point of distinction, noting the team did not produce a cost estimate for reconfiguring River Road, because there are many ways to do so. The group discussed the cost estimate for a route along the existing River Road. Secretary Millar suggested an 8 to 10-foot wide path with no separation should not cost \$5 million per mile. Lesley explained to get a trail that wide would require building a retaining wall on the river side, which accounts for the increased cost.

Secretary Millar suggested the future of River Road is a larger discussion that would need to happen between Tacoma, Puyallup, Fife, Pierce County and WSDOT. He reminded the group of the SR 167 alignment connections between Fife, Tacoma, Puyallup and other trail access points. Lesley explained the study used existing street connections as a metric for “access”, rather than population/job density.

The group discussed the merits of the SR 167 and River Road routes.

Dennis Hanberg, Pierce County, explained the Canyon Road Regional Connection project would add bicycle lanes on Canyon Road connecting into 70th Avenue and thereby the new SR 167.

Roxanne Miles, Pierce County Parks and Recreation, noted the equity, environment and community fit scores were shown as normalized across each route, but the study did not look at which populations benefit most from each route. She asked what could be done with the money already allocated to the portion of the SR 167 route already in Puget Sound Gateway’s scope. Secretary Millar explained those funds were already committed and could not be repurposed.

Mayor Kim Roscoe, City of Fife, noted the importance of including a completed Canyon Road connection when modeling the traffic patterns on River Road and the new SR 167 alignment to understand how traffic will change on both routes in the future.

Secretary Millar suggested keeping the group’s stated purpose for the shared-use path in mind when discussing options. He noted a route along the river should not be prioritized just because it is scenic – the main purpose is transportation.



Erik Hanberg, Metro Parks Tacoma, asked about the levels of noise and proximity to traffic along SR 167. Secretary Millar suggested it would be comparable to the trails alongside I-90.

Commissioner John McCarthy, Port of Tacoma, asked how long the SR 167 route would take to construct. Craig Stone explained the SR 167 route would have the same construction timeline as SR 167 Completion Project Stage 2, which will be complete in 2028.

Kurtis Kingsolver, City of Tacoma, suggested the future of River Road is a separate discussion with different stakeholders, however he wondered if spending \$15 million to build the SR 167 trail would take funds away from a potential River Road reconfiguration.

Erik Hanberg asked if changes to River Road would have to wait until after the new SR 167 is constructed, to which Craig Stone replied it would.

Secretary Millar discussed the possibility that WSDOT would want to turn River Road back to Pierce County. He explained the \$15 million to build a trail on SR 167 does not yet exist, so it's not something that could be allocated to a River Road reconfiguration. He recalled his experience in Copenhagen, suggesting that more than one route could be possible, but the River Road route would have to come after SR 167.

Councilmember Kristina Walker, City of Tacoma, asked whether the safety issues on River Road might justify accelerating planned roadway improvements. Craig Stone said he checked on plans for improvements on River Road, and there is no plan to even address the pavement in the next 10 years.

Secretary Millar explained the state does not have enough money to cover needed maintenance and operations or safety improvements and River Road would be in competition with the many other high-collision corridors across the state.

Andrew Strobel, Puyallup Tribe of Indians, said he spoke to his Historic Preservation and Fisheries departments about potential issues with the buffers between a trail and the Puyallup River. He said there is a major historic preservation concern near Bay Street where there is a historic village site. Andrew said between that and issues with the Army Corps of Engineers and railroad, River Road might not be something this group is able to tackle right now.

Funding opportunities

Stevan Gorcester, Independent Grant Strategist, explained the nature of funding various shared-use path scenarios. He explained all large-scale projects have similar conditions for success, including consensus, leadership and a strong imperative to reach the tipping point for actionable funding. He noted even the \$15 million option along SR 167 constitutes a large-scale project for a trail project.



Stevan explained state projects of this size are typically funded through legislative appropriation, whereas a local project would likely be funded through a mix of project-specific budget actions, revolving grants and what he terms “one-off” funding opportunities, which are especially hard to plan for.

Stevan detailed some sources of project-specific funding, such as direct budget allocations, levies, bonds and transportation benefit districts. He explained how Complete Streets and trail-specific grants work differently when the trail is adjacent to a road or not. He noted he believes it would be difficult, but possible, to fund a \$15 million trail project through these methods, however it would not be possible to fund a \$50 million trail project.

Erik Hanberg, Metro Parks Tacoma, asked if the SR 167 option would be broken into two segments for funding purposes, one from Puyallup to Fife and one from Fife to Tacoma. Stevan explained the segments have “independent utility”, meaning they form important connections on their own, so they could each apply for the same grant funding.

Stevan recommended developing a business plan early in the process to ensure full funding is achieved, rather than cobbling together funding that may later need to be paid back.

Implementation discussion

Craig Stone, Puget Sound Gateway Program, invited members to discuss key questions in an effort to align on a path forward. He asked the group if they agreed on a route for implementation, noting the feasibility issues with both Levee Road routes.

Commissioner John McCarthy, Port of Tacoma, suggested the opportunity to implement a route along the new SR 167 alignment was the best choice and the group should take it while it’s available.

Secretary Roger Millar, WSDOT, noted the segment of the SR 167 route from Fife to Tacoma would probably be eligible for Sound Transit’s station access funding. He acknowledged the stakeholders would need to address issues with River Road in the future, but the questions go beyond active transportation access, which makes implementation riskier, more expensive and more difficult. Secretary Millar then departed the meeting.

Erik Hanberg, Metro Parks Tacoma, spoke about the trail’s benefits to the regional recreational network. He noted users riding the entire length of the route from Mount Rainier to Tacoma would likely not mind the less direct route on SR 167.

Deputy Mayor John Palmer, City of Puyallup, explained he was originally excited about the Levee Road routes, but they clearly do not work because of cost restrictions and flooding risk. He



suggested the group move forward with the most straightforward option of SR 167. He asked how far the trail would be from the roadway on SR 167.

Steve Fuchs, SR 167 Completion Project Manager, explained the new roadway will be elevated through the entire valley, with a few at-grade crossings near the Puyallup Recreation Center. For the most part, the road would be 25 feet above the trail at ground level.

Mayor Kim Roscoe, City of Fife, asked whether the cost estimate for SR 167 captures the costs to separate the trail throughout Fife. Craig Stone responded the cost estimates did not address specific design elements and are only to be used for high level scoping.

Mayor Roscoe said she was also originally excited about the Levee Road (north) route, but realized it would not be feasible to acquire enough right of way.

Liz Kaster, City of Tacoma, said she is still intrigued by the River Road reconfiguration concepts. She thinks it is a once-in-a-generation opportunity to address safety on the corridor. She asked for additional analysis to understand how it would rank against the group's stated goals.

Craig Stone posed the question of whether further analysis is needed to make the decision about an implementation project.

Jane Moore, ForeverGreen Trails, suggested the group should support the SR 167 route but also ask for more analysis of the River Road reconfiguration to find a more direct route between Puyallup and downtown Tacoma.

The group discussed the merits and feasibility of moving forward with a study of River Road, considering it would be its own road project outside of the trail element. The group settled on moving forward with the SR 167 route in the near-term, and continuing to keep River Road as a longer-term priority. The group discussed the possibility of making active transportation improvements to River Road as part of the Canyon Road Regional Connection project.

Andrew Strobel, Puyallup Tribe of Indians, noted a potential conflict with the Union Pacific rail line on the SR 167 route. Craig Stone was aware of this issue and suggested it would be part of future design considerations. Mayor Roscoe noted Fife is already in conversations with Union Pacific regarding the at-grade crossing on 54th Avenue.

Craig Stone asked if members of the group were willing to champion the SR 167 route. Commissioner McCarthy asked if it would become part of the Puget Sound Gateway Program. Craig said it would likely be an easier lift if it were part of the Gateway Program, but they are already facing upward pressure on their cost estimates, so they would need to make adjustments to the Program's budget in the next Legislative session to add it to the scope.



Craig Stone asked if the group would like to continue meeting and how they think it could be funded. Mayor Roscoe said she thinks the group should continue. Liz Kaster agreed the group would need to continue meeting to prepare for a Legislative ask.

The group discussed needing to have an aligned approach ready by September to go for funding in the 2021-2023 biennium package. Sue Comis, Sound Transit, added the group would need to communicate next steps to the public, too.

Craig Stone noted three next steps: 1) an operational analysis of River Road, 2) a refined cost estimate for SR 167, and 3) outreach communicating back with participants from the Community Forum last June. The group agreed and began to discuss funding possibilities.

Craig said he would follow up with the group about how to move forward with future meetings and other next steps.

The meeting concluded at 4:10 p.m.

