

TECHNICAL MEMORANDUM

DATE: March 28, 2023
TO: Miranda Wells, ODOT Region 4
FROM: Jason Nolin, Ryan Farncomb, Tyler Van Meter, PE, Matt Flodin (Parametrix)
Robin Scholetzky (Urban Lens)
SUBJECT: Existing Conditions Memorandum (Task 5.2) - Final
PROJECT NUMBER: 2742-395-122
PROJECT NAME: K22324 Lava Butte to La Pine Bike and Pedestrian Plan

INTRODUCTION

The Lava Butte to La Pine Bike and Pedestrian Plan will define a preferred alignment for a low-stress route for walking, using a mobility device, and biking between Lava Butte and La Pine. The Plan will consider the feasibility, suitability, and desirability of alignment alternatives, and look for opportunities to complete gaps in existing connections and opportunities where a separated multi-use path could be constructed.

The Lava Butte to La Pine corridor provides access to some of the state's most beloved natural areas, including the Lava Butte Visitor Center and Newberry National Volcanic Monument. A future trail through this area will provide residents and visitors with safe and direct access, promote active transportation, and complement the area's natural beauty. At the north end, the trail will connect to the Bend to Lava Butte Multi-Use Path, currently under design. At the south end, the trail will connect with the recently-completed U.S. 97 Wickiup Junction to First Street Multi-Use Path.

This Existing Conditions Memorandum serves multiple purposes:

- Investigate past plans and identify existing recommendations that can be applied to the Lava Butte to La Pine Bike and Pedestrian Plan.
- Establish goals, objectives, and evaluation criteria that will help develop the Plan and assess the alignment alternatives.
- Identify the opportunities and constraints that will help develop a suitable bike and pedestrian network.

This Existing Conditions Memorandum will inform future steps in the plan development process. This memorandum has been refined based on feedback from ODOT, the project Sounding Board, stakeholders, and public outreach. Following this memorandum, the project team will develop alignment alternatives with a feasibility analysis, refine the alternatives from feedback from ODOT and the Sounding Board, and compile these refined alternatives into the Recommended Bicycle and Pedestrian Plan. The project team will also develop a Local Plan Amendments Memorandum that will describe implementing actions to be delivered with the draft Bicycle and Pedestrian Plan.

STUDY AREA

An initial disclaimer about the study area: it was defined to be large to better understand the context of the area and be inclusive of possible opportunities. The project does not intend for the route to connect to all points or destinations within the study area. The southern extent of the study area around the community of La Pine, for example, will inform the project team of where potential path users could be coming from or going to, but does not mean that the path will connect to the southern extent of La Pine.

Instead, this route will connect with a planned path at the north end and a recently-completed path at the south end, providing a continuous route from Bend to La Pine. The north terminus of the route will be at the Lava Lands Visitor Center, where it will connect with the Bend to Lava Butte Multi-Use Path. The southern terminus of the route will be at the intersection of U.S. 97 and Burgess Road (Wickiup Junction), where it will connect with the recently-completed U.S. 97 Wickiup Junction to First Street Multi-Use Path. Additional trails or other pedestrian and cycling facilities will be considered to ensure connections between the path and study area destinations.

The project study area (see Figure 1) is broad to allow flexibility for developing route alignment alternatives, while also being close to U.S. 97. The extents continue north and south past the intended route termini to better understand the surrounding context and to accommodate potential alignments that would go beyond the termini, such as the Lava to Sun Trail. The northern extent of the study area is at approximately U.S. 97 mile point (MP) 148.1, just north of Lava Butte, and the southern extent is at approximately MP 168.6, at the southern boundary of La Pine's city limits. The western extent follows the Deschutes River north of La Pine State Recreation Road and follows the alignment of 5th Street, Day Road, Pine Forest Drive, and Pierce Road south of La Pine State Recreation Road. The eastern extent is 0.5 miles east of U.S. 97.

This 20-mile long area was partitioned into three areas to make the analysis more manageable. The areas are divided by roads that continue east-west through the study area, making it simple to identify the boundary between the areas.

- **North Area:** Lava Butte and Sunriver
The northern boundary of the North Area is an east-west line that crosses U.S. 97 at approximate MP 148.1. Spring River Road and South Century Drive mark the southern boundary. The western boundary is the Deschutes River and the eastern boundary follows a line 0.5 miles east of and parallel to U.S. 97.
- **Central Area:** Three Rivers
Spring River Road and South Century Drive forms the northern boundary of the Central Area. La Pine State Recreation Road forms the southern boundary. The Deschutes River is the western boundary, and the eastern boundary follows a line 0.5 miles east of and parallel to U.S. 97.
- **South Area:** La Pine
La Pine State Recreation Road is the northern boundary of the South Area. The southern boundary extends beyond the southern terminus at Burgess Road to include the City of La Pine. The western boundary runs along Day Road and Pine Forest Drive. The eastern boundary follows a line 0.5 miles east of and parallel to U.S. 97.

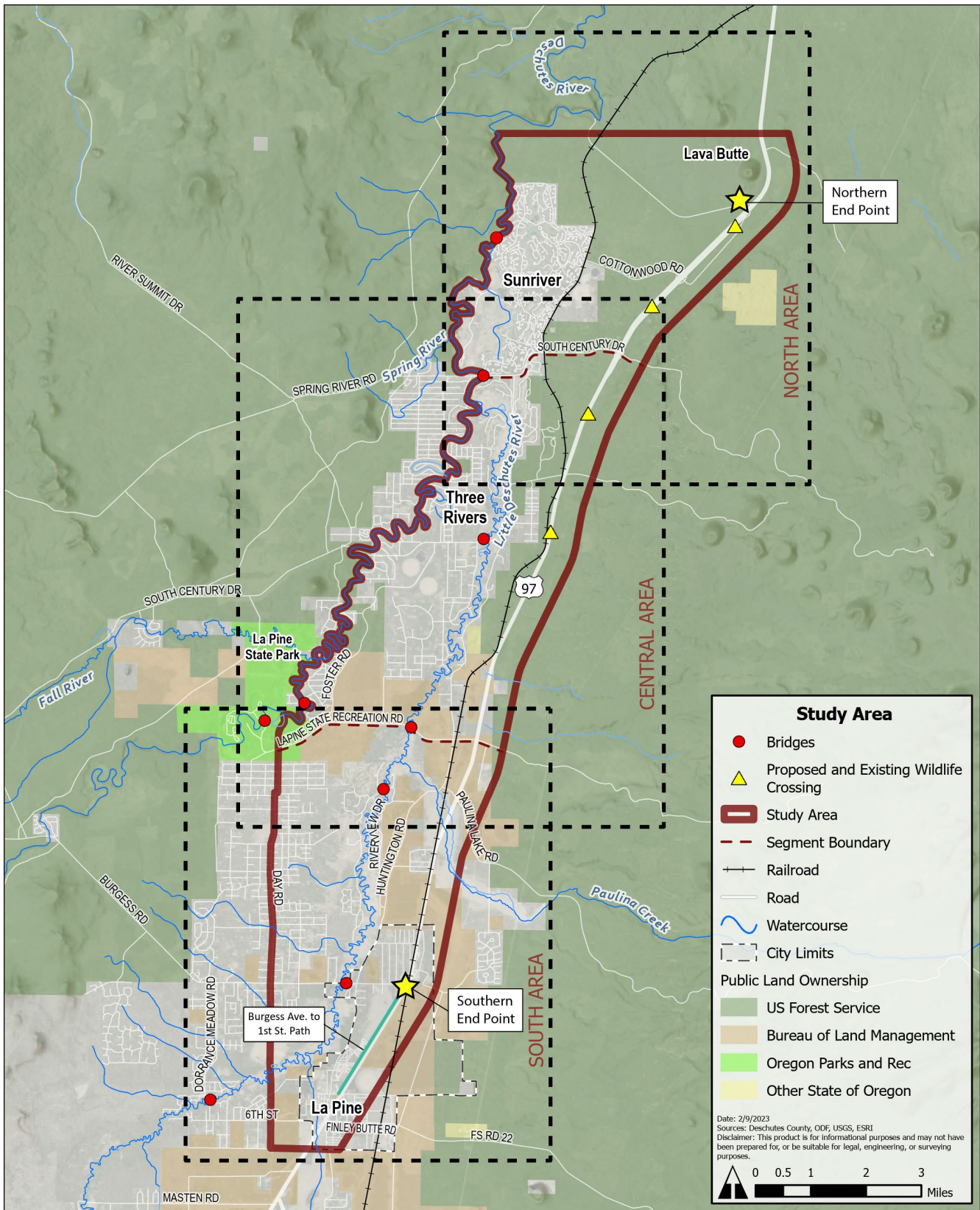


Figure 1. Study Area

PLANNING CONTEXT

Relevant adopted plans (or plans in progress) were reviewed to understand the current planning context in the area, including what needs have been identified and what projects and policies have been recommended. Aligning with already planned projects or targeting areas with identified needs would make win-win opportunities for the region and potentially help with funding and implementation.

The project team reviewed the following plans:

- Deschutes County Comprehensive Plan (2011)
- Deschutes County Transportation System Plan (2012)
- Deschutes County Draft Existing Conditions & Future Needs Memorandum (April 13, 2021)
- Deschutes County Draft Final Transportation Project Memorandum (September 23, 2022)
- Deschutes County Transportation Safety Action Plan (2019)
- Deschutes National Forest Alternative Transportation Feasibility Study (2015)
- Deschutes National Forest Land and Resource Management Plan (1990)
- La Pine Comprehensive Plan (2018)
- La Pine Transportation System Plan (2013)
- Newberry National Monument Plan (1994)
- Oregon Highway Plan (1999, amended 2015)
- ODOT Statewide Transportation Improvement Program (STIP) 2021-2024 project list
- Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement (2004)
- Wickiup Junction Plan Draft (2021)

Relevant projects, policies, and identified needs from these plans are summarized in Table 1 and mapped in Figure 2, Figure 3, and Figure 4. Recommendations and needs are identified with “Map IDs” in the table and maps.

Table 1. Recommendations and Needs from Other Plans

Plan	Recommendations	Needs	Relevance
Deschutes County Comprehensive Plan (2011)	<p>Rural recreation policies (chapter 3, page 41):</p> <ul style="list-style-type: none"> Policy 3.8.8: Coordinate trail design and funding with transportation system plans and support efforts to provide and manage rural trail segments and bicycle routes. <p>Transportation system maintenance policies for Sunriver (chapter 4, page 29):</p> <ul style="list-style-type: none"> Policy 4.5.35: The County will encourage the future expansion of bicycle/pedestrian paths within the Sunriver Urban Unincorporated Community boundary in an effort to provide an alternative to vehicular travel. 	<ul style="list-style-type: none"> [no relevant needs identified] 	<p>Policies support new paths in Sunriver’s boundaries.</p>
Deschutes County Transportation System Plan (2012)	<p>Highway Segments Projects</p> <ul style="list-style-type: none"> U.S. 97: Add travel lanes from South Century Drive to La Pine State Recreation Road. U.S. 97: Add travel lanes from La Pine State Recreation Road to Drafter Road. <p>County Road Projects</p> <ul style="list-style-type: none"> Burgess Road: The section lies to the west of the City of La Pine and requires adding a center turn lane and widening the bridge over the Little Deschutes River. South Century Drive: Need for a rural roundabout at South Century/Spring River. <p>Secondary Access for Areas With Limited Access</p> <ul style="list-style-type: none"> Lazy River West: potential new road connection to Howard Lane from the south end of the development (multiple alignment options). [Map F5.3.F9] <p>Proposed Intersection Improvements [Table 5.3.TI]</p> <ul style="list-style-type: none"> 13. Rural Roundabout - Spring River Road and South Century Drive 14. Disconnect Rd - Vandever Road and U.S. 97 15. Disconnect Rd - Pinecrest Lane and U.S. 97 [Completed] 	<ul style="list-style-type: none"> Desire for a regional or county-wide system of pedestrian trails. Need for a future U.S. 97 bypass of La Pine/Wickiup Junction. The intersection of U.S. 97 and Vandever Road met the Preliminary Signal Warrant, meaning the intersection was experiencing or nearing poor performance. Safety Needs at Top Intersection Crash Locations [Table 2.2.T6]: <ul style="list-style-type: none"> South Century Drive and Huntington Road (4th in county) Burgess Road and Day Road/Pine Forest Drive (8th in county) South Century Drive and Vandever Road (9th in county) Huntington Road and Burgess Road (10th in county) 	<ul style="list-style-type: none"> A new connection in the Lazy River West area would provide a low-traffic alternative route to Huntington Road or U.S. 97. Changes to intersections and roads may impact feasibility or quality of route. Opportunity to implement a path along with a planned roadway improvement. This plan is being updated, so its relevance may be short-lived.

Plan	Recommendations	Needs	Relevance
<p><i>Recommendations:</i> Deschutes County Draft Final Transportation Project Memorandum (September 23, 2022)</p>	<p>Planned intersection changes include (pages 5 and 6):</p> <ul style="list-style-type: none"> • Roundabout at S Century Drive and Spring River Road. [Map ID: DTSP 1] • Roundabout at S Century Drive and Vandever Road. [Map ID: DTSP 2] • Roundabout at Huntington Road and S Century Drive. [Map ID: DTSP 3] • Roundabout or realign Venture Lane and S Century Drive. [Map ID: DTSP 4] <p>Planned roadway changes include (pages 12 and 13):</p> <ul style="list-style-type: none"> • Widen and overlay Burgess Road from Day Road to Huntington Road. [Map ID: DTSP 5] • Widen and overlay Huntington Road from S Century Drive to Burgess Road. [Map ID: DTSP 6] 	<ul style="list-style-type: none"> • Multimodal options are an important consideration for the area west of La Pine, which has some of the highest concentration of households without vehicles (page 6). • Access to trails supports quality of life for residents and visitors (page 36). • Dedicated trails may be necessary to connect to key destinations in rural communities (page 36). • Small unincorporated communities lack dedicated pedestrian and bicycle facilities (page 51). 	<p>Opportunity to leverage bicycle and pedestrian improvements with planned projects and opportunity to incorporate with path alignment.</p>
<p><i>Needs:</i> Deschutes County Draft Existing Conditions & Future Needs Memorandum (April 13, 2021)</p>	<p>Planned bicycle route connections include (pages 30 and 31):</p> <ul style="list-style-type: none"> • Sunriver to La Pine. [Map ID: DTSP 7] • La Pine to Rosland Park. [Map ID: DTSP 8] • Sunriver to Cascade Lakes Trail Head. [Map ID: DTSP 9] <p>Planned bridge improvements include (page 33):</p> <ul style="list-style-type: none"> • Cottonwood Drive / BNSF railroad: bridge replacement. [Map ID: DTSP 10] • S Century Drive / BNSF railroad: bridge rehabilitation. [Map ID: DTSP 11] • Spring River Road / Deschutes River: bridge rehabilitation. [Map ID: DTSP 12] <p>Planned roadway improvement with Federal Lands Access Program (page 38):</p> <ul style="list-style-type: none"> • Improve Darlene Way from Rosland Road to southern county line. [Map ID: DTSP 13] 	<ul style="list-style-type: none"> • Over half of fatal or incapacitating crashes in La Pine between 2012 and 2016 occurred on U.S. 97 (page 17). • Collisions at intersections account for the majority of crashes in La Pine from 2012 – 2016 (page 17). 	<p>Opportunity to leverage bicycle and pedestrian improvements with planned projects and opportunity to incorporate with path alignment.</p>
<p>Deschutes County Transportation Safety Action Plan (2019)</p>	<p>Top sites for safety improvements include (pages 59 and 60):</p> <ul style="list-style-type: none"> • U.S. 97 / Vandever Road. [Map ID: DC TSAP 1] • U.S. 97 / Burgess Road. [Map ID: DC TSAP 2] • S Century Drive / Huntington Road. [Map ID: DC TSAP 3] • U.S. 97 / Rosland Road. [Map ID: DC TSAP 4] • U.S. 97 / 4th Street / William Foss Road. [Map ID: DC TSAP 5] • U.S. 97 / 1st Street / Reed Road. [Map ID: DC TSAP 6] • Huntington Road / 3rd Street. [Map ID: DC TSAP 7] 	<ul style="list-style-type: none"> • Over half of fatal or incapacitating crashes in La Pine between 2012 and 2016 occurred on U.S. 97 (page 17). • Collisions at intersections account for the majority of crashes in La Pine from 2012 – 2016 (page 17). 	<p>Opportunity to leverage bicycle and pedestrian improvements with planned projects and opportunity to incorporate with path alignment.</p>

