Lane County Bicycle Master Plan

Final Plan, June 2022

LANE COUNTY OREGON

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Acknowledgements

LANE COUNTY

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City of Creswell

City of Eugene

City of Florence

City of Oakridge

City of Springfield

City of Veneta

Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians

Confederated Tribes of Siletz Indians

Lane Education Service District

Lane Council of Governments

Lane Transit District

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Executive Summary

Executive Summary

A Bicycle Master Plan for Lane County

Lane County stretches from the Pacific Ocean to the Cascade Mountains, covering around 4,600 square miles of diverse geography and natural beauty. While the county's major cities, Eugene and Springfield, have developed a robust bicycle network, bicycle access to rural communities and destinations outside the metro area is limited. These locations include smaller cities, unincorporated communities, and recreational destinations, such as public parks, beaches, and forests.

For rural communities and residents with limited financial resources, traveling by bicycle can also be a critical lifeline. Improving bicycle infrastructure across the county would allow more people the option of accessing these destinations without a car. Bicycling is also a recreational activity adding significant value to the quality of life, health, and economy of Lane County. This plan develops a vision for a future in which residents and visitors of all ages and abilities can access the places where they live, work, and play by bicycle.

The Lane County Bicycle Master Plan (BMP) is the County's framework for amending the 2017 Transportation System Plan (TSP). The Transportation Planning Rule (TPR) requires that the TSP plan for the provision of bikeways on major County roads. While the bicycle network in Lane County is comprised of roads owned by various jurisdictions, County roads are the primary focus for this plan. While these roads are not currently the most comfortable routes for bicycle travel, they are often the most direct routes between important destinations, providing an opportunity for the County to improve facilities to serve people with limited transportation options. This plan focuses on prioritizing limited resources to meet these needs.

Vision

BICYCLING IS A VIABLE REGIONAL TRANSPORTATION OPTION THROUGHOUT LANE COUNTY FOR PEOPLE OF ALL AGES AND ABILITIES, LINKING COMMUNITIES TO DESTINATIONS AND SERVICES, AND CONNECTING WHERE WE LIVE, WORK, AND PLAY.

Goals

- Safety and Comfort
- Regional Connectivity
- Equitable and Inclusive Access
- Economic Vitality
- Environment and Quality of Life
- Feasibility

Photo by Stephen Flanagan; submitted via the "Photo Share" on the Lane County Bicycle Master Plan website (lanecountybmp.com).

Key opportunities and challenges

OPPORTUNITIES TO BUILD ON INCLUDE:

- Partner agency and jurisdiction support for bicycle improvements
- A strong regional cycling culture
- Low-volume rural roadways with paved shoulders
- Previously-identified projects on County roads
- Opportunities to connect to off-road cycling routes

CHALLENGES INCLUDE:

- High speeds on rural roads, and people driving overtaking people on bicycles
- Mountainous topography not suited for less-confident cyclists
- Long distances between areas of demand
- Need for coordination with other jurisdictions on key connections
- Transitions from rural to urban environments
- The effects of the recent Holiday Farm Fire

Hearing from the Community

In order to meaningfully involve residents in developing a bicycle network for Lane County, the BMP public involvement process offered multiple opportunities and formats for engagement. This planmaking process shared information and gathered feedback through stakeholder interviews, community forums, public open houses, email updates, bilingual fact sheets, and a public input survey and map. The planning process also included targeted outreach sessions to reach underrepresented voices, including households without access to computers and Spanish speakers.

Lane County also formed a Technical Advisory Committee (TAC) comprised of jurisdictional agency partners. This group was responsible for reviewing, commenting on, and guiding the development of this plan.