Appendix B

Alternatives Evaluation and Alternatives Ratings Matrices

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
	<ul style="list-style-type: none"> The riverside trail alignment would be impacted by Puyallup River flooding that presents a feasibility constraint for the investment and on going maintenance of a trail. A trail facility on the river bench potentially would not be permitted by Pierce County due to construction impacts to the levee and impediments to the County's maintenance access. This alignment requires a river crossing (either a new facility or use of existing). See Options. Alignment is direct and provides an aesthetic river side trail without many roadway crossing conflicts for trail users. Estimated cost is high and may make this alignment difficult to implement in the near term. 			<ul style="list-style-type: none"> Property impacts requiring right-of-way acquisition, resulting in significant costs and potential property owner controversy. Environmental impact to wetlands resulting in wetland mitigation costs. Environmental impact to potential jurisdictional waters (ditch), requiring USACE permit. This alignment requires a river crossing (either a new facility or use of existing). See Options. Alignment is direct and avoids flooding impacts along the south side of Levee Road. Estimated cost is high and may make this alignment difficult to implement in the near term. 			<ul style="list-style-type: none"> Existing right-of-way between the roadway and the river bank is constrained and would require repurposing space within the right of way for the trail (ranging from re-striping, repurposing of center turn lane or travel lane) Existing traffic volumes and speeds on the roadway are less suitable for a shared use path, requiring reduction in posted speeds Reconfiguration/repurposing of existing right of way would require further study Unknown future jurisdiction of River Road and condition of roadway (as state route or other). Overall implementation is dependent upon further analysis of the roadway operation and configuration. Connection between Pioneer Way to the west side of I-5 on E Bay Street is constrained by existing right-of-way and built environment; however it may be modified for proposed Sound Transit light rail station. Alignment is the most direct and avoids the need for a river crossing. Estimated cost is high and may make this alignment difficult to implement in the near term. 		<ul style="list-style-type: none"> The SR 167 Program has purchased sufficient right-of-way to allow for a fully separated shared use path. Potential for cost and construction efficiencies associated with the SR 167 completion project. Difficult crossings at railroad on Freeman Road E, Valley Avenue E, and roundabout crossings at Pacific Highway (SR99) and 54th Avenue East, and right-of-way constraint at Alexander/SR 509 spur. Alignment is the least direct. Estimated cost is the least of the alignment alternatives. 	
Feasibility Summary of Findings	<ul style="list-style-type: none"> Union Pacific (UP) Railroad property use may or may not be permitted Construction and permitting trail on levee segment owned by USACE may not be allowable Permitting a railroad at-grade crossing or underpass on UP property may or may not be permitted Significant costs for construction of a new bike/ped bridge over Puyallup River Environmental impact of permitting a new bike/ped bridge over Puyallup River may be time intensive and costly Potential right-of-way acquisition for access to a new bike/ped bridge resulting in significant costs and potential property owner controversy. 	<ul style="list-style-type: none"> Union Pacific (UP) Railroad property use may or may not be permitted Construction and permitting trail on levee segment owned by USACE may not be allowable Significant costs for construction of a new bike/ped bridge over Puyallup River Environmental impact of permitting a new bike/ped bridge over Puyallup River may be time intensive and costly Potential right-of-way acquisition for access to a new bike/ped bridge resulting in significant costs and potential property owner controversy. Slope at Frank Albert Rd may be difficult for all ages and abilities to traverse 	<ul style="list-style-type: none"> Existing right-of-way on Eells Street Bridge crossing is insufficient for separated shared use trail Slope at Frank Albert Rd may be difficult for all ages and abilities to traverse 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> No existing controlled crossing and heavy traffic volumes at Portland Avenue as well as many driveway crossing conflicts in an industrial use area. Slope would be difficult for all ages and abilities to traverse 	<ul style="list-style-type: none"> Significant number of driveway crossing conflicts on Puyallup Ave. Coordination with City of Tacoma plans for Puyallup Ave corridor improvements to accommodate a shared use path. 	<ul style="list-style-type: none"> Significant number of driveway crossing conflicts on Pacific Hwy/Puyallup Ave. Existing right-of-way on Eells Street Bridge crossing is insufficient for separated shared use trail. Coordination with City of Tacoma plans for Puyallup Ave corridor improvements to accommodate a shared use path. 	<ul style="list-style-type: none"> Existing right-of-way, traffic volumes and speeds on SR 509 present a safety concern for feasibility of shared use path. Severe crossing conflicts at SR 509 ramps and constrained right-of-way on SR 509 bridge. Coordination with WSDOT for use of WSDOT right-of-way for active transportation.

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B	
Safety The route promotes a positive perception of personal safety by users of all ages and abilities.											
Traffic volume on adjacent roads	•9,450 AADT on Levee Road (year 2018)						•29,000 AADT on River Road (year 2018)		•43,000 projected AADT on the new SR 167 (year 2030)		
	<ul style="list-style-type: none"> No traffic on UP railroad property segment; however alignment is adjacent to rail traffic 	<ul style="list-style-type: none"> No AADT data for Frank Albert Rd E but relatively low volume 20th St E has more volume and a higher heavy truck percentage based on industrial land uses, it is designated as a minor arterial by the City of Fife (it had double the traffic volume of Levee Rd in 2008) 20th St E is part of the proposed Port of Tacoma interchange reconstruction project and is expected to see a large increase in truck traffic 	<ul style="list-style-type: none"> No AADT data for Frank Albert Rd E but relatively low volume 20th St E has more volume and a higher heavy truck percentage based on industrial land uses, it is designated as a minor arterial by the City of Fife (it had double the traffic volume of Levee Rd in 2008) 20th St E is part of the proposed Port of Tacoma interchange reconstruction project and is expected to see a large increase in truck traffic 24,000 AADT on Pacific Hwy/Eells St/Puyallup Ave 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> No AADT data available for E 26th St but it is a low volume local street with minimal through traffic High number of parking maneuvers on E 26th St may create conflict for cyclists/pedestrians 	<ul style="list-style-type: none"> No AADT data available for Puyallup Ave but downstream volume on Pacific Hwy is 24,000 	<ul style="list-style-type: none"> No AADT for Alexander Ave 24,000 AADT on Pacific Hwy/Eells St/Puyallup Ave 	•34,000 AADT on SR 509	
Traffic speeds	<ul style="list-style-type: none"> Generally 35 mph speed limit with small section at 25 mph on Levee Rd 30 mph on Puyallup Ave 						<ul style="list-style-type: none"> Existing 50 mph on River Rd (proposed reduced speeds to 35mph) 		<ul style="list-style-type: none"> Posted speed limit will be 50 mph between I-5 and SR 509; 60 mph for the remainder of the new SR 167 		
	<ul style="list-style-type: none"> No vehicle traffic on UP railroad property segment Train traffic and speeds are a danger 	<ul style="list-style-type: none"> 30 mph on Frank Albert Rd 35 mph on 20th Street E 30 mph on Puyallup Ave 	<ul style="list-style-type: none"> 30 mph on Frank Albert Rd 35 mph on Pacific Hwy 30 mph on Puyallup Ave/Eells St 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	•25 mph on E 26th St	•30 mph on Puyallup Ave	<ul style="list-style-type: none"> 25 mph on Alexander Ave E 35 mph on Pacific Hwy 30 mph on Puyallup Ave/Eells St 	•50 mph on SR 509	
Trail width and separation	<ul style="list-style-type: none"> 12 ft trail on Levee Road (North and South) 4-15 ft buffer on main alignments 8-12 ft trail on E Bay St, Portland Ave to Puyallup Ave transition loop and Puyallup Ave Intermittent barrier separation from the roadway on Puyallup Ave is difficult due to driveway conflicts 						<ul style="list-style-type: none"> 10-12 ft trail (with roadway reconfiguration) Jersey barrier separation from the roadway on River Road 		<ul style="list-style-type: none"> 8-12 ft trail Up to 100 ft of separation from the roadway Constraint at SR 509 and Alexander Ave (4 ft trail width) 		
	<ul style="list-style-type: none"> Fully separated trail on railroad property and potential new bike/pedestrian bridge crossing 8-12 ft trail on E Bay St, Portland Ave to Puyallup Ave transition loop and Puyallup Ave 	<ul style="list-style-type: none"> 10 ft fully separated trail on Frank Albert Rd Sufficient right-of-way on 20th St E for 8-10 ft trail for most of the way; little separation from traffic in areas with driveway conflicts Fully separated trail on railroad property and potential new bike/pedestrian bridge crossing 8-12 ft trail on E Bay St, Portland Ave to Puyallup Ave transition loop and Puyallup Ave 	<ul style="list-style-type: none"> 10 ft fully separated trail on Frank Albert Rd Constraint on existing Frank Albert Rd railroad overpass (approx. 4-5 ft sidewalk) Sufficient right-of-way on 20th St E for 8-10 ft trail for most of the way; little separation from traffic in areas with driveway conflicts Constraint on existing Eells St Bridge (approx. 5-6 ft sidewalk) 8-12 ft trail on Puyallup Ave Intermittent barrier separation from the roadway on Puyallup Ave due to driveway conflicts 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> 8-12 ft trail Directly adjacent to E Bay St in some areas with jersey barrier separation Intermittent barrier separation between trail and E Bay St, E 26th St due to crossings and driveway conflicts 4 ft separation from the roadway on E 26th St 	<ul style="list-style-type: none"> 8-12 ft trail Directly adjacent to E Bay St in some areas with jersey barrier separation Adjacency to active railway at the Portland Ave/Puyallup Ave transition loop Intermittent barrier separation from the roadway on Puyallup Ave due to driveway conflicts 	<ul style="list-style-type: none"> 10-12 ft trail Constraint at SR 509 Spur and Alexander Ave (4 ft trail width) 2-12 ft of separation from the roadway by shoulder or existing roadway separation on Alexander and Puyallup Ave Intermittent barrier separation from the roadway on Puyallup Ave due to driveway conflicts 	<ul style="list-style-type: none"> 8-10 ft trail Constrained to existing shoulder on portions of SR 509 and South Frontage Road Jersey barrier separation on portion of SR 509 Directly adjacent to SR 509 traffic lanes on bridge crossing 	