Plan	Recommendations	Needs	Relevance
Deschutes National Forest Alternative Transportation Feasibility Study (2015)	<ul style="list-style-type: none"> • Opportunity for a paved path between Bend and Sunriver on or along Forest Service Road 41 (Conklin Road) (D-2). • Opportunity for multi-use trail connections between Bend and Lava River Cave, including points in between (E1-1). • Opportunity to connect La Pine to Sunriver with a potential paved path (E2-1). 	<ul style="list-style-type: none"> • It is challenging to travel to the area without a car, including poor connectivity between Bend and the Deschutes National Forest. • The area experiences heavy traffic congestion and parking demands, especially during events and ski season. • The road network may not be able to accommodate emergency vehicles during an emergency. 	Identifies potential alignments for paths along U.S. 97 and just west of the study area along Forest Road 41 (Conklin Road).
Deschutes National Forest Land and Resource Management Plan (1990)	<ul style="list-style-type: none"> • New trails should be located to take greatest advantage of the area’s natural features (page 4-32). • Trails should follow the natural contours of the land as much as possible to minimally disturb soil and ground cover (page 4-109). • Recreational facilities should blend in with the natural landscape’s elements when it is not possible to fully be screened from significant viewer locations (page 4-121). • Signs should only be used where necessary for the user’s safety and enjoyment and should blend in with the landscape as much as possible (page 4-131). 	<ul style="list-style-type: none"> • Support safe and efficient movement of people using National Forest Lands (page 4-2). • Provide range of outdoor recreation opportunities within the forest environment (page 4-2). • Prevent site deterioration and minimize impacts from recreational activities within riparian areas (page 4-65). 	Consider how to responsibly integrate path into forest land
La Pine Comprehensive Plan (2018)	<p>Relevant policies include:</p> <ul style="list-style-type: none"> • Support alternative modes of transportation in conjunction with complete neighborhoods (page 77). • Development of bike / pedestrian trails that link residences to public destinations such as employment areas will encourage alternative travel modes and reduce energy consumption (page 80, 150). • Paths must be well lit and designed for the security of the user (page 84). • Require MUTCD signs, markings, and safety features on paths (page 85). • Desired east-west crossing improvements at (page 79): <ul style="list-style-type: none"> ➢ U.S. 97 and Burgess Road. ➢ U.S. 97 and 1st Street. ➢ U.S. 97 and 4th Street. ➢ U.S. 97 and Finley Butte Road. 	<ul style="list-style-type: none"> • Achieve balanced transportation system that includes automobile, bicycle, rail, transit, air, pedestrian, and pipeline facilities (page 76). • Create alternative modes of travel for those who do not wish to drive (page 77). • Build additional north-south running streets (page 78). • Incorporate public health, safety, and efficiency into all transportation elements (page 79). • Require development of sidewalk and bicycle facilities along appropriate streets (page 80). 	<ul style="list-style-type: none"> • Consider connecting residential areas and destinations with trail. • Path design considerations. • Opportunity to incorporate trail alignment with intersection improvements.

Plan	Recommendations	Needs	Relevance
La Pine Transportation System Plan (2013)	<ul style="list-style-type: none"> • Recommends priority be given to pedestrian and bike projects that create connected trail system between downtown and Wickiup on west side of U.S. 97. Recommends increasing pedestrian access across U.S. 97 (page 68). • Multi-use paths should have a minimum width of 12 to 14 feet (page 61). • High priority multimodal projects include upgrading specific roadways to a higher standard with improved bicycle and pedestrian facilities (see pages 69 and 70). • Planned intersection improvements include (page 71): <ul style="list-style-type: none"> ➢ U.S. 97 and Rosland Road. Coordinate with Wickiup Junction Plan. [Map ID: LP 11] ➢ U.S. 97 and Burgess Road: realign and Investigate grade-separated crossing of BNSF railroad at Burgess Road. [Map ID: LP 12] ➢ U.S. 97 and Finley Butte Road: realign Morson and improve operations. [Map ID: LP 13] ➢ Hinkle Way and William Foss Road: improve north-south alignment. [Map ID: LP 14] • Planned safety improvements include (page 72): <ul style="list-style-type: none"> ➢ Add illumination and large font street signs at intersections along U.S. 97 from 1st Street to 6th Street. [Map ID: LP 16-20] ➢ Improve shoulders and clear zones on Huntington Road from 1st Street to northern La Pine limits. [Map ID: LP 21] ➢ Upgrade 1st Street / BNSF rail crossing to an active crossing. [Map ID: LP 22] • Planned transit improvements include (page 74): • Maintain connectivity between Wickiup Junction park-and-ride lot and surrounding roadway. [Map ID: LP 23] 	<ul style="list-style-type: none"> • Enable residents to travel via walking; include sidewalks in all roadway upgrades as specified in street design standards (page 12). • Encourage residents to bike; provide better multimodal connectivity throughout La Pine; provide more direct connections within transportation system (page 13). • Improve the long-term safety of the La Pine transportation system (page 16). • Address needs of an older population in design treatments (page 48). • Pedestrian crossings of high-speed facilities at U.S. 97 and Huntington Road (page 80). 	<ul style="list-style-type: none"> • Preference for path on west side of U.S. 97 due to proximity to developable land. • Multi-use path design. • Opportunity to leverage planned projects to include bicycle and pedestrian improvements and incorporate with trail alignment. • Opportunity to expand multimodal travel options with park-and-ride lot.
Newberry National Monument Plan (1994)	<ul style="list-style-type: none"> • Redesign access road to Lava Lands Visitor Center and Lava River Cave (page 66). [Completed, Map ID: NNMP 1] • Provide information and wayfinding for visitors of recreational opportunities in the Lava Butte zone (page 67). [Map ID: NNMP 3] • Support formation of recreational opportunities within Lava Butte zone that is directed away from sensitive resources (page 67). [Map ID: NNMP 4] • Ensure connection is created between day-use sites (page 92). [Map ID: NNMP 5] • U.S. 97 crossing noted as major safety concern (page 92). [Underpass completed, Map ID: NNMP 6] 	<ul style="list-style-type: none"> • Protect the health and safety of visitors (page 7). • Provide a diversity of high-quality recreational experiences (page 7). • Maintain or improve levels of air quality (page 9). 	<p>Consider trail alignments that connect day-use sites and avoid sensitive resources. Consider integrating wayfinding and other information with path.</p>

Plan	Recommendations	Needs	Relevance
Oregon Highway Plan (1999, amended 2015)	<p>U.S. 97 between mile points 148.1 and 168.6 is identified as:</p> <ul style="list-style-type: none"> • Part of the National Highway System. • Part of the National Network (Federally Designated Truck Route). • A Reduction Review Route. • An Expressway north of La Pine (not an Expressway through La Pine). 	<ul style="list-style-type: none"> • Optimizing highway efficiency through alternative travel modes (page 4). 	<p>As a designated freight route, consideration must be given to modifications to U.S. 97 that could impact freight mobility, particularly lane widths and the “hole-in-the-air.”</p>
ODOT STIP 2021-2024 project list	<p>KN 21295 — U.S. 97 at Wickiup Jct. (La Pine) Phase 2 [Map ID: STIP 1]</p> <p>Develop a refinement plan that addresses the U.S. 97 highway corridor through the Wickiup Junction area focusing on safety for all modes of transportation, design and construct intersection safety and frontage road improvements developed from refinement plan, construct a multi-use path between 1st Street and Burgess Road, and perform geotechnical analysis of Wickiup Junction area to determine the feasibility of a long term railroad/U.S. 97 overpass.</p>	<p><i>[not applicable]</i></p>	<p>Opportunity to incorporate path with planned improvements.</p>

Plan	Recommendations	Needs	Relevance
Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement (2004)	<ul style="list-style-type: none"> • Objective R-2: Provide designated access points (includes entry points, parking areas, trailheads, and/or staging areas) to enhance visitor experience, protect resources, and minimize conflicts with adjacent landowners. • Objective R-4: Provide identifiable non-motorized recreation opportunities to provide visitor satisfaction, protect natural resources, and minimize conflicts among public land visitors and adjacent landowners. • Guidelines for non-motorized recreation opportunities in the La Pine block (page 89): <ul style="list-style-type: none"> ➢ 4. If opportunities for non-motorized trail connections exist, consider development of non-motorized trails in the northern portion of the La Pine area. ➢ 5. Once acquired, the Little Deschutes River parcel located north of State Recreation Road would be managed for non-motorized trail use with an emphasis on hiking trails. • Objective TU-2: Provide an integrated, functional, safe, efficient, transportation system to: <ul style="list-style-type: none"> ➢ Provide links between local communities. ➢ Reduce or minimize conflicts with adjacent landowners... ➢ Balance public access needs with resource protection. • Guidelines for transportation opportunities (page 107): <ul style="list-style-type: none"> ➢ 3. Use existing travel routes where possible to provide access and meet road density objectives; however, new alignments may be considered if they provide better resource management, reduce social conflicts, provide better recreation opportunities or if existing routes are determined to be unfeasible. ➢ 14. Minimize conflicts between landowners and users of public lands by relocating trails and parking areas away from private property boundaries, wherever feasible. • Objective TU-5: Consolidate transportation and utility systems with consideration for ecological and recreational values, while providing for regional transportation systems and meeting regional objectives. 	<ul style="list-style-type: none"> • The Management Plan considers the needs to foster the wisest use of our land and water resources, protect our fish and wildlife, preserve the environmental and cultural values of our national parks and historical places, and provide for the enjoyment of life through outdoor recreation. 	<ul style="list-style-type: none"> • The Proposed Upper Deschutes Resource Management Plan describes management direction for the Bureau of Land Management's (BLM's) land. Parcels of BLM land are in the study area. • Objectives for recreation and transportation align with a potential future trail and trailheads.
Wickiup Junction Plan Draft (2021)	<ul style="list-style-type: none"> • Improvements at intersection of U.S. 97 and Burgess Road (page 7). [Map ID: WJP 1] • Create multi-use path from Crescent Creek to northern La Pine limits (page 7). [Map ID: WJP 2] • Pave Darlene Way from Rosland Road to Reed Road (page 7). [Map ID: WJP 3] • Extend Pam Lane to Rosland Road (page 7). [Map ID: WJP 4] • Potential for separated multi-use path on west side of U.S. 97 to the south of Rosland Road and on east side of U.S. 97 to the north of Rosland Road (page 22). [Map ID: WJP 5] 	<ul style="list-style-type: none"> • Support regional connectivity for people biking or walking (page 7). • No sidewalks or bike lanes along U.S. 97 within Wickiup Junction (page 10). 	<p>Opportunity to incorporate path with planned improvements.</p>

Plan	Recommendations	Needs	Relevance
Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement (2004)	<ul style="list-style-type: none"> • Designate northern portion of La Pine block (located on east side of U.S. 97) as Non-motorized Recreation Emphasis and provide trails for non-motorized use (page PRMP-89). • Manage BLM-administered lands to meet the appropriate Visual Resources Management Class, defined in Objective VR-1 (page PRMP-67). • Provide designated access points (includes entry points, parking areas, trailheads, and/or staging areas) to enhance visitor experience, protect resources, and minimize conflicts with adjacent landowners, detailed in Objective R-2 (page PRMP-73). • Provide appropriate recreational opportunities while reducing conflicts between recreational users, and between recreational users and adjacent landowners, detailed in Objective R-7 (page PRMP-80). 	<ul style="list-style-type: none"> • Provide identifiable non-motorized recreation opportunities to provide visitor satisfaction, protect natural resources, and minimize conflicts between visitors and landowners, detailed in Objective R-4 (page PRMP-89). 	<ul style="list-style-type: none"> • Consider how BLM-owned land can be leveraged to provide non-motorized recreational opportunities. • Paths on BLM land would need to meet visual standards. • Trailheads on BLM land would need to meet access point guidelines. • Minimize conflicts between recreational users and other users and adjacent landowners.