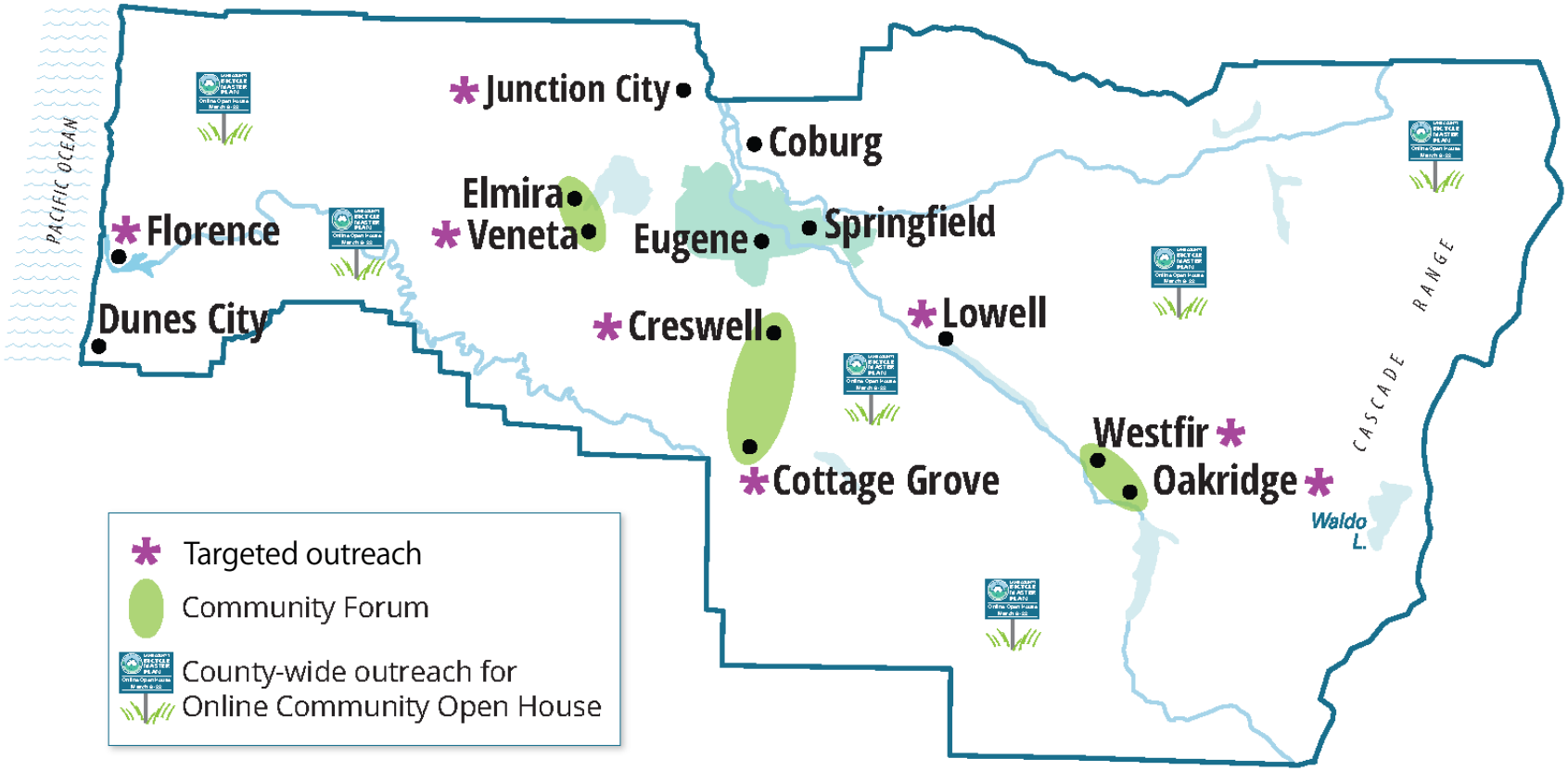
The map in Figure 1 illustrates the geographic scope of these outreach efforts.

Through this extensive engagement effort, the following themes emerged:

- Vehicle speed on County roads as a safety hazard for people bicycling
- The importance of bicycling for not only connectivity but also economic development of rural areas
- Essential connections on non-County roads (eg. ODOT, U.S. Forest Service)
- Shoulder widening as a critical component of facility improvement
- A desire for increased buffering between vehicles and bicycle travel lanes
- The need to consider this plan's relationship to off-road trails and paths (which are outside the scope of this plan)
- Appreciation of and excitement about this planning process

The map below summarizes the geographic scope of the BMP targeted outreach, community forums, and community-wide notification.