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Safety The route manages interactions with vehicle and rail traffic particularly at intersections										
Number of crossing conflicts (vehicle, rail, driveways, major roadways)	<ul style="list-style-type: none"> •One crossing at N Meridian Ave bridge ramp •No other conflicts 			<ul style="list-style-type: none"> •82nd Ave E •70th Ave E •Minor local streets on Levee Road •Commerical and private driveways 			<ul style="list-style-type: none"> •No conflicts along River Rd 		<ul style="list-style-type: none"> •Crossing at N Meridian Ave bridge ramp •Freeman Ave E •At-grade rail crossing on Freeman Rd E •Roadway crossings at Valley Ave E, 26th St E, 20th St E, Pacific Hwy E, 12th St E, 54th Ave E 	
	<ul style="list-style-type: none"> •One at-grade rail crossing on UP railroad property 	<ul style="list-style-type: none"> •A significant number of crossing conflicts with freight driveways on 20th St E •One at-grade rail crossing from 20th St E to access the UP railroad property 	<ul style="list-style-type: none"> •A significant number of crossing conflicts with freight driveways on 20th St E •Constraint on existing Eells St Bridge (approx. 5-6 ft sidewalk) 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> •Conflict with Portland Ave E crossing and E 'L' St, E J St, E 26th St •Conflicts with angled on-street parking on E 26th St 	<ul style="list-style-type: none"> •Conflicts with driveways on Puyallup Ave 	<ul style="list-style-type: none"> •Major crossing at Alexander Ave E/ Pacific Hwy •Conflicts with driveways on Pacific Hwy E/Eells/Puyallup Ave 	<ul style="list-style-type: none"> •Major crossing at Alexander Ave E •Conflicts with ramps on SR 509
Crash history data (2014-2018)	<ul style="list-style-type: none"> •57 crashes on Levee Road •Trail implementation would be unlikely to change roadway configuration (North and South) 						<ul style="list-style-type: none"> •549 crashes on River Road •Opportunity to reduce crashes with roadway reconfiguration (reduce turning conflicts, reduce speeds) 		<ul style="list-style-type: none"> •No available data for future condition of the new roadway •Assumption is that fewer crossing conflicts on new SR 167 would result in fewer crashes •The new roadway and trail would be vertically and horizontally separated for most of the alignment 	
Safety The route has clear sightlines that reduce the likelihood for collisions with other trail users										
Physical Constraints	<ul style="list-style-type: none"> •Constrained between the river bench and the levee, requiring engineering to allow for full trail width •River bench provides low visibility of the trail users from the surrounding areas, as well as dense vegetation that impacts sightlines 			<ul style="list-style-type: none"> •Constrained between existing roadway footprint, limited shoulders, and existing driveways, roadways and roadside ditches 			<ul style="list-style-type: none"> •Constrained between existing roadway shoulder and river bank •Severely constrained area at existing bridge crossing over railroad east of Pioneer Way E (narrow sidewalks on both sides approximately 4ft) •Severely constrained area at E Bay St and E 26th St between existing building structure and railway retaining structure 		<ul style="list-style-type: none"> •Constrained right of way on SR 509 spur and Alexander Ave due to the bridge over ditch 	
	<ul style="list-style-type: none"> •Requires Puyallup River and railroad crossing 		<ul style="list-style-type: none"> •Eells Street Bridge crossing is constrained by existing bridge shoulder and narrow sidewalk 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> •No significant physical or right of way constraints identified 		<ul style="list-style-type: none"> •Eells Street Bridge crossing is constrained by existing bridge shoulder and narrow sidewalk 	<ul style="list-style-type: none"> •Significant constraints on SR 509 bridge crossing due to limited right of way and proximity to heavy traffic volumes and high speeds
Overall Safety Assessment <i>Scale: 1 (less effective) to 5 (more effective)</i>	3	3	3	4	3	4	3	3	3	2

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Connections The route provides connections to other active transportation facilities										
Number of connections (within 1/2mi) to key regional trails	<ul style="list-style-type: none"> Connects to the Riverwalk Trail, Thea Foss Esplanade, and Pipeline Trail 						<ul style="list-style-type: none"> Connects to the Riverwalk Trail, Thea Foss Esplanade, and Pipeline Trail 		<ul style="list-style-type: none"> Connects to the Riverwalk Trail, Thea Foss Esplanade, and Milton Interurban Trail Connects to planned corridor improvements on Puyallup Ave Connects to planned corridor improvements on SR 167 completion project 	<ul style="list-style-type: none"> Connects to the Riverwalk Trail, Thea Foss Esplanade, and Milton Interurban Trail Connects to planned corridor improvements on SR 167 completion project
Connections The route provides connections to key destinations										
Connections to key destinations (within 1/2mi) such as commercial nodes, residences, schools	<ul style="list-style-type: none"> Connects via N Meridian Ave to residential and commercial areas in the city of Puyallup Connects via future Canyon Road bridge at 70th Ave E to residences and commercial areas on north side of Levee Rd and south side of River Rd, including the Puyallup Tribe Youth Center (on N Levee Rd) and Columba Junior High School (north of N Levee Rd) 			<ul style="list-style-type: none"> Connects via N Meridian Ave to residential and commercial areas in the city of Puyallup Connects via future Canyon Road bridge at 70th Ave E to residences and commercial areas on north side of Levee Rd and south side of River Rd, including the Puyallup Tribe Youth Center (on N Levee Rd) and Columba Junior High School (north of N Levee Rd) 			<ul style="list-style-type: none"> Connects via Riverwalk Trail to residential and commercial areas in the city of Puyallup (at 11th St NW, 4th St NW and N Meridian Ave) Connects via future Canyon Road bridge at 70th Ave E to residences and commercial areas on south side of River Rd, as well as Chief Leschi Schools 		<ul style="list-style-type: none"> Limited connections where trail follows alignment of limited access highway Connects via SR 99 and 54th Ave E to commercial and residential areas 	
	<ul style="list-style-type: none"> Limited on railroad property 	<ul style="list-style-type: none"> Access to jobs; commercial corridor on 20th St E 	<ul style="list-style-type: none"> Access to jobs; commercial corridor on 20th St E More connections to commercial areas on Pacific Hwy 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> Access to jobs; industrial area along E 26th St 	<ul style="list-style-type: none"> Access to jobs; commercial corridor on Puyallup Ave 	<ul style="list-style-type: none"> Access to jobs; commercial corridor on Puyallup Ave/Eells St/Pacific Hwy E 	<ul style="list-style-type: none"> Limited connections from SR 509
Connections The route provides access to key transit connections										
Connections to key transit stops (within 1/2mi)	<ul style="list-style-type: none"> Tacoma Dome Station (connecting to Sounder and future Amtrak service, Tacoma Link light rail via streetcar, and Tacoma Dome Link Extension regional light rail) Proposed East Tacoma Dome Link Extension light rail station location (Portland Avenue area) 						<ul style="list-style-type: none"> Tacoma Dome Station (connecting to Sounder and future Amtrak service, Tacoma Link light rail via streetcar, and Tacoma Dome Link Extension regional light rail) Proposed East Tacoma Dome Link Extension light rail station location (Portland Avenue area) 		<ul style="list-style-type: none"> Tacoma Dome Station (connecting to Sounder and future Amtrak service, Tacoma Link light rail via streetcar, and Tacoma Dome Link Extension regional light rail) Proposed East Tacoma Dome Link Extension light rail station location (Portland Avenue area) Proposed Fife area Tacoma Dome Link Extension light rail station location 	
Overall Connections Assessment Scale: 1 (less effective) to 5 (more effective)	2	3	4	2	3	4	4	5	4	3