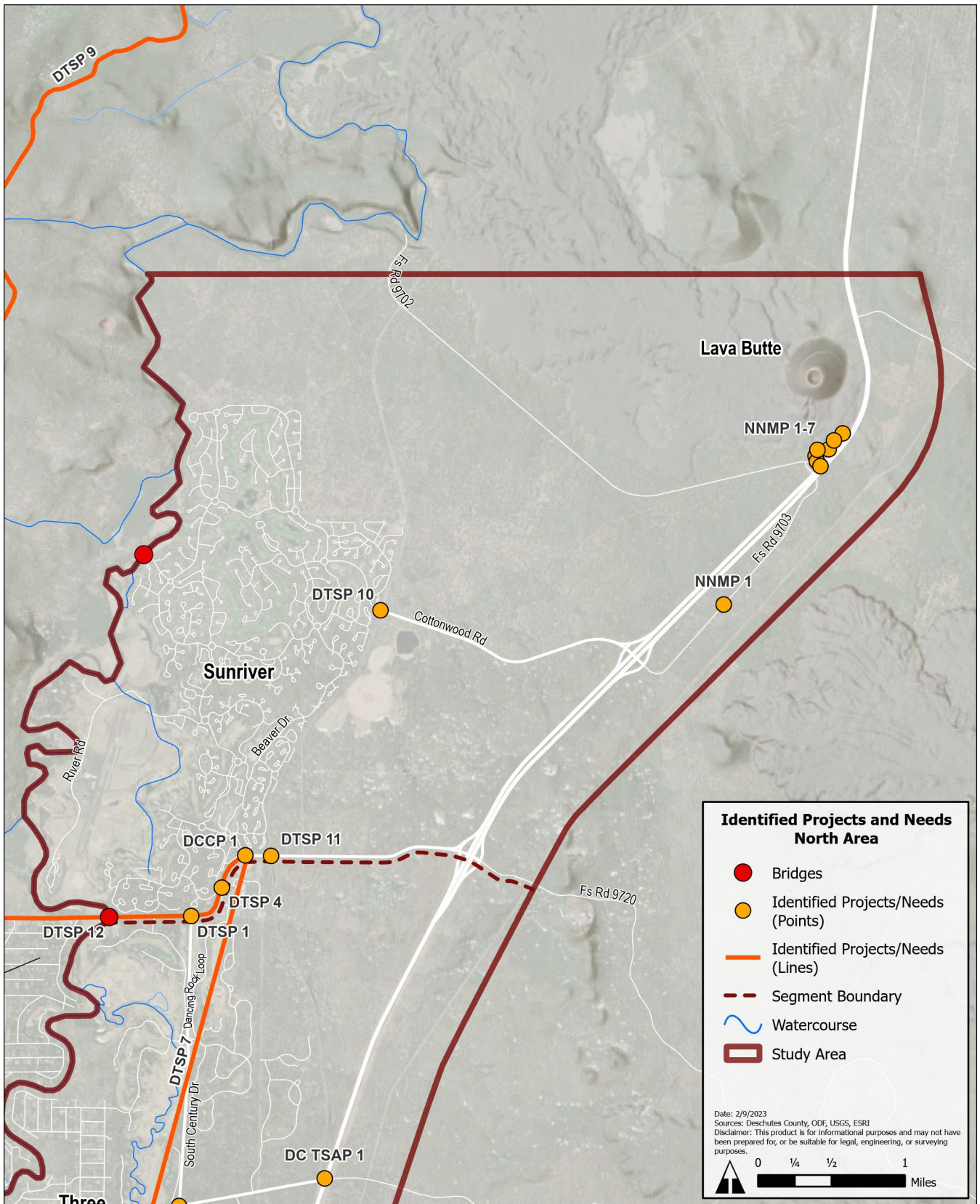


Figure 2. Projects and Needs Map - North Area

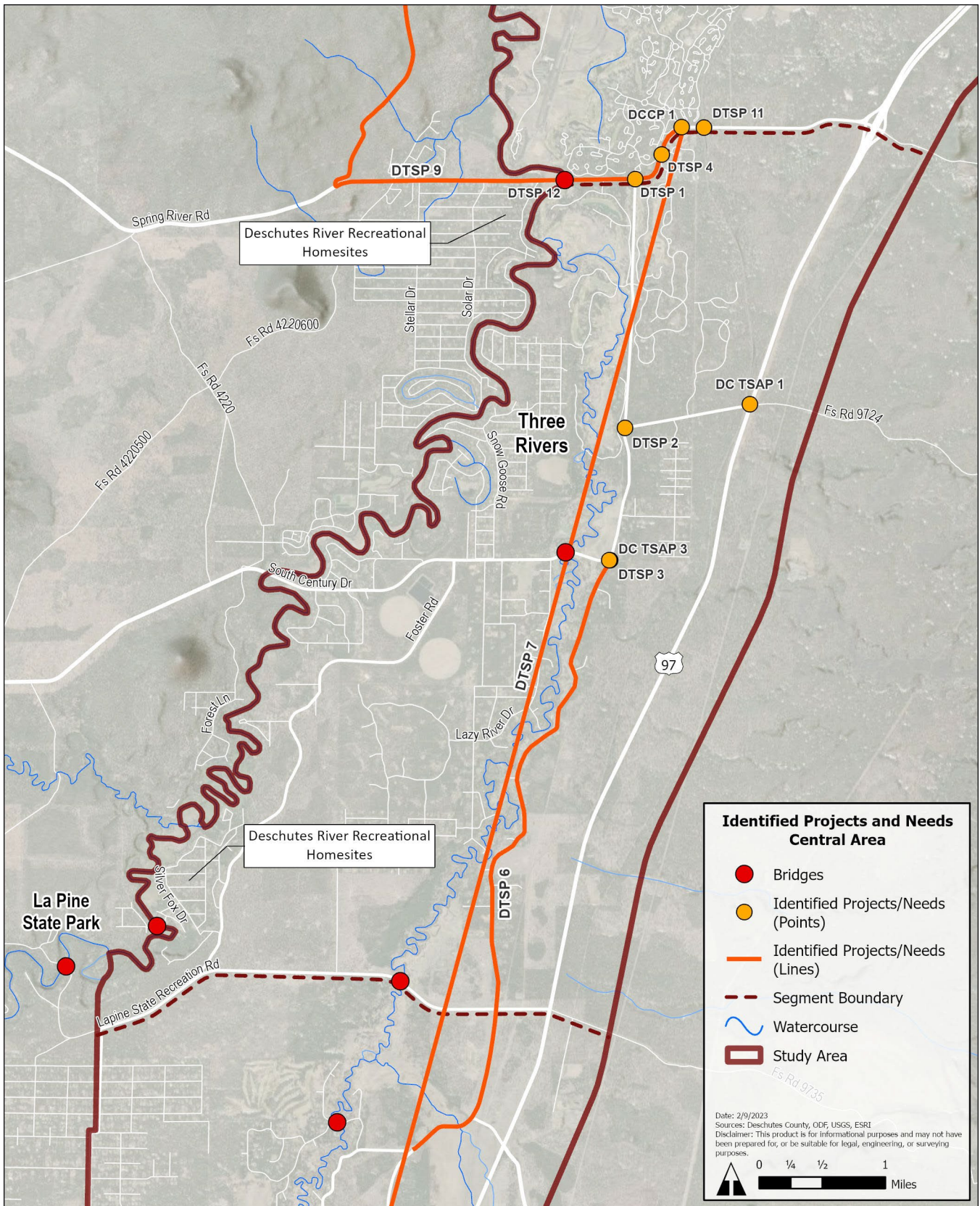


Figure 3. Projects and Needs Map - Central Area

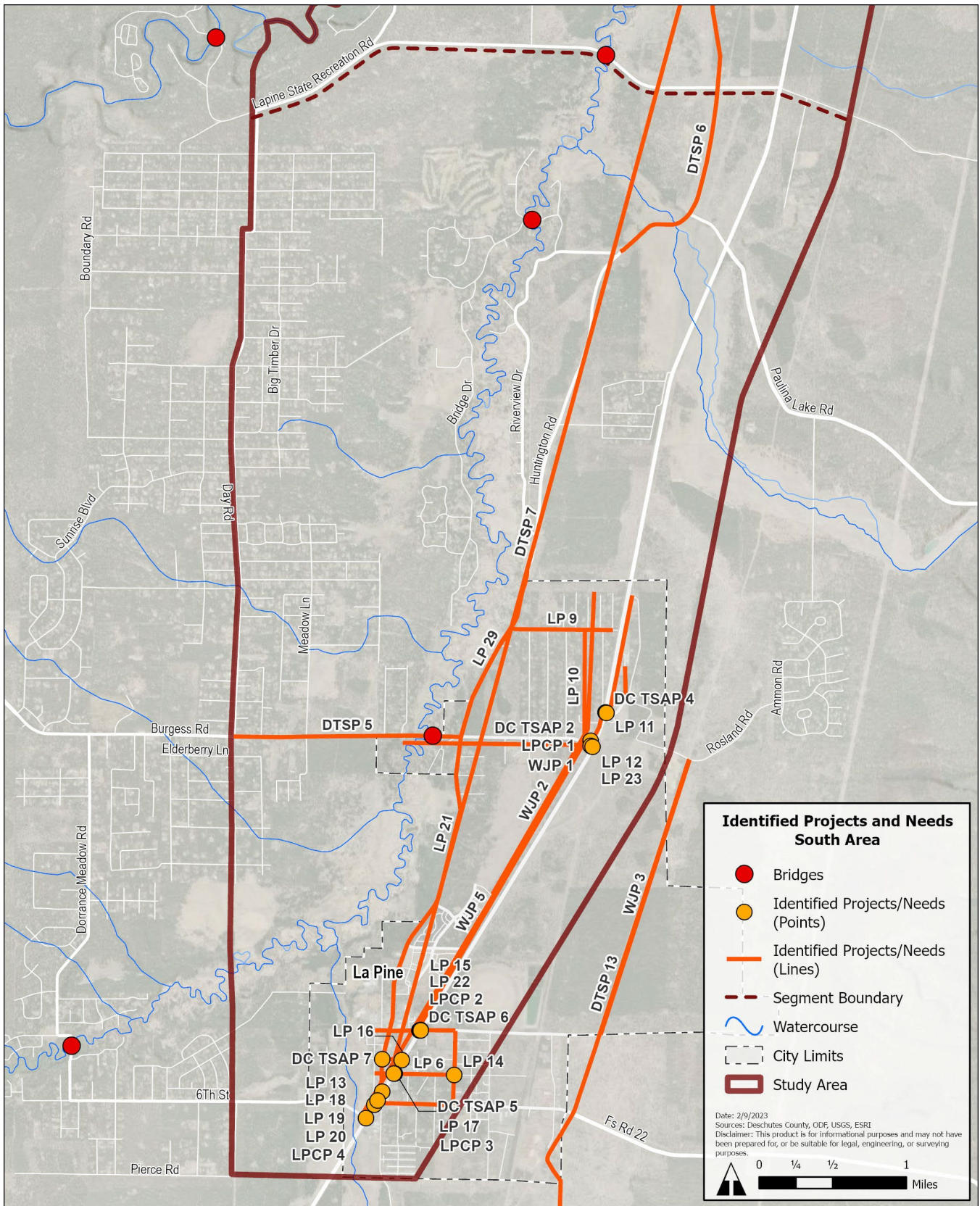


Figure 4. Projects and Needs Map - South Area

GOALS, OBJECTIVES, AND EVALUATION CRITERIA

Goals, objectives, evaluation criteria, and the “design user” will guide development of the Lava Butte to La Pine Bike and Pedestrian Plan, including identifying alignment alternatives and selecting a preferred route. These were developed by the consultant team and will be refined when this memorandum is revised, following ODOT and stakeholder review and feedback.

Design User

To help shape the goals and future decision-making for this plan, it is helpful to consider a “design user,” or the expected user for which the trail will be designed. This trail is intended to be used by a broad assortment of people, including people who live, work, and recreate nearby. Specifically, the facility will be designed as an all-ages walking, hiking, and cycling facility. It is not anticipated that the facility would accommodate equestrian users. The trail should be designed to be accessible and attractive to people of all ages and abilities, including families on vacation, kids going to school, and neighbors going to work.

Goals and Objectives

The following goals and objectives were developed from a combination of relevant goals from:

- Oregon Bicycle and Pedestrian Plan (2016)
- Deschutes County Transportation System Plan (2012)
- La Pine Transportation System Plan (2013)

These goals and objectives have been reviewed by the public and stakeholders and were updated based on their feedback.

1. **Safety and comfort:** the facility will feel safe, secure, and comfortable for people of all ages and abilities. Undesired activities will be mitigated through environment design and enforcement measures.
2. **Multimodal connectivity:** the trail will connect residential areas and destinations, establishing an attractive and efficient transportation route for walking, biking, and using a mobility device.
3. **Equity:** the trail will provide opportunities and choices for people of all ages, abilities, race, ethnicities, and incomes to bike or walk to reach their destinations and to access transportation options, assuring transportation disadvantaged communities are served and included in decision making. The route will be designed to comply with the American Disability Act (ADA).
4. **Community and economic vitality:** the trail will improve access to jobs, businesses, recreation, and other destinations, and will be an asset for residents, visitors, and businesses.
5. **Coordination and collaboration:** the trail will be planned in collaboration with agency partners to provide a seamless route that is consistent with adopted local plans and goals.
6. **Optimize investments:** the trail will be cost effective by making use of existing facilities and public property.

Evaluation Criteria

Evaluation criteria will be used to determine the preferred alignment alternative, and are listed in Table 2. These criteria are rooted in the goals and objectives and were refined based on feedback from ODOT, the project Sounding Board, and the public.

Table 2. Evaluation Criteria and Measures

Goal	Criteria	Most beneficial / Minimal impact Score: 3 (unless noted otherwise)	Neutral / Moderate benefits or impacts Score: 2 (unless noted otherwise)	Least beneficial / Most impactful Score: 1 (unless noted otherwise)
1. Safety and comfort	All ages and abilities facility Scoring for this criterion is scaled as noted to reflect its importance	Alternative is a consistently low stress facility that is separated from roadway traffic, crosses busy roads at controlled crossings, and has minimal driveway crossings. Score: 6	Alternative is primarily along a low stress facility separated from roadway traffic, but also has short segments where the facility is on a shoulder, lacks physical separation from roadway traffic, or has multiple driveway crossings. Score: 3	Alternative is a mix of low stress facilities and facilities that are not protected from roadway traffic. Score: 1
1. Safety and comfort	Safety improvement	Alternative improves safety at a location with a history of crashes involving people biking or walking and/or location with high potential for conflicts.	Alternative likely to improve safety or provide moderate safety benefits.	Alternative does not improve safety from existing conditions.
1. Safety and comfort	Air and noise quality	Alignment is more than 1,500 ft from a parallel highway or arterial. ¹	Alternative is more than 100 ft but less than 1,500 ft from a parallel highway or arterial.	Alternative is less than 100 ft from a parallel highway or arterial.
2. Multimodal connectivity	Connects with the transportation system	Alignment has more frequent and easy connections to the existing pedestrian and bicycle networks.	Alignment has connections to the existing pedestrian and bicycle networks, but they may be infrequent or challenging in places.	Alignment has infrequent or challenging connections with the existing pedestrian and bicycle networks.
3. Equity	Equity priority populations	Alignment connects to block groups with higher populations of equity priority communities, including People of Color and people with low incomes.	Alignment is within 0.25 miles of block groups with higher populations of equity priority communities, including People of Color and people with low incomes.	Alignment is more than 0.25 miles from block groups with higher populations of equity priority communities, including People of Color and people with low incomes.
4. Community and economic vitality	Access to jobs, services, and destinations (including viewpoints and recreational amenities)	Alignment connects to residential areas and areas with services, job opportunities, and other destinations.	Alignment is within 0.25 miles of residential areas and areas with services, job opportunities, and other destinations.	Alignment is more than 0.25 miles from areas with services, job opportunities, and other destinations.

¹ Based on *Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects* (2010) from Health Effects Institute, which reports “Based on a synthesis of the best available evidence, the Panel identified an exposure zone within a range of up to 300 to 500 m from a major road as the area most highly affected by traffic emissions.” (page xv)
<https://www.healtheffects.org/system/files/SR17TrafficReview.pdf>

Goal	Criteria	Most beneficial / Minimal impact Score: 3 (unless noted otherwise)	Neutral / Moderate benefits or impacts Score: 2 (unless noted otherwise)	Least beneficial / Most impactful Score: 1 (unless noted otherwise)
5. Coordination and collaboration	Alignment with local plans	Alternative aligns with planned improvements in adopted plans.	Similar alternative is mentioned in adopted plans or aligns with goals or objectives in adopted plans.	Not mentioned in adopted plans.
6. Optimize investments	Cost	Alternative makes best use of existing facilities and is on existing right of way or public land.	Alternative would likely require minor or a small amount of construction improvements and/or may cross a small number of private properties.	Alternative would likely require substantial construction improvements and/or likely to cross more than a small number of private properties.
6. Optimize investments	Environmental, cultural, historical, archaeological impacts	Alternative on land that is already developed or has a low likelihood of environmental or cultural/ historical/ archaeological resources.	Potential for alternative to impact environmental or cultural/ historical/ archaeological resources.	Alternative likely to significantly impact environmental or cultural/ historical/ archaeological resources.

EXISTING CONDITIONS

Existing conditions for the study area are summarized below. The maps included in this memorandum highlight some of the important findings related to the existing conditions. The project web map has more information and more detail than what is in this summary. The web map is viewable at this link:

<https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=fc8780acf3d744dfb92afe9a85a05d32>

This overview of existing conditions is framed around elements relevant to defining a preferred trail alignment and is organized by topic.

The narrative below summarizes the more detailed descriptions in Table 3.

Geography, Land Use, and Environment

The topography in the study area is relatively flat, but includes escarpments and other occasional geographical features. Natural areas occupy a large portion of the study area. Much of the eastern and northern edges of the study area is Deschutes National Forest. Bureau of Land Management (BLM) forest is clustered around La Pine State Recreation Road and scattered through the South Area. A small portion of La Pine State Park is on the west side of the study area at La Pine State Recreation Road. The Deschutes River runs along the west edge of the study area and the Little Deschutes River flows through the middle of the Central and South Areas. Substantial areas along or near the Little Deschutes River are zoned for Exclusive Farm Use (EFU). Deer and elk habitat have been identified throughout the study area. Possible wetlands have been identified primarily along the Little Deschutes River and Deschutes River. Environmental considerations are mapped in Figure 5, Figure 6, and Figure 7.

Residential areas make up much of the remaining land in the Study Area. In the North Area, the Sunriver community is located on the west edge along the Deschutes River. Just a small distance south in the Central Area, the Three Rivers community is located along the west edge also along the Deschutes River. In the South Area,

residential areas are dispersed throughout the City of La Pine and the surrounding unincorporated area. Zoning and land use details are included in the project web map.