Figure 1. Lane County Bicycle Master Plan Public Involvement Map



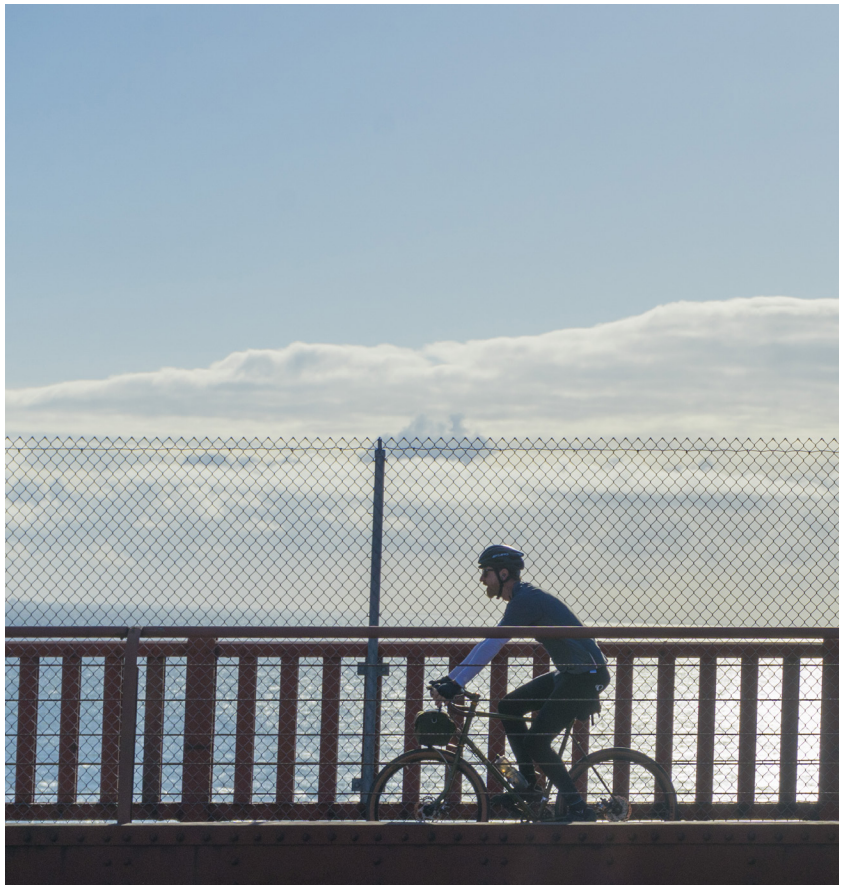
The Public Engagement team conducted targeted Title VI & Environmental Justice interviews with key housing providers, social service agencies, and other entities.

Recommendations

This Plan analyzed existing plans, public feedback, and the results of four analyses (Equity, Demand, Safety, and Comfort) to develop a network of bicycle routes that adequately serve Lane County's communities. The recommendations include a network of primary and secondary routes connecting key destinations across the County. This network consists of roughly 650 miles of primary routes and 550 miles of secondary routes. While the majority of roadway is within County jurisdiction, there are many critical routes and connections on state and local roads, as well. Together these roads form a network that provides access to high-demand destinations identified within the county.