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B	
Accessibility The route is comfortable for cyclists and pedestrians of all ages and abilities											
Major roadway crossings	<ul style="list-style-type: none"> Riverside option would avoid road/driveway conflicts along Levee Rd 			<ul style="list-style-type: none"> 70th Ave E Minor local streets along Levee Rd 			<ul style="list-style-type: none"> Main alignment would avoid roadway conflicts along River Rd 		<ul style="list-style-type: none"> At-grade railroad crossing on Freeman Road Major crossing at Valley Ave E Major crossing at Alexander Ave E Roundabout at SR 99 and 54th Ave E 		
Space to be fully separated from roadway traffic	<ul style="list-style-type: none"> Yes, completely separate from public roadway 	<ul style="list-style-type: none"> Yes, adequate right-of-way for most of the alignment for separation Insufficient right-of-way on Frank Albert Rd railroad overpass for separation 	<ul style="list-style-type: none"> Yes, adequate right-of-way for most of the alignment for separation Insufficient right-of-way on Eells Street Bridge for separation 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> Yes, adequate right-of-way for most of the alignment for separation 	<ul style="list-style-type: none"> No major crossing Intermittent barrier is possible, but a lot of roadway and driveway conflicts on Puyallup Ave 	<ul style="list-style-type: none"> Yes, adequate right-of-way for most of the alignment for separation Intermittent barrier is possible, but a lot of roadway and driveway conflicts on Puyallup Ave 	<ul style="list-style-type: none"> Ramp crossings on SR 509 	
Accessibility The route is direct and intuitive											
Existing multiple points of entry (with potential to provide access to trail alignment)	<ul style="list-style-type: none"> The route has intersecting roadways along Levee Rd New Canyon Road bridge connection Access from Riverwalk Trail connection Access from roadway network in downtown Tacoma area (west of E Portland Ave) 			<ul style="list-style-type: none"> This River Rd has the highest number of intersecting roadways (with potential to provide access) Access from Riverwalk Trail and points in Puyallup connecting to the existing trail Includes new Canyon Road bridge connection 			<ul style="list-style-type: none"> Limited access points along SR 167 Access from Riverwalk Trail and Interurban Milton Trail 		<ul style="list-style-type: none"> Points of access from Alexander Ave, Pacific Hwy/Puyallup Ave, and intersecting local roads (east of west of Puyallup River) 		<ul style="list-style-type: none"> Very limited points of access along SR 509 (only access if from South Frontage Road and terminus of route in downtown Tacoma)
Directness of travel	<ul style="list-style-type: none"> Very direct route along the river (requiring river crossing) 7.8 miles 	8.3 miles		Same as Levee Road South Option A	Same as Levee Road South Option B and C		<ul style="list-style-type: none"> Very direct route along the river (does not require river crossing) 5.8 miles 	<ul style="list-style-type: none"> Least direct route 13 miles 	<ul style="list-style-type: none"> Least direct route 13.6 miles 		
Accessibility The route's elevation profile is navigable for all users											
Slope	<ul style="list-style-type: none"> Mostly flat Moderate incline on the approach to potential new bike/ped bridge crossing over river and rail 	<ul style="list-style-type: none"> Mostly flat Moderate incline on the approach to the rail overpass on Frank Albert Rd Moderate incline on the approach to potential new bike/pedestrian bridge crossing over the river and rail 	<ul style="list-style-type: none"> Mostly flat Moderate incline on the approach to the rail overpass on Frank Albert Rd Moderate incline on the approach to Pacific Hwy/Eells St Bridge crossing 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> Modest slope on E 26th Street 	<ul style="list-style-type: none"> Mostly flat 	<ul style="list-style-type: none"> Mostly flat 	<ul style="list-style-type: none"> Mostly flat Slight slope on SR 509 bridge over Puyallup River 	
Overall Accessibility Assessment <i>Scale: 1 (less effective) to 5 (more effective)</i>	4	3	4	4	3	3	3	4	3	2	

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Equity										
The route is accessible to users who do not drive/have access to a household vehicle										
Number of zero-car households within the 1/2 mi network buffer	•Approximately 700						•Approximately 680		•Approximately 660	
Equity										
The route serves communities experiencing health & transportation disparities										
Located within an a community at risk for health disparities*	•The majority of the Levee Rd alignment is within areas experiencing very high environmental health disparities						•The majority of the River Rd alignment is within areas experiencing high and very high environmental health disparities		•The majority of the SR 167 alignment is within areas experiencing high and very high environmental health disparities	
Equity										
The route serves and/or is easily reachable to areas with significant population density										
Population density within 1/2 mile walkshed	•1,710 people per square mile for Levee Road main alignment						•1,970 people per square mile for River Road main alignment		•1,280 people per square mile for SR 167 main alignment	
Overall Equity Assessment <i>Scale: 1 (less effective) to 5 (more effective)</i>	4	4	4	4	4	4	4	4	4	4

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Environment and Community Fit The route has a positive social impact										
Accessibility for low-income population and People of Color within 1/2 mile walkshed	•Total low-income and People of Color population within 1/2 mile of Levee Rd main alignment is 2,600						•Total low-income and People of Color population within 1/2 mile of River Rd main alignment is 3,200		•Total low-income and People of Color population within 1/2 mile of new SR 167 main alignment is 1,600	
Environment and Community Fit The route has a positive environmental impact										
Minimal impact to environmentally sensitive areas and Threatened & Endangered species	<ul style="list-style-type: none"> Impact to levee and flood protection is significant (the entire area is a floodplain) Potential wetland/wetland buffer impact Potential for species impact due to proximity to Puyallup River and associated habitat; not likely due to existing railroad uses on railroad property 	<ul style="list-style-type: none"> Impact to levee and flood protection is significant (the entire area is a floodplain) Low overall potential for impact based on existing industrial land uses Low potential for impact to species Potential impact at Wapato Creek crossing Low potential for impact due to industrial/commercial uses along 20th St and railroad uses on railroad property 	<ul style="list-style-type: none"> Impact to levee and flood protection is significant (the entire area is a floodplain) Low overall potential for environmental impact based on existing industrial land uses Low potential for impact to species Potential wetland and species habitat impact at Wapato Creek crossing Low potential for impact due to industrial/commercial uses along 20th St and Pacific Hwy 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> No wetland impact anticipated Potential for species impact due to proximity to Puyallup River and associated habitat along River Rd main alignment; not likely due to existing transportation and commercial uses on River Rd, E Bay Street, and E 26th 	<ul style="list-style-type: none"> No wetland impact anticipated Potential for species impact due to proximity to Puyallup River and associated habitat along River Rd main alignment; not likely due to existing transportation and commercial uses on River Rd, E Bay Street, and Puyallup Ave 	<ul style="list-style-type: none"> Potential impact to ditch and stream crossing and associated wetlands and habitat Impacts mitigated by wetland restoration as part of SR 167 completion project No potential environmental impacts due to existing transportation and commercial uses on Pacific Hwy/Puyallup Ave 	<ul style="list-style-type: none"> Potential impact to ditch and stream crossing and associated wetlands and habitat Impacts mitigated by wetland restoration as part of SR 167 completion project No potential environmental impacts due to existing transportation use on SR 509 facility
Opportunities for environmental interpretative signage and art	•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment			•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment			•Moderate opportunity due to proximity to Puyallup River on River Rd main alignment		•Moderate opportunity due to location with Puyallup River basin	
	•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment	•Generally low on Frank Albert Rd and 20th St due to industrial land uses	•Generally low on Frank Albert Rd, 20th St, and Pacific Hwy/Puyallup Ave due to industrial and commercial land uses	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	•Low opportunity on E 26th due to industrial and commercial uses	•Low opportunity on E Bay St and Puyallup Ave due to transportation, industrial and commercial uses	•Low opportunity on Pacific Hwy/Puyallup Ave due to transportation, industrial and commercial uses	•No opportunity due to transportation use on SR 509 facility
Environment and Community Fit The route respects and reflects cultural and historic resources										
Minimal impact to cultural/historic resources	•Potential to impact due to cultural significance of Puyallup River to the Puyallup Tribe (sensitive area) •Historic Puyallup River basin			•Potential to impact due to cultural significance of Puyallup River to the Puyallup Tribe (sensitive area) •Historic Puyallup River basin			•Potential to impact to cultural and historic resources of the Puyallup River, Puyallup Tribe and historic river basin are not significant due to the existing transportation and commercial use of River Rd		•Potential to impact cultural and historic resources in the undeveloped areas within the Puyallup River basin that would be disturbed for the construction of the new SR 167 facility •Cultural and historic resource impacts are included in the NEPA EIS for SR 167	
	•Potential impact to tribal fishing grounds	•Low impact •Minimal cultural resources as it would be through industrial areas		Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	•Low impact •Minimal cultural and historic resource impacts due to existing industrial, transportation and commercial uses		•No impact due to existing transportation, industrial and commercial uses	•No impact due to existing transportation use of SR 509
Opportunities for cultural and/or historic interpretative signage and art	•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment			•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment			•Moderate opportunity due to proximity to Puyallup River on River Rd		•Moderate opportunity due to location with Puyallup River basin	
	•High opportunity due to proximity to Puyallup River and tribal significance on Levee Rd main alignment •Opportunity on railroad property, historic interpretative art	•Generally low on Frank Albert Rd and 20th St due to industrial land uses	•Generally low on Frank Albert Rd, 20th St, and Pacific Hwy/Puyallup Ave due to industrial and commercial land uses	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	•Low opportunity on E 26th due to industrial and commercial uses	•Moderate opportunity due to proximity to Puyallup River on River Rd main alignment •Low opportunity on E Bay St and Puyallup Ave due to transportation, industrial and commercial uses	•Low opportunity on Pacific Hwy/Puyallup Ave due to transportation, industrial and commercial uses	•No opportunity due to transportation use on SR 509 roadway