Table 3. Corridor Existing Conditions

Element	Description
Land Uses	<ul style="list-style-type: none"> • The North Area includes Lava Butte and Sunriver, both on the west side of U.S. 97. The Sunriver community has a network of trails, an airport, and the Sunriver Resort with golf courses. The land along and to the east of U.S. 97 is primarily forest owned by the U.S. Forest Service. • The Central Area includes the Three Rivers community. Much of the land adjacent to and east of U.S. 97 is forest owned by the U.S. Forest Service. Forest land toward the south edge of the corridor is owned by the U.S. Bureau of Land Management. • The South Area includes the City of La Pine on the south edge and a large residential area in unincorporated Deschutes County along the west edge. The U.S. Bureau of Land Management owns various large parcels of forested land, primarily on the east edge.
Zoning	<p>Exclusive Farm Use (EFU) - Deschutes County Code Chapter 18.16</p> <ul style="list-style-type: none"> • EFU (La Pine Subzone) zoned land is typically adjacent to the Little Deschutes River, predominantly in the North and Central Areas. • Transportation-related uses that are allowed outright are limited to minor maintenance and improvements within the existing right of way (Section 18.16.020). • Other transportation-related uses would be addressed as either a Conditional use; a Goal 3 exception; or a use classified as “Transportation improvements on rural lands allowed by OAR 660-012-0065” <p>Forest Use 1 (F1) and Forest Use 2 (F2) - Deschutes County Code Chapters 18.36 and 18.40</p> <ul style="list-style-type: none"> • F1 and F2 zoning includes large areas along the eastern side of the study area. • In both F1 and F2 zones, permitted uses may include auxiliary uses to forest practices subject to the Forest Practices Act (ORS Chapter 527) and Goal 4 (Section 18.36.020). Conditional uses include public road and highway projects as described in ORS 215.283(2) and 215.283(3). <p>Flood Plain</p> <ul style="list-style-type: none"> • Flood Plain land runs adjacent to the Deschutes River throughout the North Area and Central Area. • Road projects either fall into an allowed or conditionally-allowed use depending on the classification of the road or street project as either Class I, II, or III. <p>Rural Residential - Deschutes County Code Chapter 18.60</p> <ul style="list-style-type: none"> • Rural Residential zoned land covers a large percentage of the study area. • Road projects either fall into an allowed or conditionally-allowed use depending on the classification of the road or street project as either Class I, II, or III. <p>Sunriver Community Zones - Deschutes County Code Chapter 18.108</p> <ul style="list-style-type: none"> • Zoning for the community of Sunriver is primarily in the North Area, with some of the zoning at the very north edge of the Central Area. • Recreational paths are allowed in many Sunriver community zones as either a permitted or conditional use. • Road projects are only explicitly mentioned for Forest District Zones (Section 18.108.180.A) and for Flood Plain Combining Districts (Section 18.108.190). <p>City of La Pine</p> <ul style="list-style-type: none"> • For all zones in the City of La Pine, transportation-related uses are addressed as allowed or conditionally allowed on a project-by-project basis. Based on the level of construction and impacts, transportation projects would likely be permitted as a Type II or Type III review. <p>State Parks – OAR 660-034-0035</p> <ul style="list-style-type: none"> • Park uses, including recreational trails, may be allowed on agricultural land or forest land without a Goal Exception to Goal 3 or 4 if they are within a state park, meet all other applicable requirements of statewide goals, and are authorized in a state park master plan adopted by OPRD. <p>Local Parks – OAR 660-034-0040</p>

Element	Description
Environmental and Cultural Resources	<ul style="list-style-type: none"> • A local government is not required to take an exception to Goals 3 or 4 to allow park uses on land within a local park provided such uses are described and authorized in a local park master plan. • The study area is rich with archaeological resources. A preliminary review found that artifacts were identified at nearly every location where a survey was conducted in the vicinity of the study area. Closer study will be needed when alignments are more defined. • ODOT has installed wildlife fencing along portions of the U.S. 97 corridor within the study area. In addition, there are two wildlife crossings within the study area under U.S. 97. • Possible wetlands are identified through the corridor following the Little Deschutes River. At the south edge of La Pine, wetlands follow the Long Prairie Slough to the Little Deschutes River. From the east, wetlands are along Paulina Creek and Paulina Prairie, also connecting with the Little Deschutes River. Wetlands are along the Deschutes River on the west edge of the study area. • Deer migration corridor is designated through most of the Central Area and South Area. • Elk habitat area is designated along the western edge of the Central Area and around the Sunriver community in the North area. • Oregon Spotted Frog critical habitat along rivers in the study area.

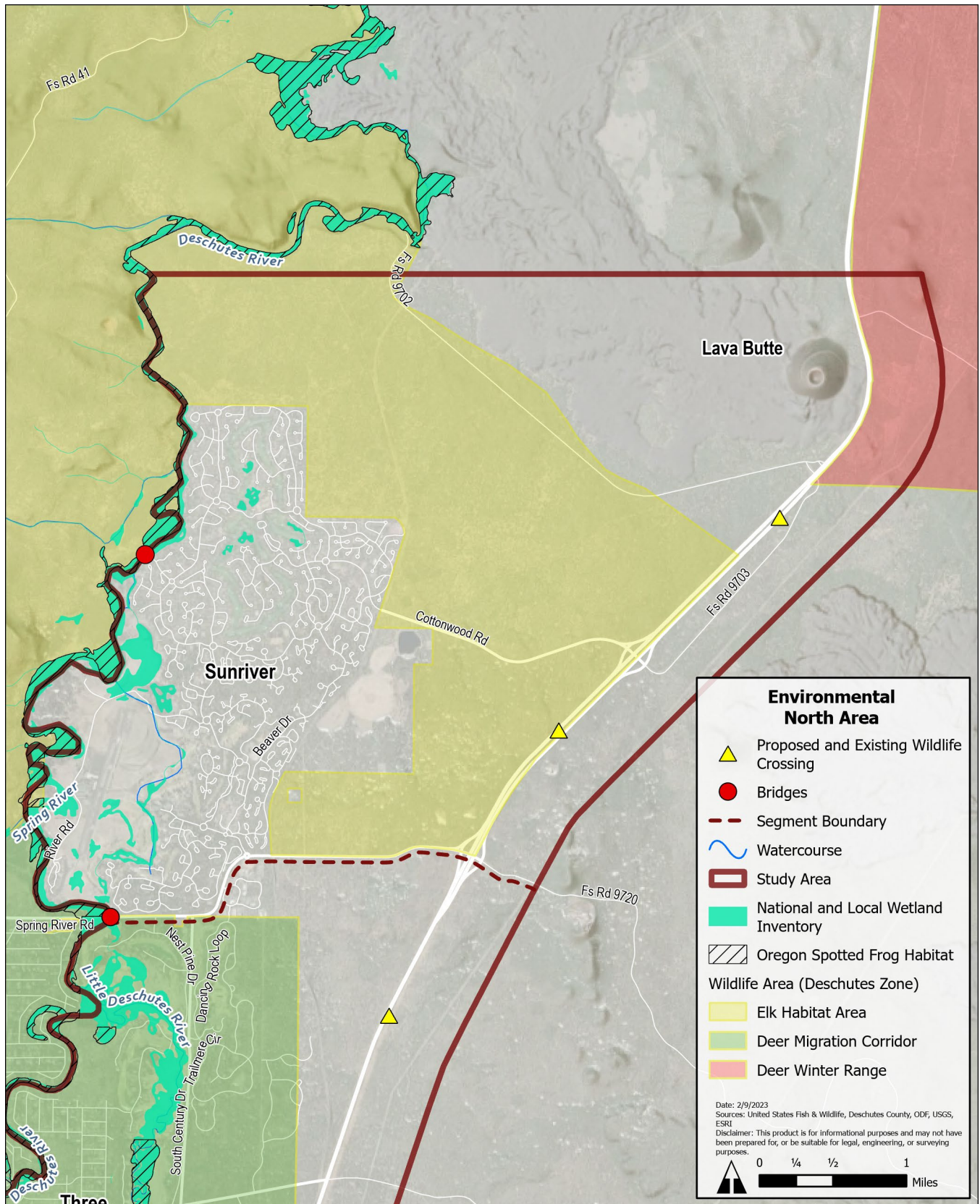


Figure 5. Environmental Considerations Map – North Area

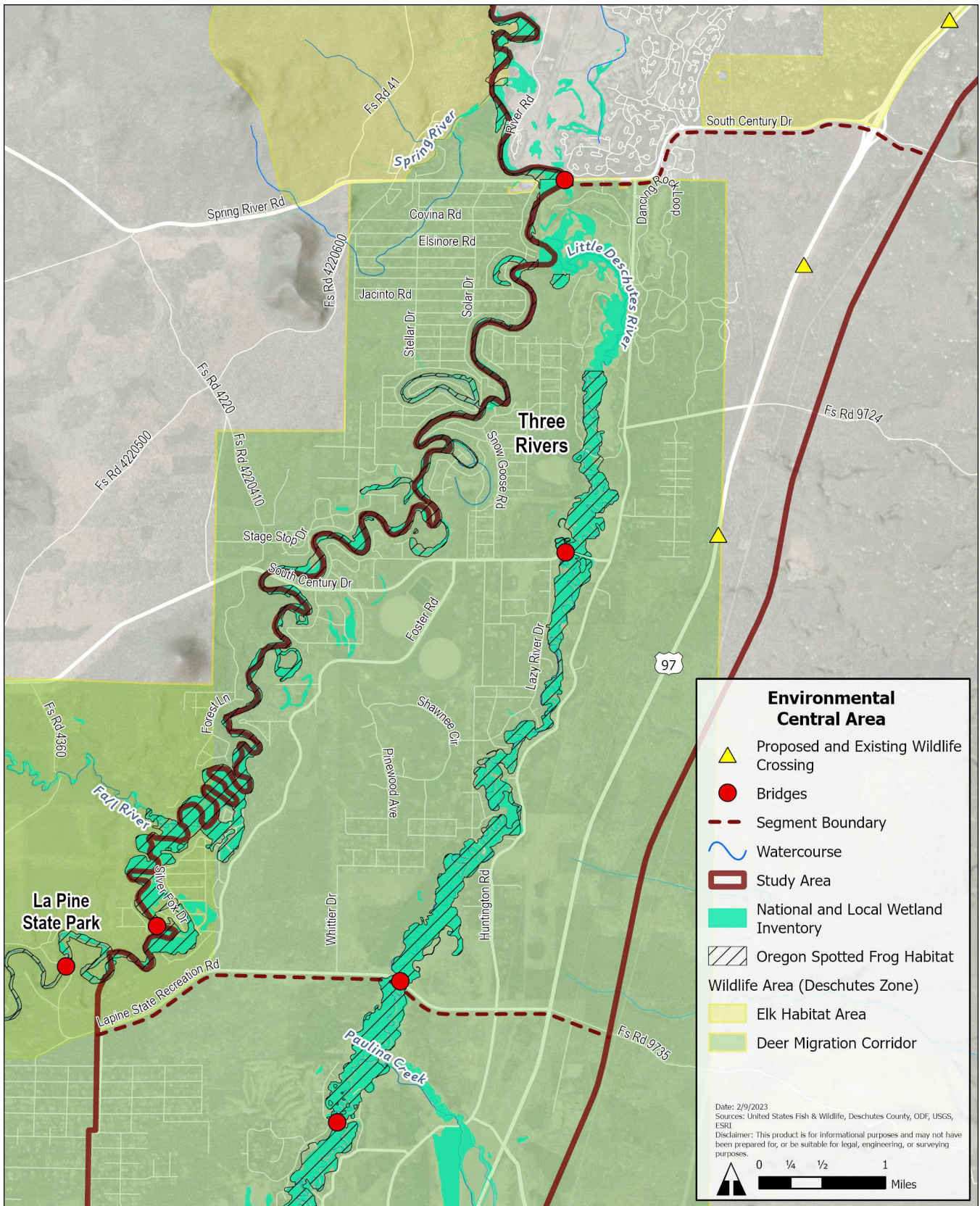


Figure 6. Environmental Considerations Map – Central Area

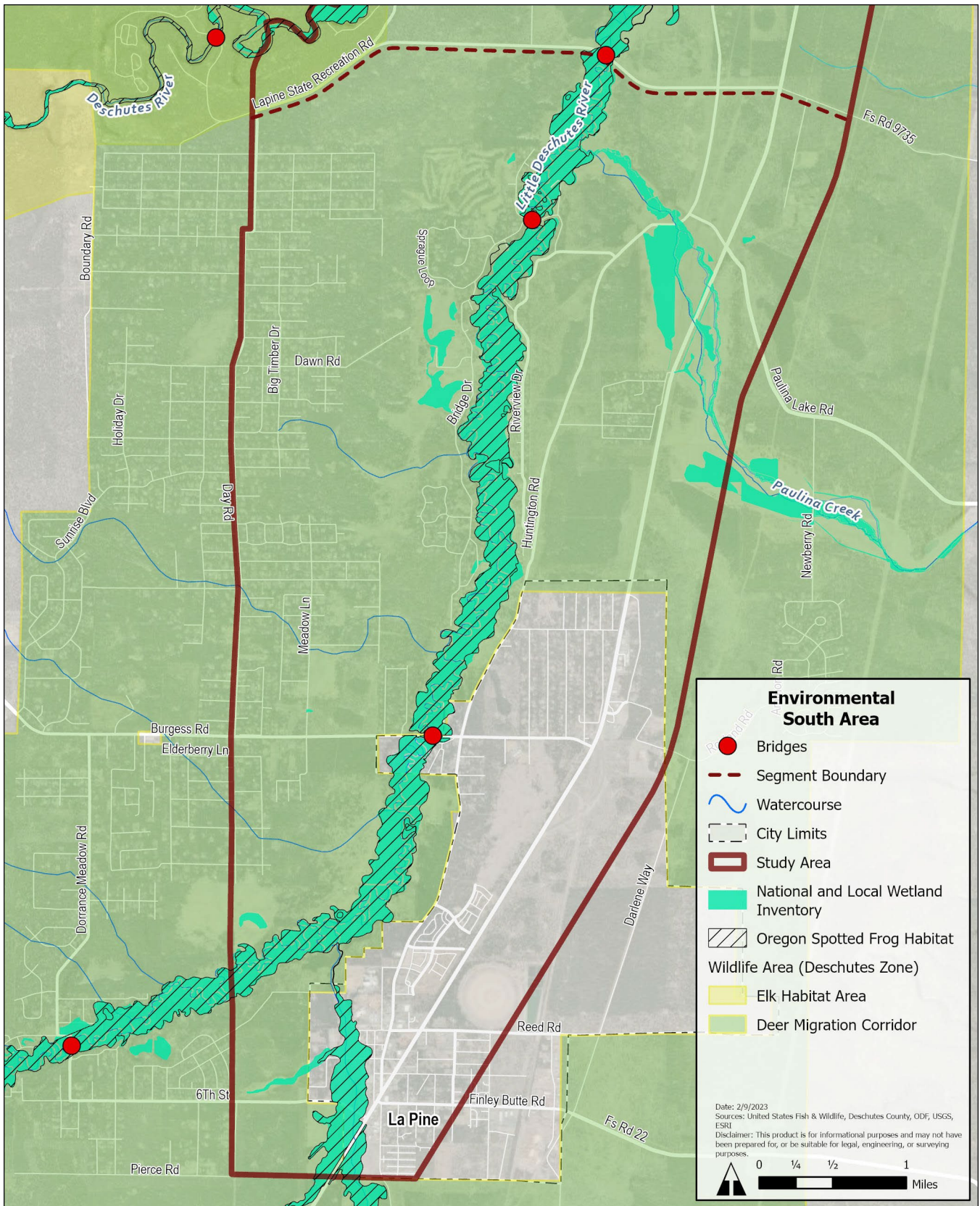


Figure 7. Environmental Considerations Map – South Area

Destinations

The City of La Pine has a relatively high concentration of destinations and services for the study area, with schools, stores, healthcare and businesses. The community of Sunriver also has several businesses and services. Recreational destinations are dispersed throughout the study area, including Lava Butte, La Pine State Park, Sunriver Homeowners Aquatic & Recreation Center, and the Sunriver Nature Center & Observatory. Destinations are listed in Table 4 and mapped in Figure 8, Figure 9, and Figure 10.

Table 4. Study Area Destinations

Element	Description
Key Destinations	<p>North Area</p> <ul style="list-style-type: none"> • Lava Butte / Lava Lands Visitor Center • Sunriver Marketplace • Post Office • Sunriver Homeowners Aquatic & Recreation Center (SHARC) • Sunriver Vacation Lodging/Rentals • Sunriver Nature Center & Observatory • The Village at Sunriver / Sunriver Country Store • Benham Falls <p>Central Area</p> <ul style="list-style-type: none"> • Three Rivers Elementary School • Sunriver Area Public Library • Post Office <p>South Area</p> <ul style="list-style-type: none"> • Dollar General • Rosland Middle School • Wickiup Junction Market • FastBreak Corner Store • St. Charles Urgent Care • La Pine Middle and Elementary Schools • La Pine High School • Bi-Mart • Walgreens • Post Office • La Pine Public Library • Downtown La Pine • Finley Butte Park • La Pine Seventh Day Adventist Church <p>Nearby but Outside of Study Area</p> <ul style="list-style-type: none"> • Fall River • Forest Service Road 41 • La Pine State Park • Newberry Volcano

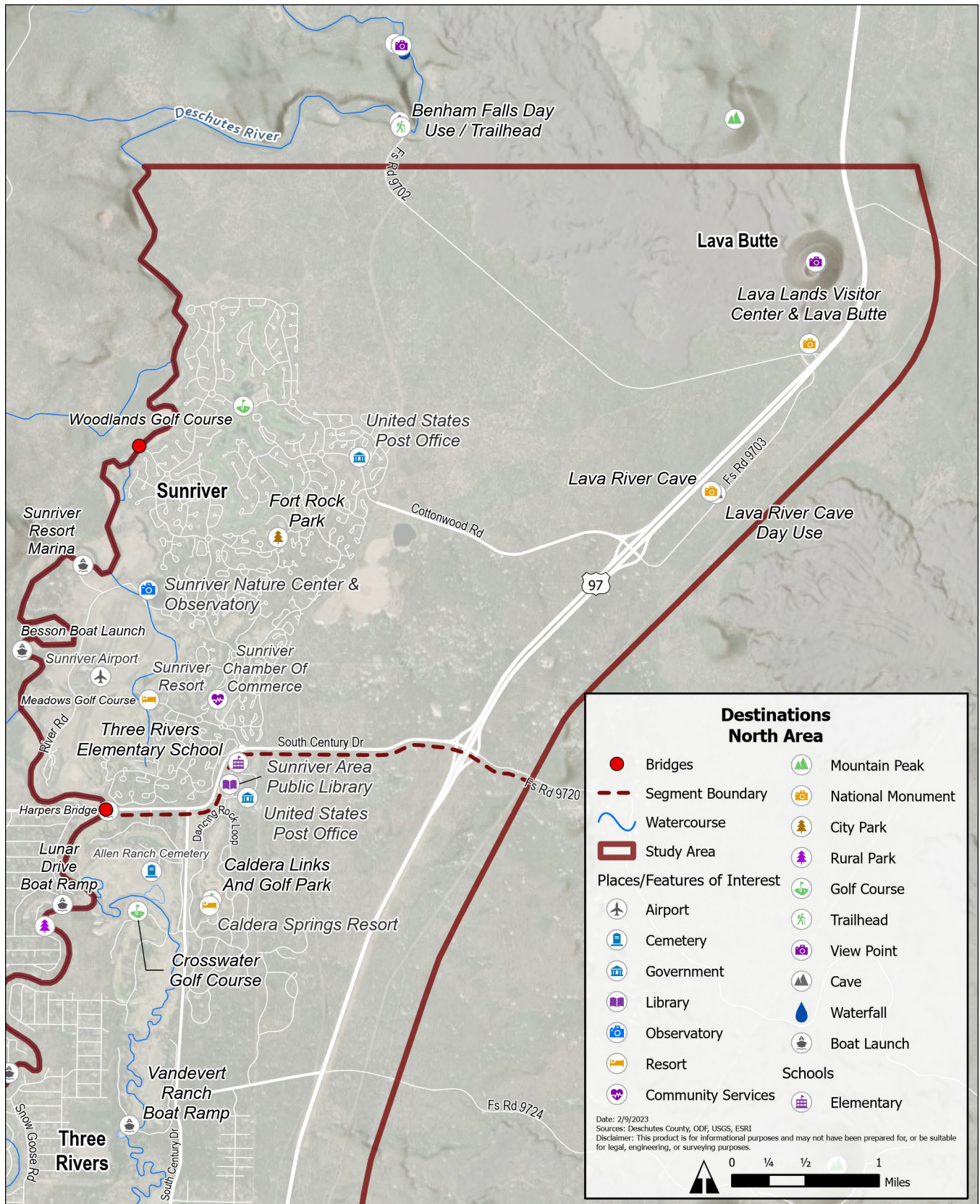


Figure 8. Destinations Map – North Area

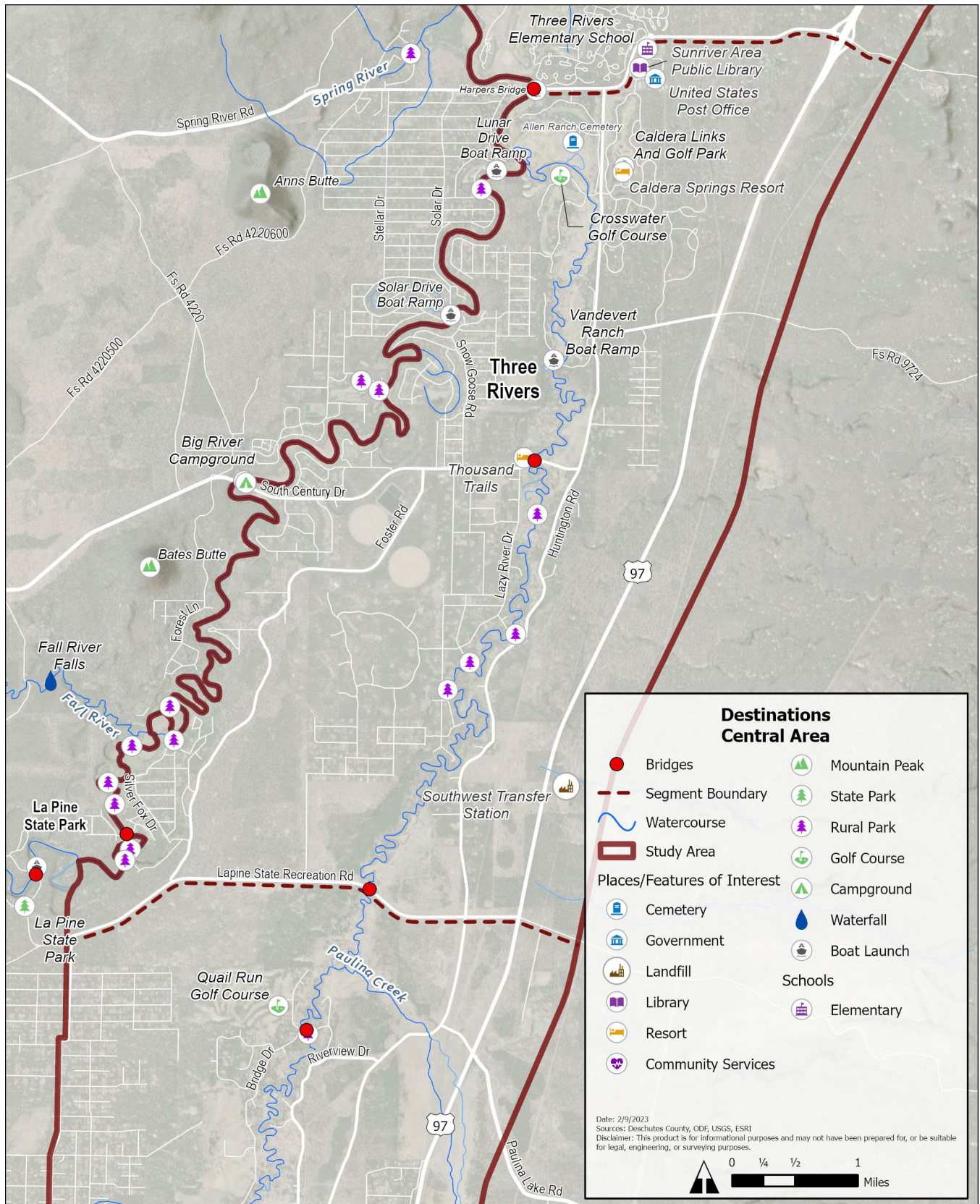


Figure 9. Destinations Map – Central Area

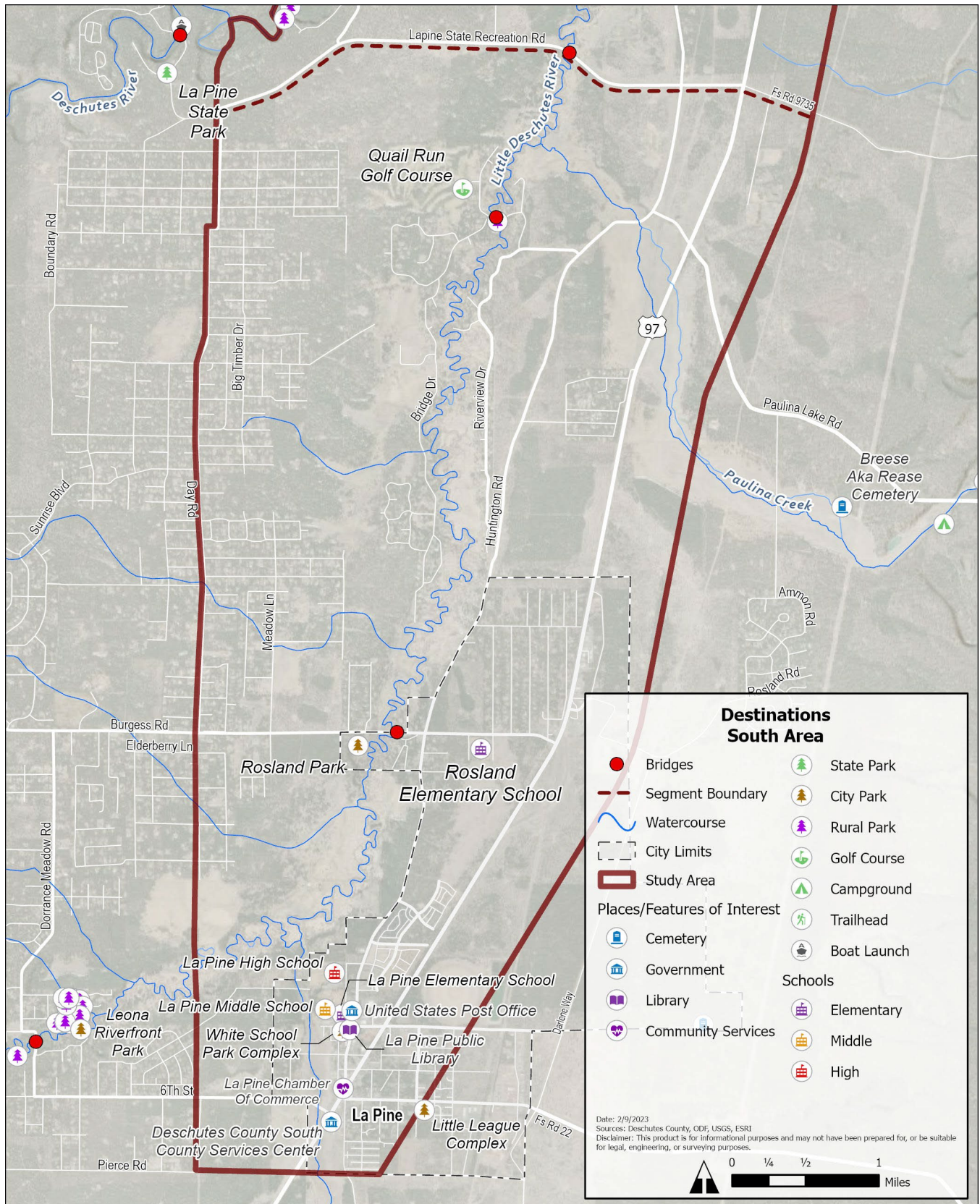


Figure 10. Destinations Map – South Area

Road Network

Transportation in the study area is served by U.S. 97 as well as a handful of other arterials and collectors. U.S. 97 is the primary north-south transportation facility through the study area and a major route through Central Oregon. It is functionally classified as an expressway with a speed limit of 65 miles per hour for most of the study area, and is two, three, and four lanes in various locations. Local roads grid the residential communities of Three Rivers and La Pine, including the residential area north and west of the City of La Pine. Sunriver has a network of private roads traveling through its community. Forest roads travel through the Deschutes National Forest and the north and east edges of the study area. Details about the road network are listed in Table 5. Traffic details for the major roads in the study area are listed in Table 6 and Table 7.

A BNSF railroad runs north-south through the study area, often near or adjacent to U.S. 97. Overhead power lines and a natural gas main (east of the highway) also parallel U.S. 97.

Table 5. Road Network

Element	Description
Roadways	<ul style="list-style-type: none"> U.S. 97 travels north-south through the study area. It is classified by the Oregon Highway Plan as a Statewide highway, an Oregon Freight Route, part of the National Network for freight, a Reduction Review Route, and an Expressway for most of its length in the study area. U.S. 97 has four motor vehicle lanes north of mile point 153 (approximately), and two or three lanes for most of its length south of mile point 153. The speed limit for U.S. 97 is 65 miles per hour for most of the study area. The speed limit reduces south of mile point 164 as it approaches La Pine. Huntington Road travels north-south from S Century Drive (near Three Rivers) to La Pine. It is a Deschutes County road with two motor vehicle lanes and narrow gravel shoulders. It connects to many residences. Huntington Road is considered a County Bikeway, but it is high speed and has narrow paved shoulders. Huntington Road can be used as a detour route when an incident impacts traffic on U.S. 97. Day Road and 5th Street travel north-south between La Pine State Recreation Road and Burgess Road. This route is high speed, has narrow shoulders, and has many adjacent residential properties. S Century Drive travels east-west from outside the west study area boundary to the intersection with Huntington Road, where it travels north-south to the intersection with Spring River Road, then travels east-west to an interchange with U.S. 97. It is a Deschutes County road with two motor vehicle lanes and paved and gravel shoulders. The speed limit is 50 miles per hour. La Pine State Recreation Road travels east-west from the west edge of the study area to at intersection with U.S. 97. It is a Deschutes County road with two motor vehicle lanes, narrow paved shoulders, and gravel shoulders. Traffic speeds are high. Local roads grid the residential communities of Three Rivers and La Pine, including the residential area north and west of the City of La Pine. Sunriver has a network of private roads traveling through its community. National Forest System Roads travel through the United States Forest Service (USFS) land in the North Area and in the area east of U.S. 97.
Railroad	<ul style="list-style-type: none"> A BNSF railroad runs north-south through the study area, often near or adjacent to U.S. 97.

Table 6. Average Daily Traffic in Study Area (2022)

Road	Intersection	Average Daily Traffic
Huntington Road	0.1 miles north of Burgess Road	2,399
Huntington Road	0.05 miles north of La Pine State Recreation Road	2,721
S Century Drive	0.10 miles north of Huntington Road	8,106

Road	Intersection	Average Daily Traffic
S Century Drive	0.05 miles south of Business Park	10,401
S Century Drive	0.50 miles west of U.S. 97	8,435
Day Road	0.03 miles north of Burgess Road	4,415
5th Street	South of La Pine State Recreation Road	3,229
La Pine State Recreation Road	0.15 miles west of U.S. 97	3,650
Vandever Road	0.5 miles west of U.S. 97	3,859
Cottonwood Road	1 mile west of U.S. 97	4,451

Source: Deschutes County

Table 7. Annual Average Daily Traffic on U.S. 97 (2021)

Road	Mile Point Begin	Mile Point End	Annual Average Daily Traffic
U.S. 97	143.45 (Knott Road)	153.08 (S Century Drive)	25,783
U.S. 97	153.08 (S Century Drive)	155.50 (Vandever Road)	17,353
U.S. 97	155.50 (Vandever Road)	161.74 (Prairie Drive)	15,520
U.S. 97	161.74 (Prairie Drive)	165.26 (Burgess Road)	13,576

Source: ODOT

Safety

Five years of reported crashes in the study area were primarily along U.S. 97 and other high-speed corridors like S Century Drive, Huntington Road, Burgess Road, and La Pine State Recreation Road. Four crashes involved someone biking: two on U.S. 97, one on Huntington Road, and one on S Century Drive. Three crashes involved someone walking: two on U.S. 97 and one on Huntington Road. Reported crashes are mapped in Figure 11, Figure 12, and Figure 13. Details of reported crashes for major roads in the study area are listed in Table 8.