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Environment and Community Fit The route is attractive and aesthetically appealing										
Majority of route is adjacent to green space or provides access to an attractive viewshed	<ul style="list-style-type: none"> •Riverside path •Most aesthetic with natural landscapes 			<ul style="list-style-type: none"> •Separated from river by Levee Road •Provides views of riverside vegetation and open, undeveloped farmland adjacent to the roadway 			<ul style="list-style-type: none"> •Adjacent to the river, providing aesthetic views •Immediately adjacent to high volume roadway 		<ul style="list-style-type: none"> •Majority of alignment provides separation from new SR 167 roadway •Provides some views of natural areas and undeveloped open space •Views of surrounding landscape, including Mount Rainier 	
	<ul style="list-style-type: none"> •Riverside path with access to the river •Aesthetics impacted due to railroad property with rail and industrial use 	<ul style="list-style-type: none"> •Some aesthetic views of natural areas and open space along a portion of 20th St E •Aesthetics impacted by industrial and commercial areas on 20th St E and on rail property 	<ul style="list-style-type: none"> •Some aesthetic views of natural areas and open space along a portion of 20th St E •Aesthetics impacted by industrial and commercial areas on 20th St E and Pacific Hwy E •Eells Street Bridge and Fishing Wars Memorial Bridge provides attractive views 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> •Aesthetics and viewshed significantly impacted by transportation and industrial uses on E 26th St 	<ul style="list-style-type: none"> •Aesthetics and viewshed significantly impacted by transportation, industrial and commercial uses on Puyallup Ave 	<ul style="list-style-type: none"> •Aesthetics and viewshed significantly impacted by transportation, industrial and commercial uses on Puyallup Ave 	<ul style="list-style-type: none"> •Aesthetics and viewshed significantly impacted by SR 509 roadway
Majority of route is adjacent to loud traffic or rail operations	<ul style="list-style-type: none"> •Route is on the rivebank bench, separated from Levee Rd 			<ul style="list-style-type: none"> •Route is on north side of Levee Rd adjacent to roadway traffic 			<ul style="list-style-type: none"> •Adjacent to heavy traffic volumes on River Rd •Potential to decrease traffic speeds to decrease noise impacts 		<ul style="list-style-type: none"> •Majority of alignment follows the general alignment of the new SR 167 roadway •Alignment provides separation from the new SR 167 (up to 102 ft and is below the roadway elevation) which would minimize noise •Adjacent to heavy traffic volumes at roundabout crossings at SR 99 and 54th Ave E 	
	<ul style="list-style-type: none"> •Not adjacent to traffic but adjacent to railroad and other rail activities 	<ul style="list-style-type: none"> •Adjacent to low traffic volumes on Frank Albert Rd and moderate volumes on 20th St E (with potential to increase due to new Port of Tacoma interchange project) •Adjacent to rail, requiring one at-grade rail crossing at 20th St E (to access rail property and river crossing) 	<ul style="list-style-type: none"> •Adjacent to low traffic volumes on Frank Albert Rd and moderate volumes on 20th St E (with potential to increase due to new Port of Tacoma interchange project) •Adjacent to heavy traffic volumes on Pacific Hwy 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> •Adjacent to lower traffic volumes on E 26th St 	<ul style="list-style-type: none"> •Adjacent to heavy traffic volumes on Puyallup Ave 	<ul style="list-style-type: none"> •Adjacent to heavy traffic volumes on Pacific Hwy/Puyallup Ave 	<ul style="list-style-type: none"> •Immediately adjacent to heavy traffic volumes on SR 509
Overall Environment and Community Fit Assessment <i>Scale: 1 (less effective) to 5 (more effective)</i>	4	3	3	4	3	3	3	3	3	3

Metrics	Levee Road South Option A	Levee Road South Option B	Levee Road South Option C	Levee Road North Option A	Levee Road North Option B	Levee Road North Option C	River Road Option A	River Road Option B	New SR 167 Option A	New SR 167 Option B
Cost										
The route is feasible to implement in the near-term										
Significant capital investment constraints	<ul style="list-style-type: none"> Significant retaining wall structure required between river bench and Levee Rd for trail build-out Potential costs associated with wetland mitigation 			<ul style="list-style-type: none"> Requires significant right-of-way acquisition from numerous private land owners Requires culverting roadside ditches Potential costs associated with wetland mitigation 			<ul style="list-style-type: none"> Requires roadway reconfiguration construction (estimated costs are limited to removal of roadway striping and re-striping for rechannelizing travel lanes) Additional cost for pedestrian bridge over railway (adjacent to existing River Rd bridge structure south of Pioneer Way E) included in the cost estimate 		<ul style="list-style-type: none"> None 	
	<ul style="list-style-type: none"> Requires building a new bike/ped bridge (including ramps) Potential property acquisition to build ramp to/from new bridge crossing on railroad property Railroad underpass to avoid at-grade rail crossing 	<ul style="list-style-type: none"> Requires building a new bike/ped bridge (including ramps) Potential property acquisition to build ramp to/from new bridge crossing on railroad property 	<ul style="list-style-type: none"> None 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> None 		<ul style="list-style-type: none"> Capital costs for the shared use paths planned between 20th Street E and SR 509 to Alexander Avenue E as part of the SR 167 Completion Project are not included in the cost considerations for this study. The funding for these shared use segments (approximately 3.3 miles) would be pursued separately. Note: Cost efficiencies associated with grading, drainage, and stormwater for the SR 167 completion project along the route between Meridian Ave and 20th St E are reflected in the cost estimate 	
Length of trail to be maintained (miles) ²	7.8	8.3	8.4	7.8	8.3	8.4	5.8	5.9	9.72	10.35
Approximate total cost ³	\$ 74,940,000	\$ 74,250,000	\$ 55,976,000	\$ 66,860,000	\$ 66,169,000	\$ 47,895,000	\$ 29,866,000	\$ 30,756,000	\$ 14,597,000	\$ 20,186,000
Cost per mile	\$ 9,608,000	\$ 8,946,000	\$ 6,664,000	\$ 8,572,000	\$ 7,972,000	\$ 5,702,000	\$ 5,149,000	\$ 5,213,000	\$ 1,502,000	\$ 1,950,000
Potential connections to current/future capital projects (funded or potentially funded)	<ul style="list-style-type: none"> Potential Puyallup Ave corridor improvements project New Canyon Rd bridge connection 			<ul style="list-style-type: none"> Potential Puyallup Ave corridor improvements project New Canyon Rd bridge connection 			<ul style="list-style-type: none"> Potential need for future investment in River Rd (old SR 167) after the completion of SR 167 to address capacity and safety New Canyon Rd bridge connection Sound Transit proposed East Tacoma Light Rail station and any associated improvements for access to transit Potential bike network improvements in City of Tacoma 		<ul style="list-style-type: none"> SR 167 Completion Project and associated construction benefits or other investment in adjacent trails, including potential Fife Link Station bicycle/pedestrian improvements 	
	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Nearby improvements to 20th St as part of Port of Tacoma interchange project 	<ul style="list-style-type: none"> Nearby improvements to 20th St as part of Port of Tacoma interchange project Potential Eells St Bridge reconstruction 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Potential Puyallup Ave corridor improvements project 	<ul style="list-style-type: none"> Potential Eells St Bridge reconstruction Potential Puyallup Ave corridor improvements project 	<ul style="list-style-type: none"> None
Ease of Maintenance/Access	<ul style="list-style-type: none"> Due to flooding, on-going maintenance is not feasible Maintenance access on river bench is a key concern due to condition as well as potential to impact the levee 			<ul style="list-style-type: none"> Good access for maintenance due to adjacency of Levee Rd 			<ul style="list-style-type: none"> Good access for maintenance due to adjacency of River Rd and access from Riverwalk Trail 		<ul style="list-style-type: none"> Good access to maintenance for majority of route due to significant right-of-way along new SR 167 facility Difficult access at roundabouts 	
	<ul style="list-style-type: none"> Access for maintenance is a key concern due to Union Pacific property ownership and railway operations and activities 	<ul style="list-style-type: none"> Access for maintenance is a key concern due to Union Pacific property ownership and railway operations and activities 	<ul style="list-style-type: none"> Moderate ease and access due to adjacency to local roadways (Frank Albert Rd, 20th St, Pacific Hwy/Puyallup Ave) 	Same as Levee Road South Option A	Same as Levee Road South Option B	Same as Levee Road South Option C	<ul style="list-style-type: none"> Moderate ease and access due to adjacency to E 26th St 	<ul style="list-style-type: none"> Moderate ease and access due to adjacency to Puyallup Ave 	<ul style="list-style-type: none"> Moderate ease and access due to adjacency to Puyallup Ave 	<ul style="list-style-type: none"> Key concern due to traffic volumes and heavy traffic on SR 509
Overall Cost Assessment ⁴	1	1	2	1	1	2	3	3	4	4
Total Assessment Rating <i>Scale: 1 (less effective) to 5 (more effective)</i>	3.1	3.1	3.4	3.2	3.1	3.4	3.4	3.6	3.5	2.8