Table 8. Crashes in Study Area (2016 – 2020)

Road	Total Crashes	Fatal Crashes	Non-Fatal Injury Crashes	Property Damage Only Crashes
U.S. 97	383	9	200	174
Huntington Road	75	0	39	36
Burgess Road	43	0	27	16
Day Road	26	0	15	11
La Pine State Recreation Road	22	0	12	10
S Century Drive	11	0	6	5
Cottonwood Road	11	0	3	8
Vandever Road	9	0	5	4

Source: ODOT

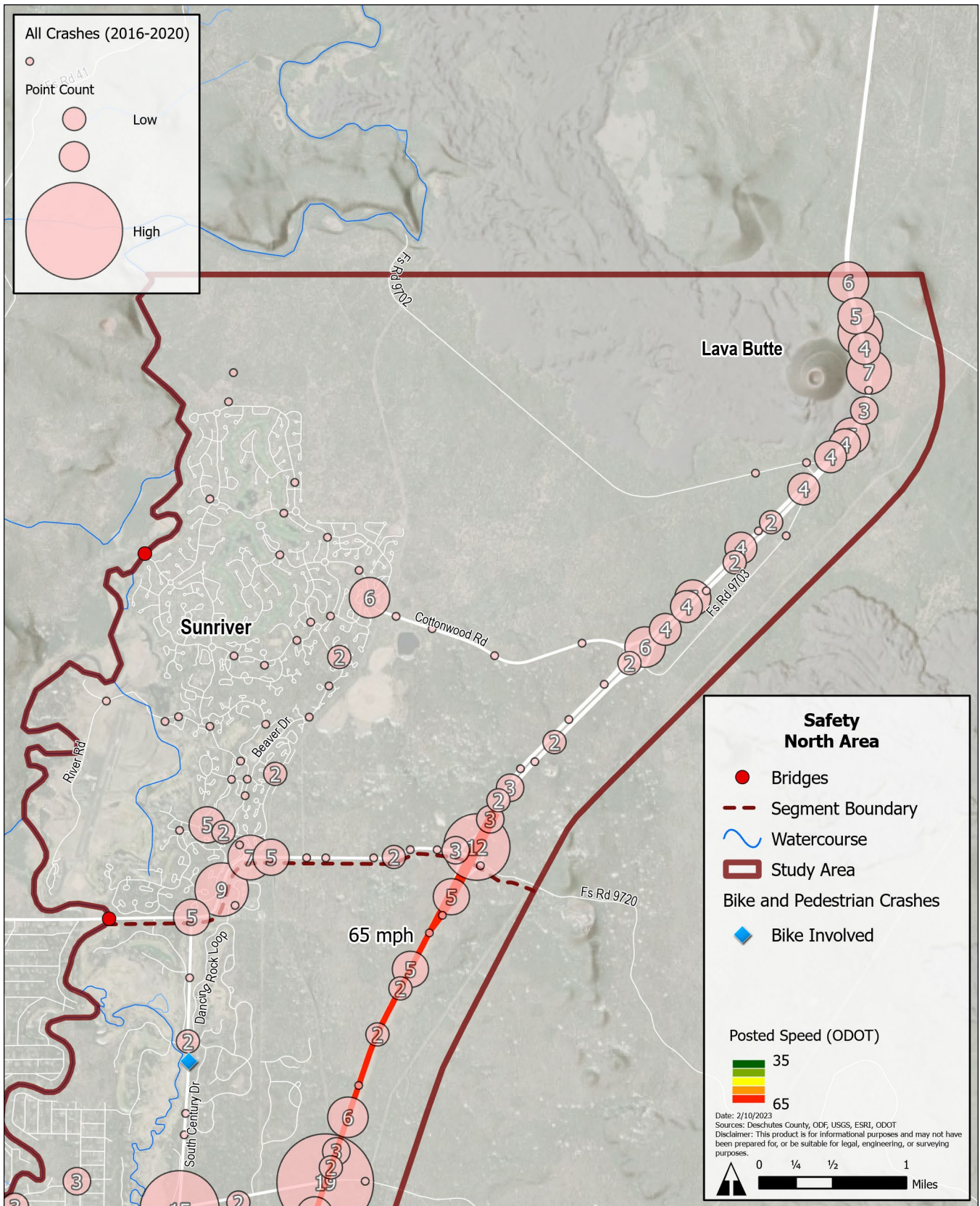


Figure 11. Safety Map – North Area

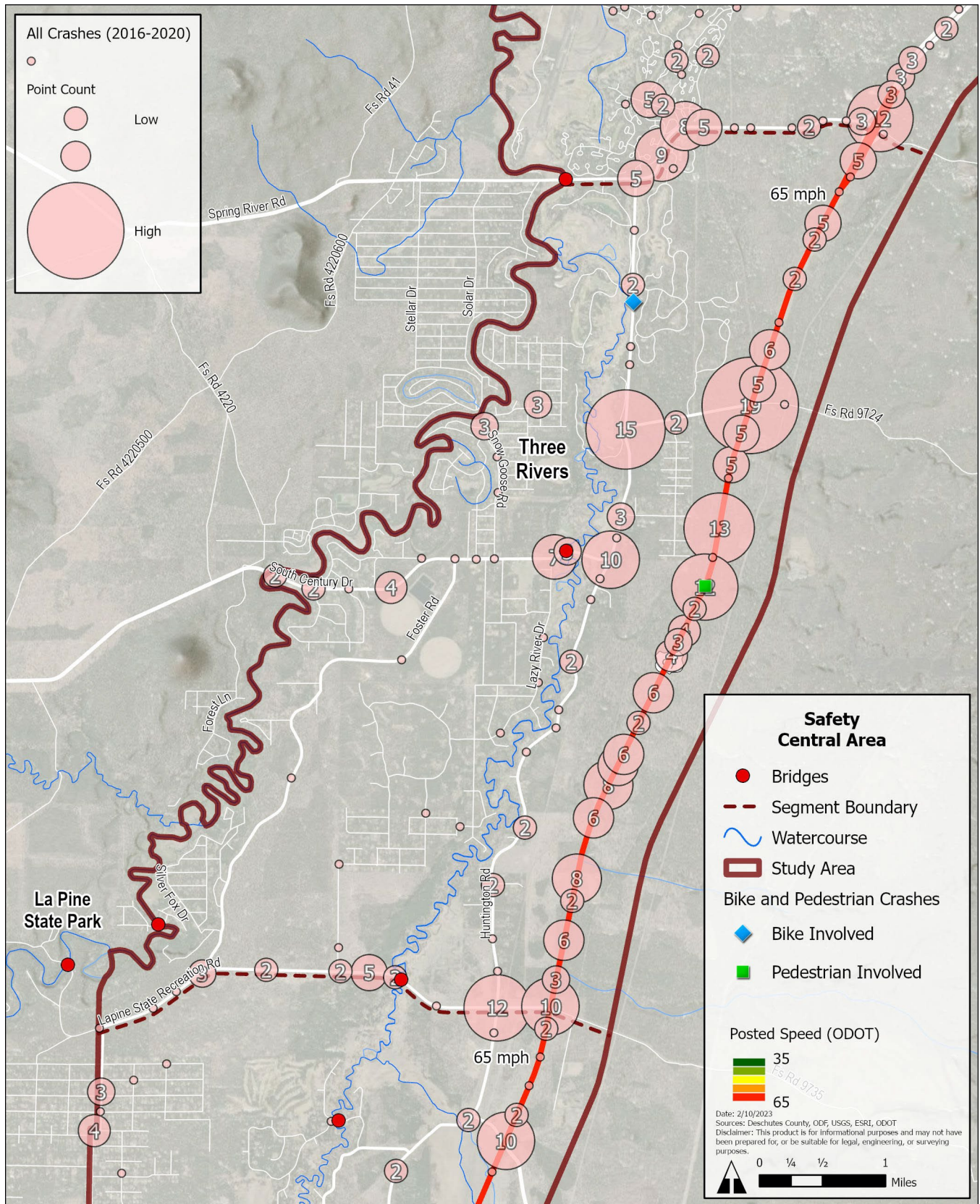


Figure 12. Safety Map – Central Area

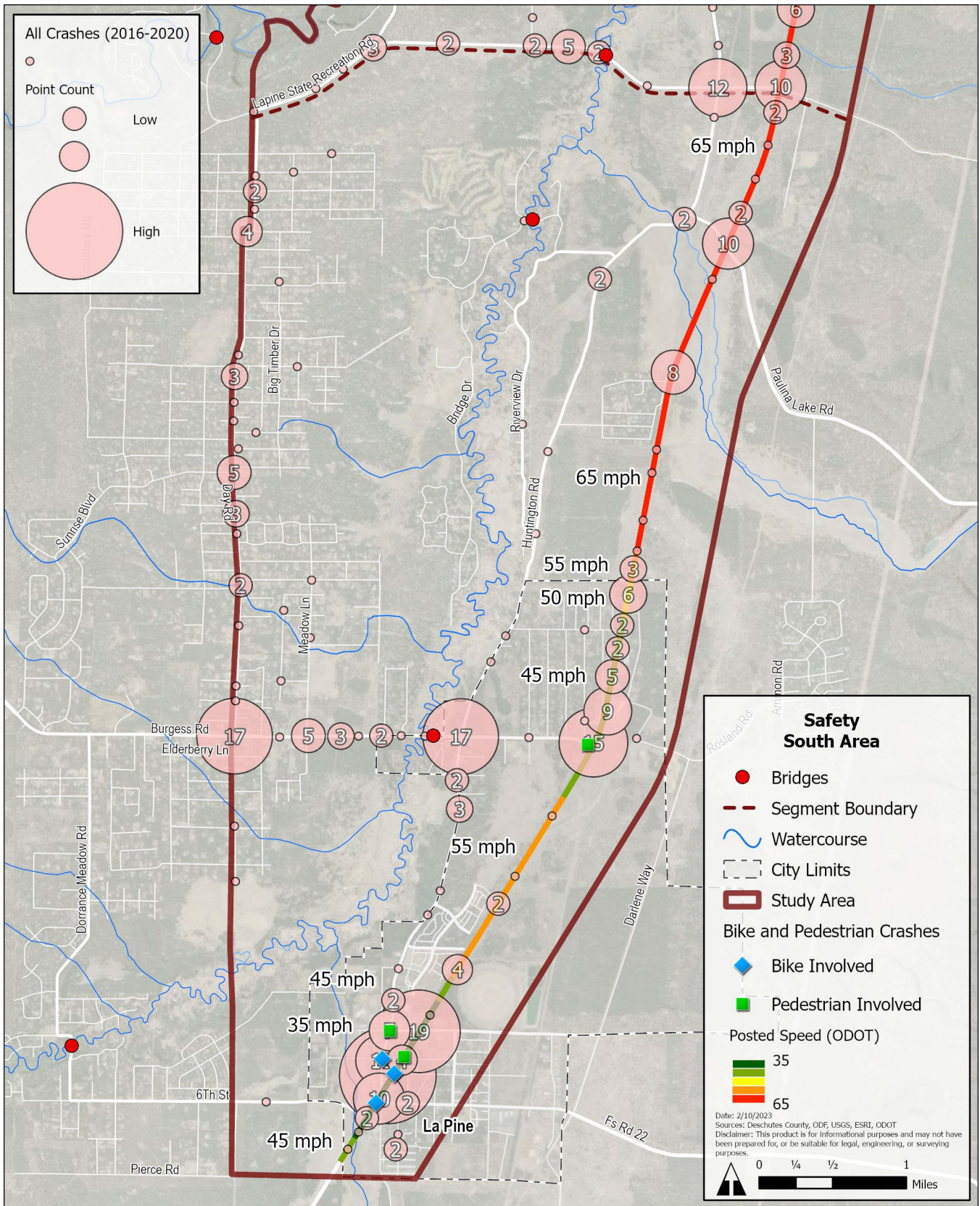


Figure 13. Safety Map – South Area

Walking, Biking, and Transit

Dedicated facilities for walking and biking in the study area are primarily limited to the Sunriver and La Pine communities. The Sunriver area is well-connected with a system of multi-use paths, including the Sun Lava Butte Trail connecting to Lava Butte. La Pine has sidewalks on many of its streets and striped bike lanes in a few streets. Pedestrian and biking facilities are mapped in Figure 14, Figure 15, and Figure 16.

Cascades East Transit operates two bus lines through the study area, connecting La Pine and Bend (Route 30) and La Pine and Sunriver (Route 31). Service for either of these routes is limited to just a few trips per day and only on weekdays. Route 31 has been suspended for the season and is expected to restart for the summer. Transit stops and park and rides are mapped in Figure 14, Figure 15, and Figure 16.

Existing conditions for walking, biking, and transit in the study area are detailed in Table 9.

Table 9. Walking, Biking, and Transit

Element	Description
Bicycle and Pedestrian Facilities	<ul style="list-style-type: none"> • The Bend to Lava Butte multi-use path will connect Bend to the Lava Lands Visitor Center (currently in design). • Sunriver and La Pine have the majority of the bicycle and pedestrian facilities in the study area. • Sunriver has a system of meandering multi-use paths intertwined with its network of streets. The Sun Lava Butte Trail connects Sunriver to Lava Butte. Other paths connect with the Sunriver Airport and surrounding resorts and golf courses. Much of this is on private property. Traffic on these paths is heavily congested during the summer. • Downtown La Pine has sidewalks on many streets. La Pine has standard bike lanes striped on Huntington Road (south of Findley Drive), 1st Street, and Reed Road. An existing multi-use path parallels Coach Road adjacent to the La Pine High School and Elementary School. Findley Drive north of La Pine has multi-use paths paralleling the road in lieu of sidewalks or bike lanes. U.S. 97 has buffered bike lanes and sidewalks through La Pine south of 1st Street/Reed Road • A multi-use path was recently constructed parallel to U.S. 97 from Burgess Road to 1st Street in La Pine. This will be the southern end point for this Lava Butte to La Pine route. • Most other areas lack dedicated facilities for walking or biking. • U.S. 97 has few pedestrian or bicycle crossings in the study area. At the southern end, there are three recently constructed marked crosswalks through La Pine, and another signalized crossing at 1st Street/Reed Road. Further north, the underpasses at Cottonwood Rd, Cottonwood Road interchange, and S Century Drive have striped shoulders, but no dedicated walking or biking facilities. A wildlife undercrossing is at approximate MP 154.8.
Transit	<p>Cascades East Transit (CET) is the primary transit operator in the area. CET has suspended fare collection on non-recreational routes. CET routes include:</p> <ul style="list-style-type: none"> • Route 30: La Pine to Bend. Makes four round trips per day, Monday through Friday. • Route 31: La Pine to Sunriver (currently suspended for low ridership and driver shortages). Expected to start service May 31. Makes eight round trips per day, Monday through Friday. • Lava Butte Shuttle: A seasonal shuttle between the base and top of Lava Butte. Round trip fare is three dollars. <p>Transit stops and park and rides in the area:</p> <ul style="list-style-type: none"> • 4th at Huntington (Route 30 & 31) • La Pine Senior Center (Route 31) • Wickiup Junction Park and Ride (Route 30 & 31) • Drafter Road at U.S. 97 (Route 31) • Sunriver Resort (Route 31) • Sunriver Homeowners Aquatic & Recreation Center (SHARC) (Route 31)

Element	Description
	Transit routes that go outside of Central Oregon would connect through Bend and are operated by POINT, Central Oregon Breeze, Pacific Crest Bus Lines, and Shuttle Oregon.