¹Source is Washington State Health Disparities map at fortress.wa.gov

²Trail length for New SR 167 does not include the segments planned under the SR 167 Completion Project between 20th Street E and SR 509 to Alexander Avenue E (approximately 3.3 miles)

³Trail costs were estimated for a 12 foot wide paved trail for the entire length of the proposed route, unless otherwise noted, and does not include amenities. Costs were estimated using the Planning Level Cost Estimation (PLCE) Tool (2016 dollars escalated to 2019 dollars) and Pierce County tax parcel data (2018 property values). Estimated construction costs include mobilization, utility relocation, clearing/grading, staging, structures, retaining wall, pavement, drainage, stormwater detention/treatment, roadside fencing/seeding/restoration, traffic services & safety, workzone traffic control where applicable. Total cost estimate includes preliminary engineering, construction engineering, right of way acquisition, wetland mitigation, miscellaneous costs, construction contingency, and sales tax. Trail costs do not include projects planned and pursued by local jurisdictions such as the Canyon Road Extension bridge at 70th Street, proposed Puyallup Avenue corridor improvements, Eells Street Bridge replacement, or River Road corridor improvements or costs that are associated with shared use paths planned as part of the SR 167 Completion Project. Project-specific cost considerations are summarized under "Significant capital investment constraints" and are detailed in the Alternatives Evaluation Report.

⁴Near-term feasibility considers total cost as well as other criteria metrics in assessing reasonableness to invest in next steps for implementation; Projects less than \$15M (more effective); >\$15M (moderately effective); >\$25M (less effective)

Tacoma to Puyallup Regional Trail Feasibility Study
 Alternatives Evaluation Ratings

Criteria	Objectives	Levee Road South Option A	Levee Road South Option B	Levee Road South (with Option C)	Levee Road North Option A	Levee Road North Option B	Levee Road North (with Option C)	River Road Option A	River Road (with Option B)	New SR 167 (with Option A)	New SR 167 Option B
Safety	<ul style="list-style-type: none"> The route promotes a positive perception of personal safety by users of all ages and abilities The route manages interactions with vehicle and rail traffic particularly at intersections The route has clear sightlines that reduce the likelihood for collisions with other trail users 										
Connections	<ul style="list-style-type: none"> The route provides connections to other active transportation facilities The route provides connections to key destinations The route provides access to key transit connections 										
Accessability	<ul style="list-style-type: none"> The route is comfortable for cyclists and pedestrians of all ages and abilities The route is direct and intuitive The route's elevation profile is navigable for all users 										
Equity	<ul style="list-style-type: none"> The route is accessible to users who do not drive/have access to a household vehicle The route serves communities experiencing health & transportation disparities¹ The route serves and/or is easily reachable to areas with significant population density 										
Environment and Community Fit	<ul style="list-style-type: none"> The route has a positive social impact The route has a positive environmental impact The route is attractive and aesthetically appealing The route respects and reflects cultural and historic resources 										
Cost	Length of trail to be maintained (miles) ²	7.8	8.3	8.4	7.8	8.3	8.4	5.8	5.9	9.7	10.35
	Approximate total cost in millions (M) ³	\$56M	\$55M	\$56M	\$50M	\$49M	\$48M	\$24M	\$30M	\$15M	\$15M
	Approximate cost per mile in millions (M) based on length of trail	\$7.2M	\$6.6M	\$6.6M	\$6.4M	\$5.9M	\$5.7M	\$4.1M	\$5M	\$1.5M	\$1.4M
	The route is feasible to implement in the near-term ⁴										
Total Assessment Rating		3.1	3.1	3.4	3.2	3.1	3.4	3.4	3.6	3.5	2.8



Footnotes:
¹Source is Washington State Health Disparities map at fortress.wa.gov
²Trail length for SR 167 does not include the segments planned under the SR 167 Completion Project between 20th Street E and SR 509 to Alexander Avenue E (approximately 3.3 miles)
³Trail costs were estimated for a 12 foot wide paved trail for the entire length of the proposed route, unless otherwise noted, and does not include amenities. Costs were estimated using the Planning Level Cost Estimation (PLCE) Tool (2016 dollars escalated to 2019 dollars) and Pierce County tax parcel data (2018 property values). Estimated construction costs include mobilization, utility relocation, clearing/grading, staging, structures, retaining wall, pavement, drainage, stormwater detention/treatment, roadside fencing/seeding/restoration, traffic services & safety, workzone traffic control where applicable. Total cost estimate includes preliminary engineering, construction engineering, right of way acquisition, wetland mitigation, miscellaneous costs, construction contingency, and sales tax. Trail costs do not include projects planned and pursued by local jurisdictions such as the Canyon Road Extension bridge at 70th Street, proposed Puyallup Avenue corridor improvements, Eells Street Bridge replacement, or costs that are associated with shared use paths planned as part of the SR 167 Completion Project. Project-specific cost considerations are as follows:
 • **Levee Road South**- Cost includes retaining wall, fencing, bike/ped ramp modification (at Eells Street Bridge), right of way acquisition, wetland mitigation
 • **Levee Road North**- Cost includes fencing, new culvert or ditch rerouting, bike/ped ramp modification (at Eells Street Bridge), right of way acquisition, wetland mitigation
 • **River Road**- Cost includes new pedestrian bridge (over the railway south of Pioneer Way), pavement marking removal, some roadway re-channelization. Cost does not include potential separation barriers.
 • **New SR 167**- Clearing/grading, drainage, stormwater detention/treatment costs were not included for the section of existing shared use sidewalk on Pacific Avenue or the section along the new SR 167 roadway, which would be included in the roadway construction costs. Costs do not include share use path segment between 20th St E and SR 509 to Alexander Avenue E, planned as part of the SR 167 completion project.
⁴Near-term feasibility considers total cost as well as other criteria metrics in assessing reasonableness to invest in next steps for implementation; Projects less than \$15M (more effective); >\$15M (moderately effective); >\$25M (less effective)

Appendix C

River Road Traffic Analysis Executive Summary

River Road Supplemental Traffic Analysis

Tacoma to Puyallup Regional Trail Connection

April 2020

1. Introduction

The River Road trail alignment that was evaluated through the Tacoma to Puyallup Regional Trail Connection Alternatives Analysis looked at a shared use trail alignment between the existing River Road (SR 167) roadway and the Puyallup River with various options that did not impact the existing road configuration. However, after review of the costs and design constraints associated with this approach, members of the Stakeholder Advisory Group (SAG) requested additional analysis of a “road diet” option for River Road.

A supplemental River Road traffic analysis was performed to determine the feasibility of roadway reconfiguration to accommodate a shared use path. This River Road Supplemental Traffic Analysis provides a summary of the assessment of potential changes in vehicle travel associated with proposed modifications to the River Road corridor to include a regional trail facility. The assessment was conducted at a planning level and utilized previously available travel model and forecasting tools. The existing corridor has limited right-of way space, so the assessments considered options that could generally fit within the existing footprint of the roadway. Concepts evaluated include lowering of speed limits, repurposing vehicular lanes for trails space, and relocation of continuous turn lanes to specific locations.

2. Analysis Approach

The analysis focused on the section of corridor from Pioneer Way E to the existing trail connection near 18th Street NW. The existing section of the River Road corridor generally has five lanes and limited right-of-way space for widening due to the proximity of the Puyallup River to the north and businesses and residences to the south. Due to these space limitations, a review was conducted to determine the effects of reallocating the roadway lane space for inclusion of a trail facility. Changes in speed limits were also assessed to understand travel time implications.

Changes in travel along River Road were analyzed for year 2030 AM peak hour conditions using the projections developed for the SR 167 Completion Project, specifically from the Puget Sound Gateway Program Dynamic Traffic Assignment (DTA) model. This mesoscopic traffic model was developed for the purposes of determining travel pattern shifts and changes in demand due to construction of the future SR 167 extension between the Port of Tacoma and Puyallup. The model provides planning level travel data.

3. Scenario Assessments

A review of existing crash patterns on the corridor, changes to speed limits, and impacts of two-lane repurposing concepts were evaluated. The first assessment was a review of collision history on the corridor using reported crash data. The second assessment was a review of free-flow travel times and what the implication of changing speed limits would have on the corridor travel. This was evaluated

due to the potential issue of high-speed differentials between the vehicles and adjacent trail users. The final assessment was to evaluate the impact of reducing the number of lanes on River Road from the existing five lanes and using the space gained for the addition of a trail.

Crash History

Historical vehicle crash data along the corridor was collected for calendar years 2012-2016 using available WSDOT data. A summary review of the data found the number of crashes were generally increasing year over year. Rear-end crashes were the predominant type which are typically seen on facilities with congested travel as well as higher-speed facilities with multiple driveways and street crossings for turning vehicles. Figure 1 provides a summary of crashes for the period from 2012 to 2016.