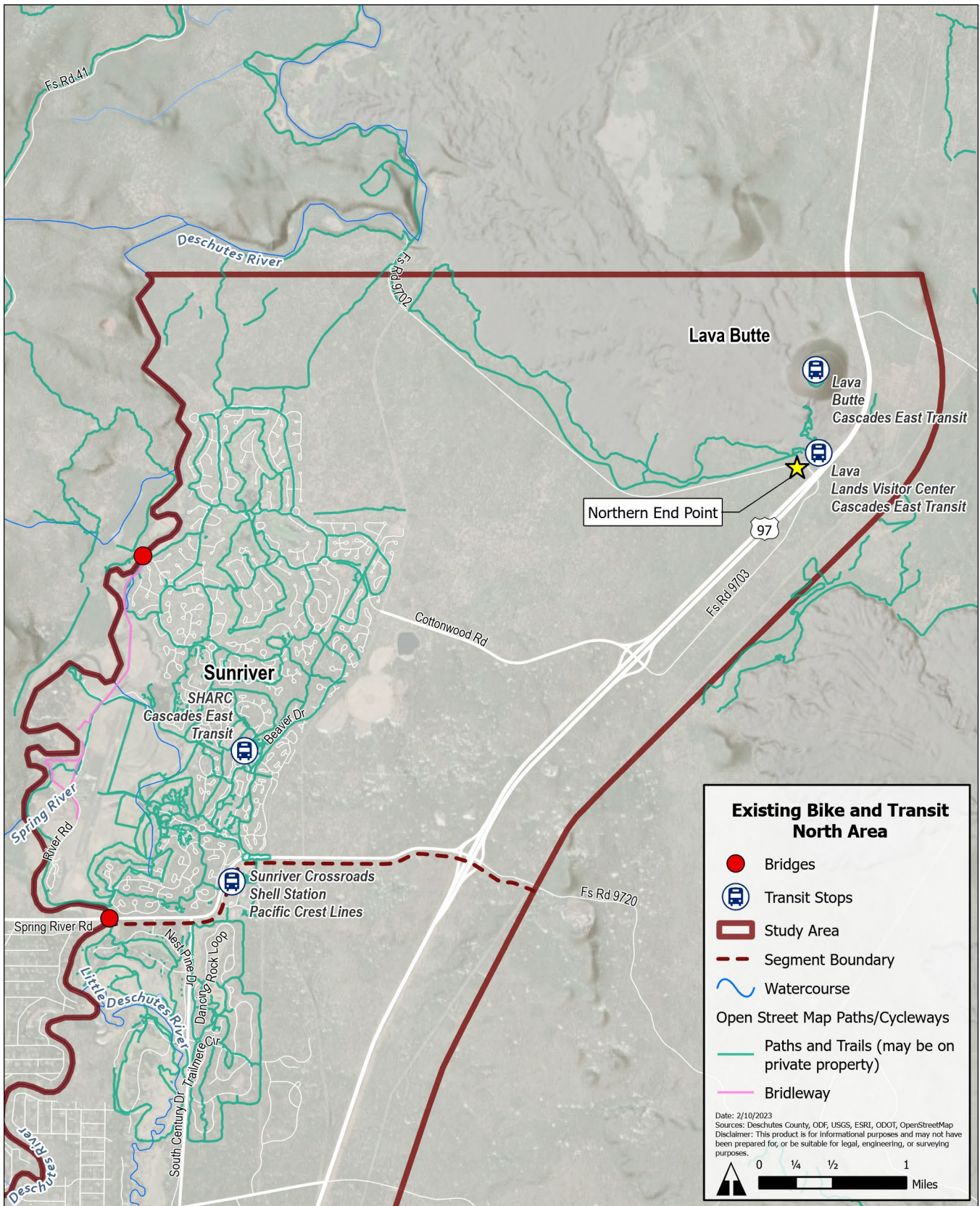


Figure 14. Bike and Transit Map – North Area

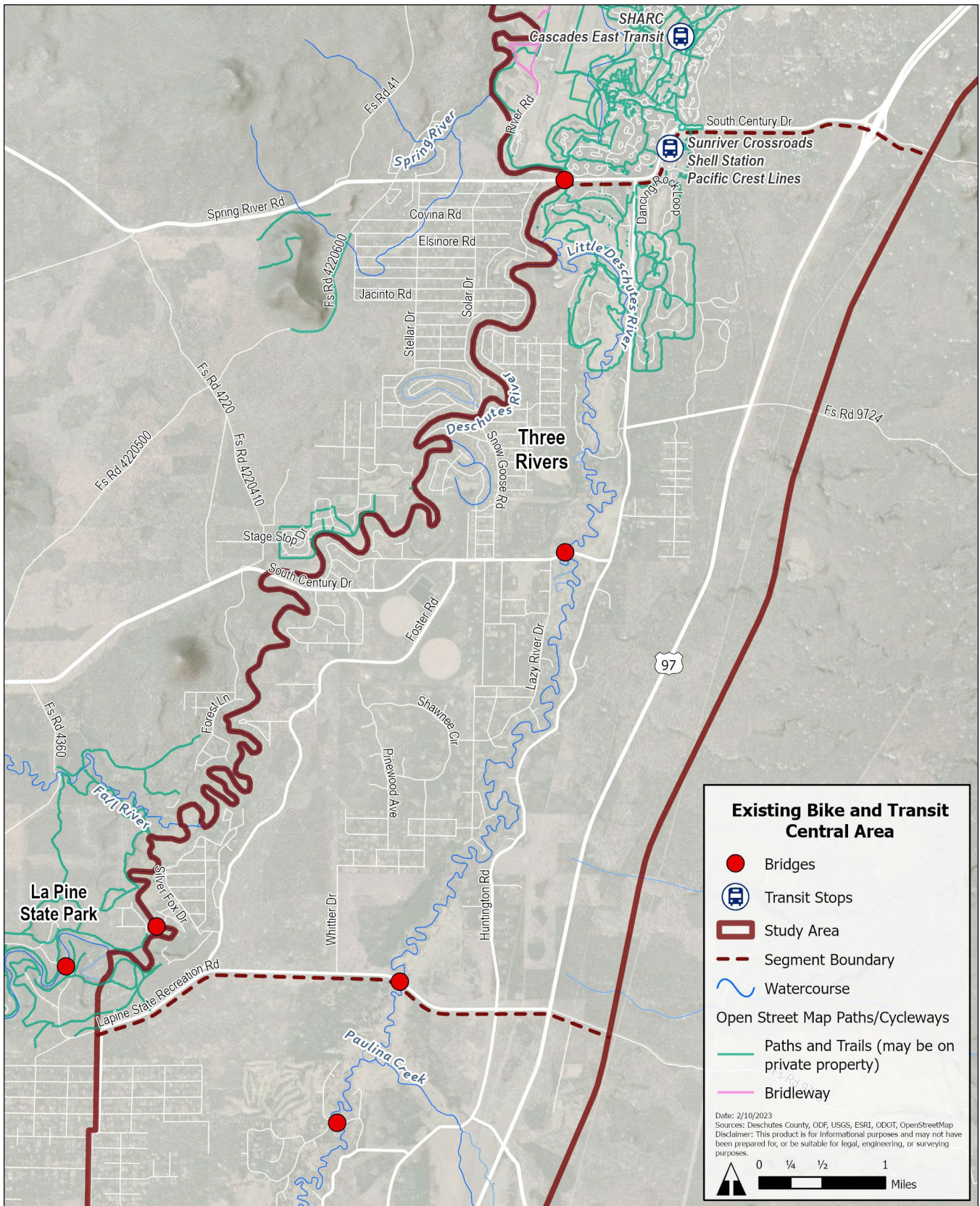


Figure 15. Bike and Transit Map – Central Area

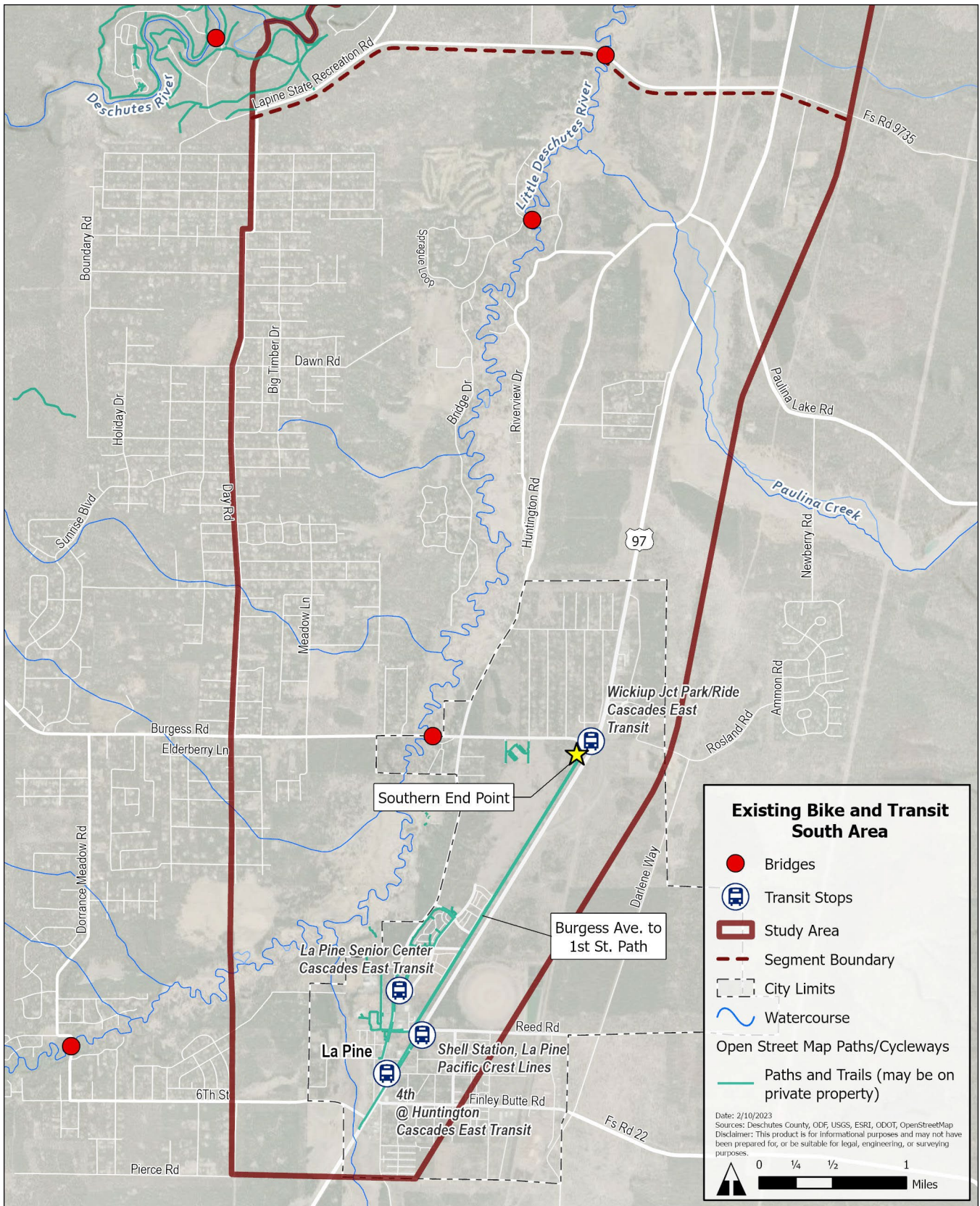


Figure 16. Bike and Transit Map – South Area

Population and Demographics

Population demographics for the study area, Deschutes County, and Oregon are listed in Table 10. This project will focus analysis on equity priority communities, defined here as:

- People of Color (POC).
- Households with low incomes (less than 200 percent of the federal poverty level).
- People with limited English proficiency (LEP).

The study area and Deschutes County have notably lower percentages of POC community members than the state of Oregon. Of the 11 percent of the study area population that identifies as POC, most are Hispanic or Latino (7 percent). The study area has a higher percentage of low income residents than either the county or the state. Very few LEP populations were identified in the study area.

Figure 17 and Figure 18 map the percentage of POC and low income populations for the study area by block group. Higher percentages of POC residents tend to be near La Pine, at south and eastern portions of the study area. Higher percentages of low income populations are at the south end of the study area, with additional locations along the eastern side.

Table 10. Community Characteristics

Category	Oregon	Deschutes County	Study Area
Population	417,6346	191,749	13,804
Race and Ethnicity			
People of Color (POC)	25%	13%	11%
- American Indian and Alaska Native alone (Not Hispanic)	1%	1%	1%
- Asian alone (Not Hispanic)	4%	1%	<1%
- Black or African American (Not Hispanic)	2%	1%	1%
- Hispanic or Latino	13%	8%	7%
- Native Hawaiian and Other Pacific Islander alone (Not Hispanic)	<1%	<1%	1%
- Some other race alone (Not Hispanic)	<1%	0%	<1%
- Two or more races (Not Hispanic)	4%	3%	1%
White Alone (Not Hispanic)	75%	87%	89%
Income			
Low Income Population (200 percent or less of the federal poverty level)	29%	25%	34%
Population below the federal poverty level	8%	6%	9%
Limited English-Proficiency Households			
Limited English-Proficiency Households	2%	1%	<1%
Persons with disabilities			
Persons with disabilities	14%	12%	17%

Source: American Community Survey: 5 Year Estimates 2016 – 2020, block group level.

Note: Study Area includes Sunriver CDP, Three Rivers CDP, and La Pine city. Persons with Disabilities data uses tract level data.