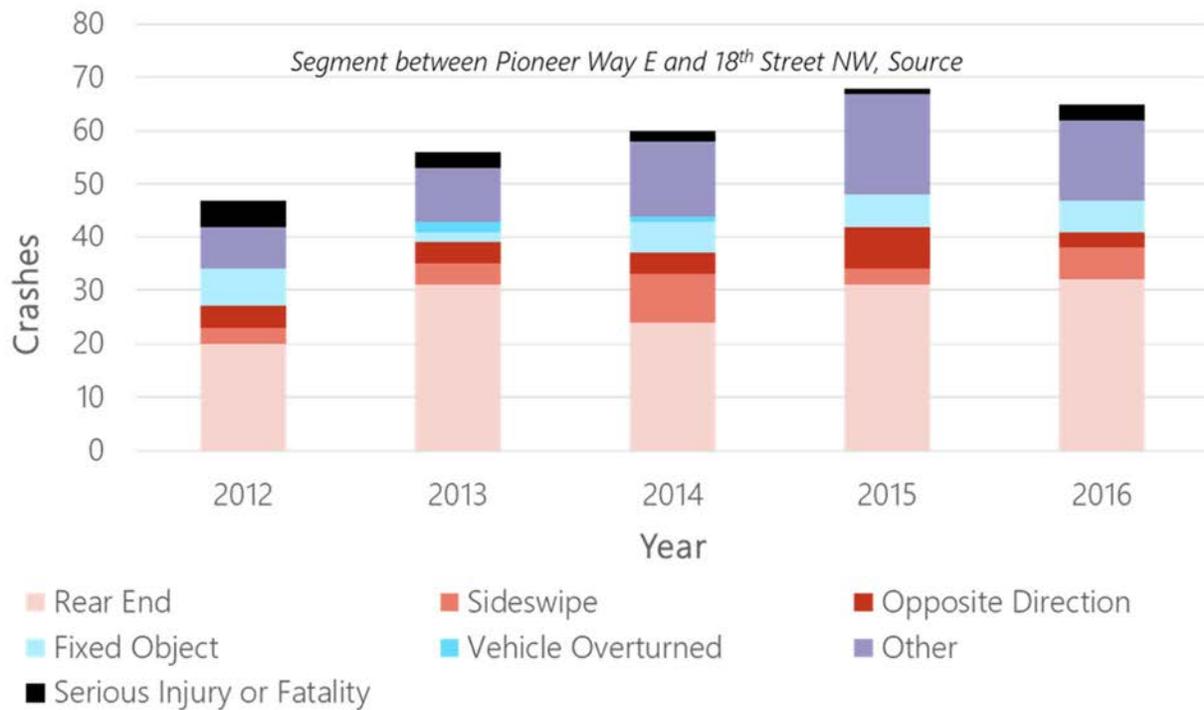


Figure 1: Historical Collision History

Corridor Speeds and Travel Times

Due to limited space along River Road, a new trail directly adjacent to the existing roadway would create an undesirable speed differential between trail users and the vehicles. A barrier separation between the two facilities could address the speed differential but would require space for the concrete barrier along with shoulder or shy distance from the roadway. Due to the limited right-of-way space, a barrier would be difficult to accommodate. Another option considered was a change in corridor speed limits. Lowering the speed limit would increase travel time for vehicles but reduce the speed differential and potentially negate the need for a concrete barrier. Additionally, a reduced speed limit would likely increase safety performance of the corridor.

Free-flow travel time speeds were compared along the corridor for the existing speed limit (45-50 MPH) to a continuous 40 MPH or 35 MPH limit. Table 2 shows the potential travel time implications of these speed changes.

Street Name	Distance between intersections (miles)	Existing speed limit (45-50mph)	Reduced speed limit 40 mph	Reduced speed limit 35 mph
Pioneer Way				
	1.09	1.31	1.64	1.87
Gratzer Road E				
	0.68	0.82	1.02	1.17
Gay Road E				
	1.28	1.54	1.92	2.19
66th Avenue E				
	0.82	0.98	1.23	1.41
78th Avenue E				
	0.29	0.39	0.43	0.50
20th Street NW				
Total Travel Time		5.0 minutes	6.2 minutes	7.1 minutes

Table 1: Speed Limit and Travel Times

As shown in the table, by changing the speed limit to 40 MPH for the study segment of River Road, free flow travel times would increase by approximately 1.2 minutes. A 35 MPH speed limit would add approximately 2.1 minutes to the travel time. Vehicle safety performance would likely improve as slower vehicle speeds typically lead to lower severity crashes.

Roadway Reconfiguration Strategies

Planning-level roadway concepts that reallocate lanes on River Road were evaluated to determine the impact on corridor vehicular travel. These strategies considered reallocating one or two lanes of the current five-lane configuration to accommodate a trail. Three-lane and four-lane configurations were evaluated. The three-lane configuration would reduce the eastbound and westbound through lanes on River Road from two per direction to one per direction while retaining the center left turn lane. The four-lane configuration would maintain the eastbound and westbound through lanes, but eliminate the center left turn lane. Eliminating the center turn lane for the four-lane configurations would necessitate accommodating these turns at other locations on the corridor via U-turns. Figures 3 and 4 show the lane configuration concepts.

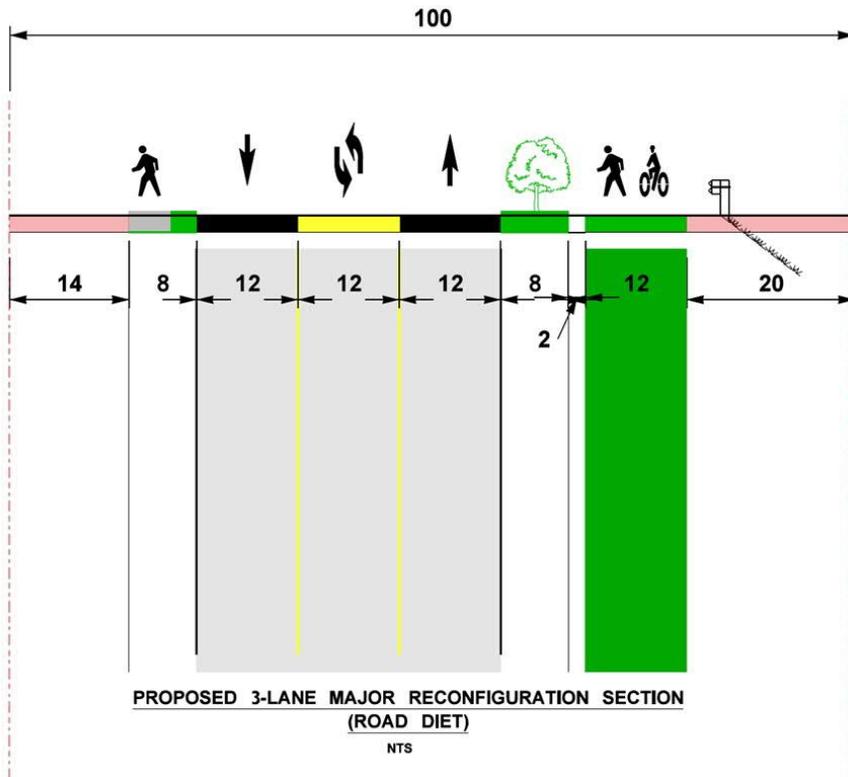


Figure 3 – Three-lane concept (dimensions noted in feet)

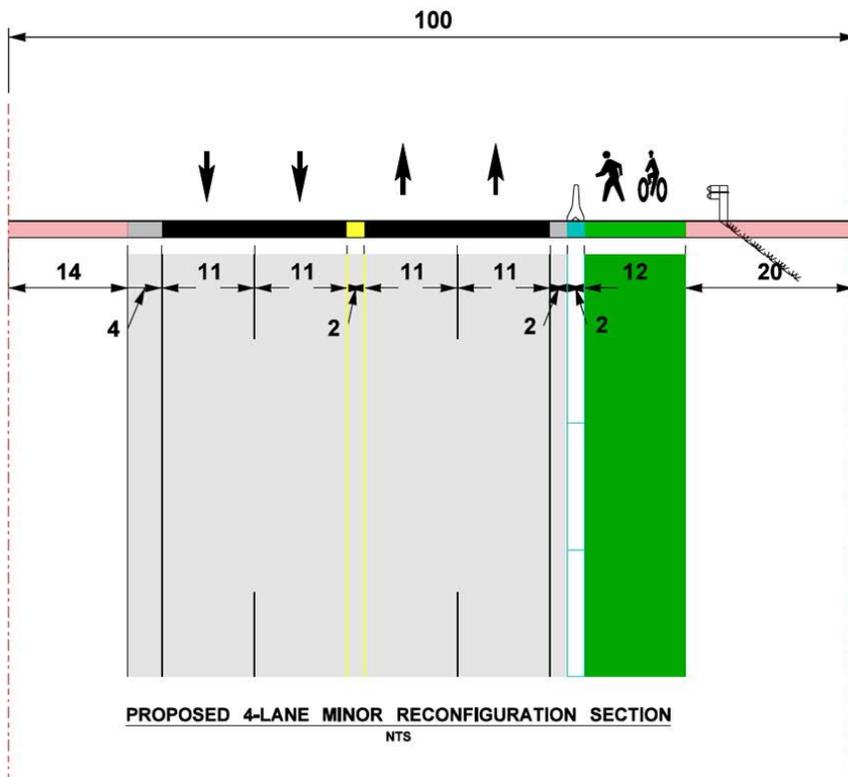


Figure 4 – Four-lane concept (dimensions noted in feet)

The four-lane concept would eliminate the center turn lane. This would cause any turning vehicles to and from the south side of River Road to complete out-of-direction travel and utilize mid-block or intersection U-turns. To accommodate these mid-block or intersection U-turns, additional right of way space would be required at each location. A typical U-turn location requires 50-60' of width, measured from the center of the roadway to allow for the turning vehicle movement. Depending on the size of vehicle that the U-turn would need to accommodate, the width required may be greater.