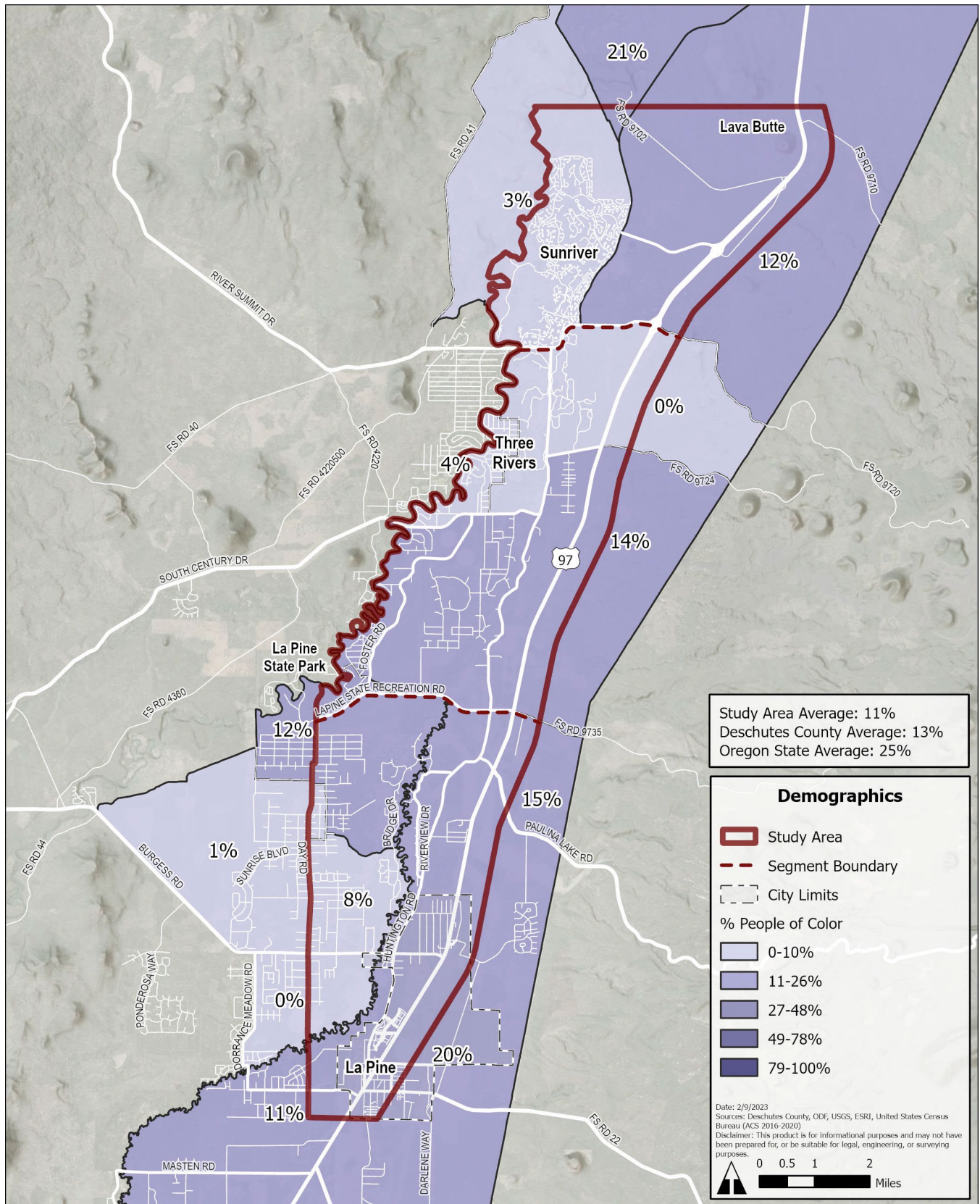


Figure 17. Percent People of Color by Block Group

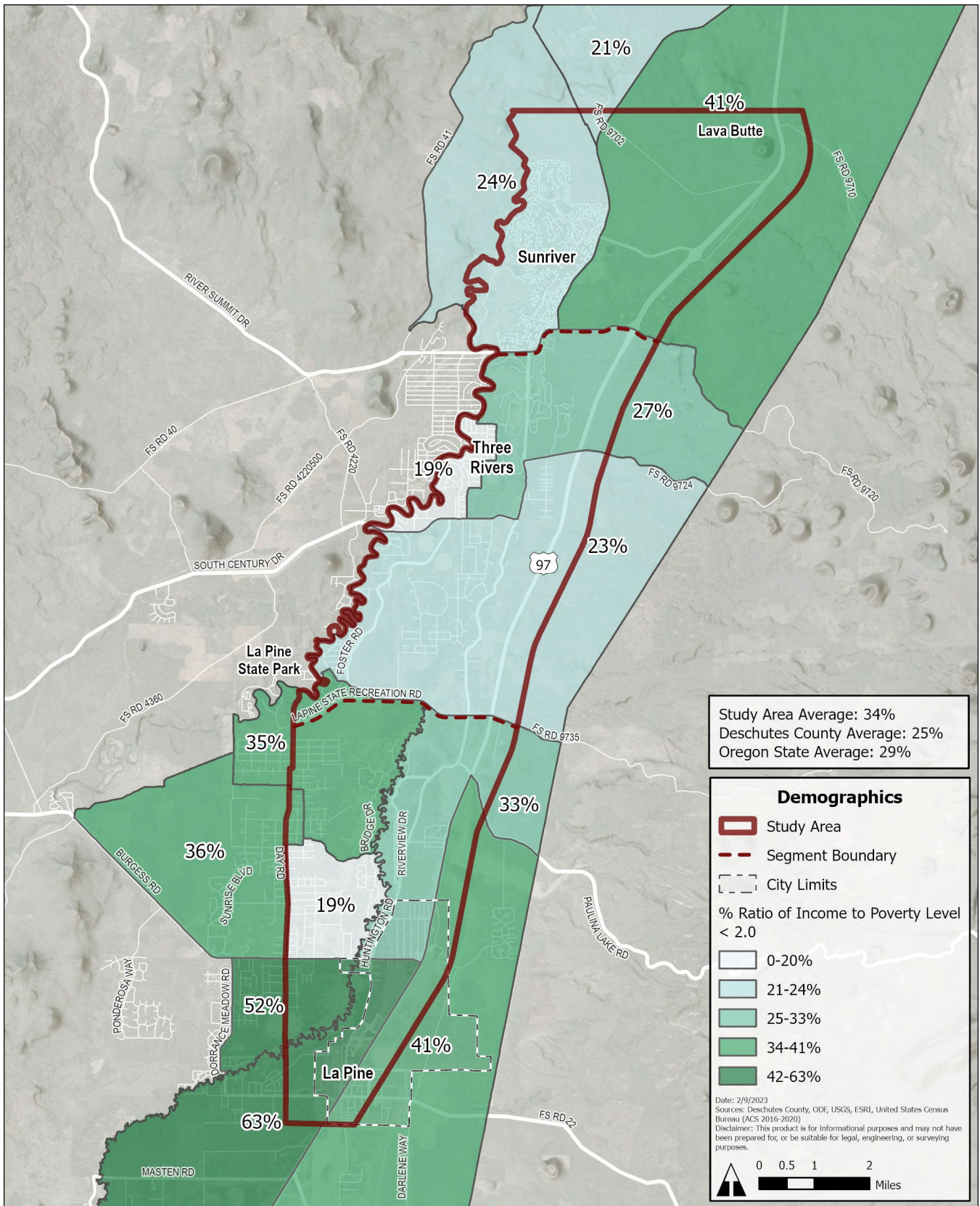


Figure 18. Percent Low Income (200 Percent of Poverty Level or Less) by Block Group

OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints from the existing conditions are summarized in Table 11. These are shaped around elements relevant to implementing an ADA-compliant path for walking and biking. This list was refined based on feedback from ODOT, the project Sounding Board, stakeholders, and the public.

Table 11. Opportunities and Constraints

Issues	Opportunities	Constraints
Geography, Land Use, and Environment		
The landscape is mostly flat, but has occasional grade changes or escarpments.	<ul style="list-style-type: none"> The flat landscape simplifies implementation and would be attractive for walking and biking. Escarpments and grade changes can make for interesting features along the trail. 	Escarpments and grade changes are difficult to identify on a map and can make implementation more challenging.
The landscape and nearby mountains create a panoramic beauty.	Design of the path should complement the landscape and incorporate views.	Any structures or other visible portions of the path should be designed to complement the landscape.
Exclusive Farm Use areas and Forest Use areas limit the types of transportation-related uses that are allowed outright.	<ul style="list-style-type: none"> Opportunity to align with existing facilities in these areas. The natural setting of forest and farm use areas would provide a pleasant experience for trail users. 	<ul style="list-style-type: none"> Potential for new facilities or improvements to require conditional use permit or exception. May need to align with existing facilities or avoid these areas if permitting is unfeasible. Oregon administrative rules require recreational trails to be on adopted plan of local parks department or state parks and be maintained by local or state park.
Much of the land in the study area is publicly owned as Deschutes National Forest, Bureau of Land Management area, or Oregon State Parks land.	<ul style="list-style-type: none"> Aligning the route on public land would allow for coordination and implementation between public entities. These areas have existing parking areas that could also be used for trailheads for this path. 	Parking areas at popular recreational areas may not have capacity to accommodate additional users.
Several areas of the Lava Butte to La Pine corridor serve as habitats for elk, winter range for deer, migratory passage for deer, and critical habitat for the Oregon spotted frog.	Education opportunity to raise awareness of wildlife activity and the environment through interpretive signs.	Avoid sensitive wildlife areas and otherwise minimize potential impacts, including at wildlife crossings. Wildlife crossings are intended for animals and the path should avoid them.
Possible wetlands are identified along the Little Deschutes River, the Deschutes River, and other parts of the study area.	Education opportunity to raise awareness of importance of wetlands and the environment through interpretive signs.	Minimize potential impacts to sensitive resources by avoiding those areas or using boardwalks, bridges, or other techniques.
Winter weather can be cold, snowy, or icy.	Potential for a safe, comfortable route for active transportation during winter weather.	Costly maintenance of route during snow events.
The study area is rich with archaeological and cultural resources.	Education opportunity to raise awareness of area’s history through interpretive signs.	Alignment alternatives will need to be considered closely for potential resource impacts. Site surveys may be needed.
Road Network		

Issues	Opportunities	Constraints
<p>U.S. 97 provides a direct route between Lava Butte and La Pine and has available adjacent right-of-way for a multi-use path.</p>	<ul style="list-style-type: none"> Routing the path adjacent to U.S. 97 presents an opportunity in terms of continuous public ownership in an existing transportation corridor. Safety improvements on U.S. 97 could make it a more comfortable route for walking and biking. A north-south route within U.S. 97 right-of-way that is comfortable and convenient would provide a more comfortable alternative to walking or biking along the immediate highway itself. 	<ul style="list-style-type: none"> U.S. 97 would be relatively loud and uncomfortable to walk or bike next to. Air quality near the highway is hindered by motor vehicle exhaust and particulate matter. U.S. 97 is difficult for people walking or biking to cross, presenting a potential barrier especially for a path on the east side of U.S. 97. U.S. 97 interchanges provide grade-separated highway crossings of the highway, but these crossings lack facilities for walking and biking. The ramps for the interchanges also create barriers to walking and biking. Site reconnaissance is required to determine if there is available room within the undercrossings of U.S. 97 to accommodate a separated trail without needing expensive interchange reconstruction. Additionally, the interchange environment presents challenges for routing a trail through and across the local roads at these locations. At-grade intersections further south in the corridor do not have grade-separated crossings and would be difficult and expensive to retrofit with safe and comfortable pedestrian/bike crossings. The railroad adjacent to U.S. 97 constrains path alignment opportunities. Existing utilities, wildlife fencing may present a barrier to trail development. Cattle guards would be required at breaks in wildlife fencing. While direct, a trail in the U.S. 97 corridor would likely require spur connections to reach destinations in Sunriver and La Pine.
<p>U.S. 97 creates a barrier to traveling east-west with few crossing locations.</p>	<p>Integrate enhanced crossings of U.S. 97 and other arterials from the multi-use path to serve active transportation users and reduce conflicts with drivers.</p>	<ul style="list-style-type: none"> Capital investment cost to include grade-separated crossings due to the high speed, high volume, rural nature of U.S. 97. Presence of enhanced crossings may slow traffic and impact freight mobility.
<p>The BNSF railroad creates a barrier to traveling east-west with few crossing locations. Project team does not anticipate BNSF will be supportive of this project if it impacts the railroad.</p>	<p>Opportunity to align necessary railroad crossings with existing roads that cross.</p>	<p>Identify alignments that avoid interaction with BNSF railroad to avoid user conflicts and simplify implementation.</p>
<p>County roads running parallel and near U.S. 97</p>	<p>Century Drive/Huntington Road is an existing north-south corridor running parallel to and west of U.S. 97. While these roads today do not generally have many pedestrian or cycling facilities, they present an opportunity through existing right-of-way and are in a favorable location for making connections to key destinations in the corridor.</p>	<ul style="list-style-type: none"> These county roadways are not improved with pedestrian and cycling facilities. Additional right-of-way may be required to achieve desired separation between a bike/ped facility and the existing roadways. County does not have staff, equipment, or budget to maintain separated bike/ped facilities. There are many private driveways that must be crossed, especially along Huntington Road.

Issues	Opportunities	Constraints
<p>Many streets in La Pine are unimproved or unpaved.</p>	<p>Unpaved roads help to limit motor vehicle volumes and speeds. Opportunity to pave enough of the road to establish a multi-use path, while leaving the remaining road width unpaved for motor vehicles. If only a path were paved, this would require barriers/fencing and/or bollards in key areas to prevent vehicles from using or parking on the trail.</p>	<p>Existing unpaved streets would require additional investment to develop a multi-use path.</p>
<p>A network of forest roads circulates through the Deschutes National Forest.</p>	<ul style="list-style-type: none"> • Forest roads offer a relatively low-traffic, scenic opportunity for the path alignment that would be relatively straight-forward to implement. • Forest Service Roads 9702, 4001/Crawford Road, Reservoir Road (exact ownership to be determined) run approximately parallel to and west of U.S. 97. • Forest Service Road 4205/Foster Road is another potential opportunity, running south from Sunriver to State Recreation Road near La Pine. • Forest Service Road 42 between Sunriver and S. Century Drive presents another opportunity and could connect to privately-owned utility easements. 	<ul style="list-style-type: none"> • Forest roads are mostly at the north end of the study area and on the east side of U.S. 97 — opposite of most destinations. Fewer opportunities in the south end of the corridor. • Forest Service roads are mostly undeveloped. • Forest Service roads have long stretches where there are no connections to other roads or communities. While these would provide a “backcountry” experience for users, they may feel unsafe to some user groups and may also present issues in terms of emergency access. These roads lack “eyes on the street” due to very low volumes of vehicle traffic and no residences, businesses, etc.
<p>Utility easements and unimproved roads run north-south through the study area</p>	<ul style="list-style-type: none"> • Between S. Century Drive and Prairie Drive/Huntington Road, there is an existing power line corridor owned by Mid-State Electric. • A paved path along a utility corridor can also serve as a paved access road for utility maintenance. • Sunriver Resort-Caldera Springs are considering moving the powerline corridor from their property to U.S. Forest Service land east of the railroad. Sunriver Resort-Caldera Springs supports building a path with a new powerline alignment. 	<ul style="list-style-type: none"> • Moving the powerlines to a new alignment in U.S. Forest Service land could take a long time. • The U.S. Forest Service land east of the railroad is far from potential destinations and constrained by U.S. 97, which becomes a pinch point at Vandever Road.
<p>Existing street signs and illumination are substandard in places.</p>	<p>Incorporating improved signage and lighting would increase safety and comfort in the community and along the path.</p>	<p>Existing lighting and signage may not be sufficient to provide an alignment that feels safe and comfortable. Additional investment is likely needed.</p>
<p>Utility conflicts in U.S. 97 right-of-way</p>	<p>Potential “win-win” if trail could be used by utility maintenance vehicles.</p>	<p>Potential conflicts with existing overhead powerlines and a natural gas line (east side of the highway), as well as utility easements within the U.S. 97 corridor.</p>
<p>Lava Lands Visitor Center has large volumes of motor vehicle traffic during peak season, which can exceed the parking capacity and limit access by car.</p>	<ul style="list-style-type: none"> • A new multimodal connection would provide visitors the option to reach the Visitor Center by walking or biking. • Trailheads may see additional parking demand during busy times as people use the path to reach the Visitor Center or other popular destinations. 	<p>The alignment and facility should be designed to avoid heavy traffic near the Visitor Center.</p>

Walking, Biking, and Transit

Issues	Opportunities	Constraints
<p>Multimodal infrastructure connections are sparse between Lava Butte and La Pine. Most roads between Lava Butte and La Pine lack dedicated facilities for walking or biking.</p> <p>Sunriver has a connected system of multi-use paths.</p>	<p>Incorporating new facilities that physically separate people walking, biking, and rolling from motor vehicles would establish safe and comfortable walking and biking connections.</p> <ul style="list-style-type: none"> The path can follow existing paths through Sunriver or connect with Sunriver’s path network which provide direct access to destinations. For example, there is an existing path parallel to Century Drive. 	<p>Existing roadways lack adequate multimodal facilities sufficient to provide an alignment that feels safe and comfortable. Additional investment is likely needed.</p> <ul style="list-style-type: none"> Sunriver is private property and would require coordination with property owners. The Sunriver path system is not necessarily the most direct route and can be circuitous. Some paths have many roadway and driveway crossings, which create a safety concern for trail users.
<p>Bus routes serve La Pine and Bend along U.S. 97 and La Pine and Sunriver.</p>	<ul style="list-style-type: none"> Connecting the trail to bus stops or park and rides will support multi-modal trips. Existing park and ride locations could function as trailheads for the path. Secure bike racks at bus stops and park and rides would allow people to bike to transit without needing to take their bikes on the bus. 	<ul style="list-style-type: none"> Current transit service is infrequent and limited to weekdays, making it potentially impractical for many. Current buses can accommodate only two to three bikes. Electric bikes, cargo bikes, bikes with children’s seats, and other non-standard bikes are not allowed on buses.
<p>Minimal wayfinding exists for people walking, biking, and rolling.</p>	<ul style="list-style-type: none"> Can establish a new wayfinding system for the trail and indicate directions to popular destinations. Can install “gateway” treatments to welcome people as they approach a community. A clear wayfinding system can improve navigability for visitors and educate people about the area’s features. The wayfinding system can also encourage people to bike or walk more. 	<p>Coordinate with the Bend to Lava Butte Multi-Use Path and to establish a consistent wayfinding system.</p>
Population and Demographics		
<p>Block groups on the east side, north end, and south ends of the study area tend to have higher proportions of equity priority populations, however these block groups are large and extend beyond the study area.</p>	<p>A new path would provide better transportation opportunities through these areas.</p>	<ul style="list-style-type: none"> The east side of the study area currently lacks sufficient facilities for walking and biking. Additional investment is likely needed. Higher population densities are along the west side of the study area.