Another approach for providing U-turns is to replace existing roadway intersections with roundabouts. Implementing modern roundabouts at key locations would provide a location for U-turns and also could improve operations and access at those locations by improving intersection performance. Additional space would likely be required for these roundabouts, however. Two example roundabout concepts at Gay Road and Gratzler Road are shown in Figures 5 and 6.



Figure 5 – Gay Road roundabout concept

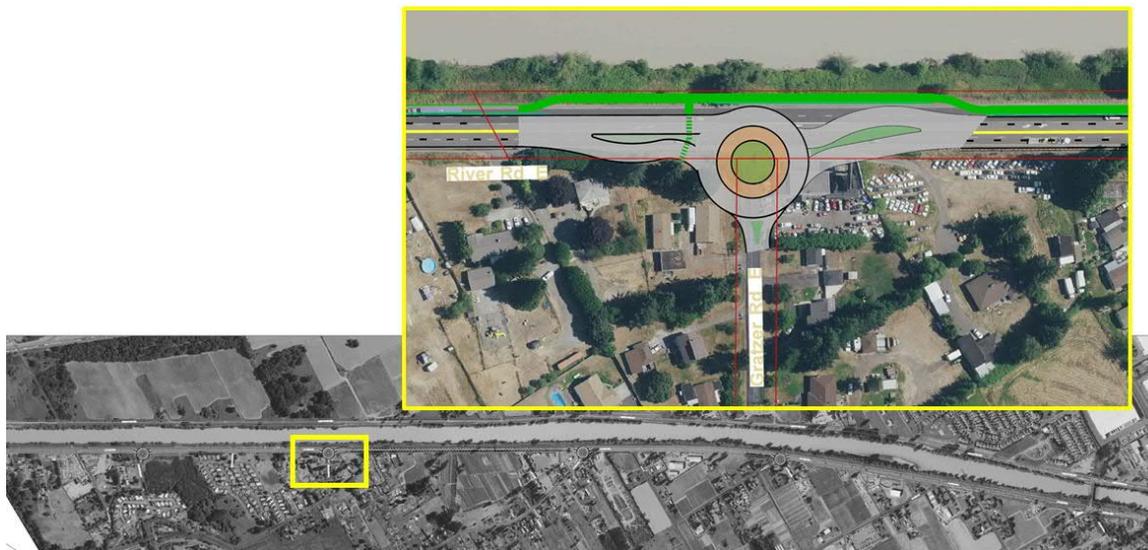


Figure 6 – Gratzler Road roundabout concept

Operational Analysis

An operational assessment of traffic flow was conducted for the three-lane and four-lane concepts using DTA and Synchro analysis software for 2030 AM and PM peak conditions. The intent of this effort was to provide an indication of the impact on corridor delay and volumes associated with each lane reallocation concept. The impacts were assessed relative to a 2030 condition (AM and PM) where the WSDOT SR 167 Completion Stage 2 project between I-5 and Puyallup is complete and open to traffic.

Based on the analysis findings, the three-lane concept would result in significant increased delay in the corridor. The corridor-wide delay was shown to increase by approximately 80% when the three-lane configuration was implemented. Additionally, corridor traffic volumes dropped approximately 20% as the increased congestion shifted trips to other parts of the transportation network. No specific analysis was conducted regarding safety performance of the three-lane concept. However, the increased congestion could likely lead to an increase in vehicle crashes.

A comparison of the PM peak operations, between 4:30-5:30PM, on the existing five-lane roadway and the three-lane (road diet) configuration with access control is shown in Figure 7 below. The graphic shows the four-mile segment between 20th St NW and Pioneer Way. The five-lane roadway configuration shows traffic speeds based on the two lanes in each direction, turning vehicles using the center turn lane. The three-lane configuration shows traffic speeds based on one travel lane in each direction with four new signalized intersections introduced. In this configuration, turning movements would only occur at the signalized intersections. The three-lane option shows slower traffic speeds due to the lane reduction as well as the new traffic signals.



Figure 7 – Operations for existing roadway and three-lane option

The four-lane concept had similar corridor delay as the baseline (five-lane) condition. The implementation of this concept did not result in any noticeable travel time increases for through trips. It did however increase delay for some side-access trips as they were required to complete out-of-way

travel and use U-turn locations for access to and from locations on the south side of River Road. No significant change in traffic volumes was noted as traffic did not shift off of the River Road corridor by maintaining two lanes in each direction. Elimination of the uncontrolled left turning vehicles and restricting turns to marked U-turn locations, intersections, or roundabouts could improve safety performance by formalizing and signing the locations for these movements to occur.

A comparison of the PM peak operations on the four-lane configuration with signalized and roundabout access control is shown in Figure 8 below. The graphic shows the same four-mile segment between 20th Street NW and Pioneer Way. The four-lane option, with two travel lanes in each direction, has similar travel times for signals and roundabouts. During off-peak conditions, the roundabouts would like result in lower intersection delay than the traffic signals.



Figure 8 – Operations for 4-lane option with signalized and roundabout access control

4. Summary

The addition of a trail to the existing River Road corridor, within the available right-of-way, was evaluated. This high-level evaluation considered speed differentials, safety performance, right-of-way, and performance implications. Elimination of the center turn lane and replacing affected turns with strategic U-turn locations would provide space for a regional trail, could improve safety performance, and would have limited impacts on corridor delay. The U-turn movements could occur at signalized intersections, roundabouts, or mid-block locations. The U-turns would result in some out-of-way travel and will likely require additional right-of-way.

Appendix D

Cost Estimate Summary

Cost Estimate Summary

Sections	Number of Parcels Affected	Total Affected Area (SqFt)	ROW Cost	Total Cost (2019)	Levee N Option A	Levee N Option B	Levee N Option C	Levee S Option A	Levee S Option B	Levee S Option C	River Rd Option A	River Rd Option B	SR167 Option A	SR167 Option B
Levee N Main	13	47159.13	\$ 44,581.77	\$ 20,126,581.77	1	1	1							
Levee S Main	0	0.00	\$ -	\$ 28,207,000.00				1	1	1				
Rail Road Parcel	5	3563.26	\$ 4,221.66	\$ 11,021,221.66	1			1						
Frank Albert 20th	10	1620.36	\$ 20,687.17	\$ 10,330,687.17		1	1		1	1				
Eells Bridge	2	744.85	\$ 9,546.08	\$ 10,142,546.08			1			1				
Rail Road Bridge	1	20.21	\$ 543.20	\$ 28,416,543.20	1	1		1	1					
Puyallup Ramp	1	590.17	\$ 7,923.45	\$ 1,507,923.45	1	1	1	1	1	1		1	1	
Puyallup Ave	5	1047.90	\$ 13,023.18	\$ 3,560,023.18	1	1	1	1	1	1		1	1	
River Rd Main	1	1546.15	\$ 4,150.51	\$ 25,688,150.51							1	1		
E 26th St	0	0.00	\$ -	\$ 4,178,000.00							1			
Alexander Ave	2	1813.35	\$ 22,576.11	\$ 1,352,576.11									1	
Pacific Hwy	19	8716.47	\$ 171,836.15	\$ 1,762,836.15									1	
SR167 UnPlanned Sections	0	0.00	\$ -	\$ 4,186,000.00									1	1
SR167 Planned Sections in other Projects	0	0.00	\$ -	\$ -									1	1
SR 509	2	2663.03	\$ 25,048.91	\$ 13,773,048.91										1
Meridian Connection	4	3631.00	\$ 9,393.89	\$ 2,227,393.89	1	1	1	1	1	1			1	1
Number of Parcels Affected					29	34	35	16	21	22	1	7	31	6
Total Affected Area (Sqft)					56010	54070	54790	8850	6910	7630	1550	3180	15800	6290
ROW Cost					\$ 80,000	\$ 96,000	\$ 105,000	\$ 35,000	\$ 52,000	\$ 61,000	\$ 4,000	\$ 25,000	\$ 225,000	\$ 34,000
Total Alignment Cost (2019)					\$ 66,860,000	\$ 66,169,000	\$ 47,895,000	\$ 74,940,000	\$ 74,250,000	\$ 55,976,000	\$ 29,866,000	\$ 30,756,000	\$ 14,597,000	\$ 20,186,000