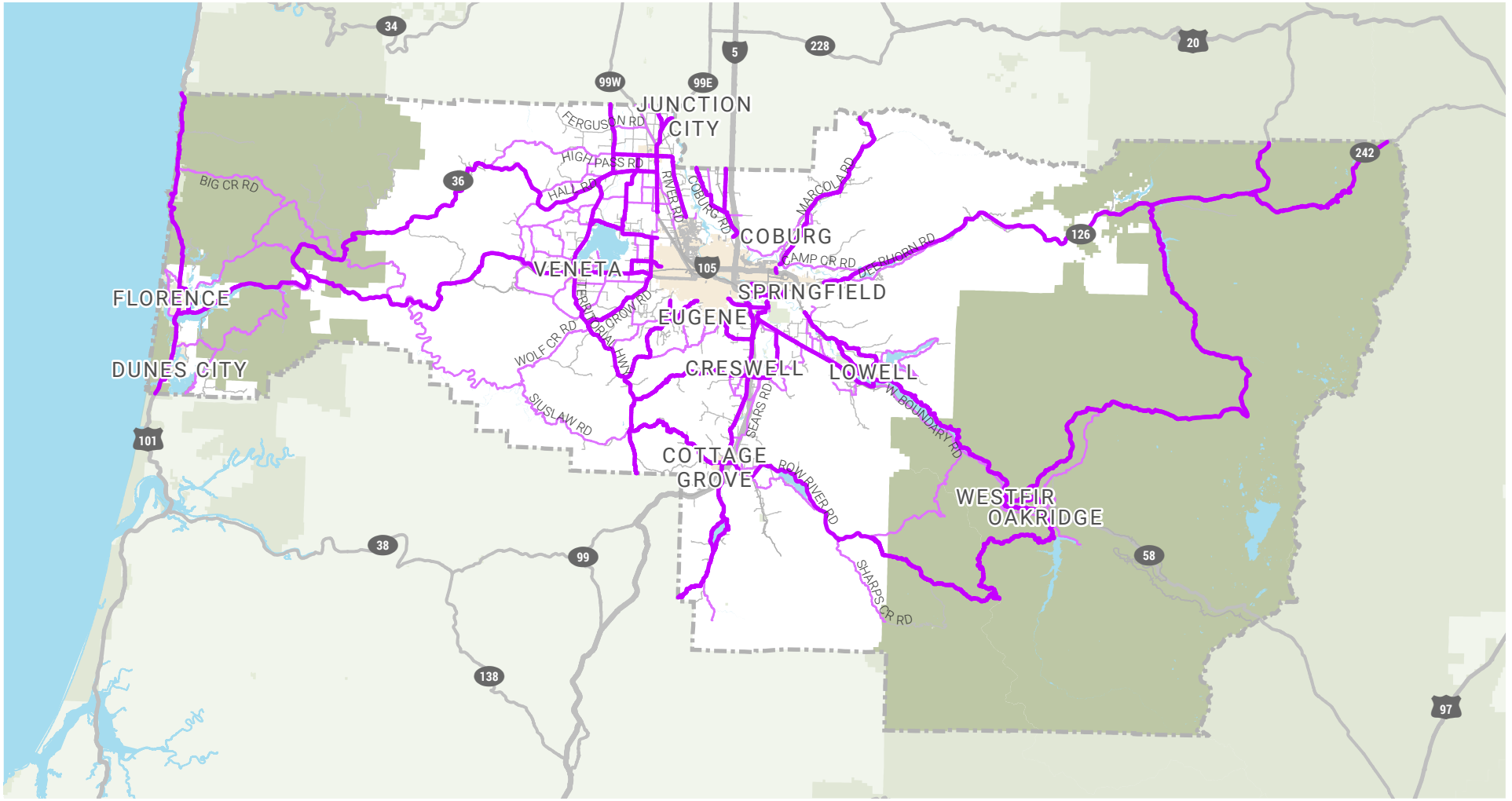
The Plan assigned facility types to these routes based on available information on existing conditions and demand. This Plan recommends a total of approximately:

- 8 miles of buffered bike lanes
- 2 miles of bike lanes
- 37 miles of shared-use paths
- 302 miles of 6ft shoulder bikeways
- 674 miles of 4ft shoulder bikeways
- 9 miles of shared roadway
- 124 miles of unpaved gravel roads



The planning process divided these routes into projects, which were prioritized according to five criteria: Safety, Equity, Demand, Connectivity, and Significance. The three priority tiers for the set of projects were Near-term (1-5 years), Medium-term (5-10 years), and Long-term (10-20 years).

Figure 2. Recommended Bicycle Network Map



Recommended Network

- Primary
- Secondary
- U.S. Interstate
- U.S. Highway
- State Route
- County Roads
- Railroad
- City Boundary
- Parks
- National Forest
- Water
- Lane County

0 10 20 MILES

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Data provided by Lane County, ODOT
Map produced March 2022.

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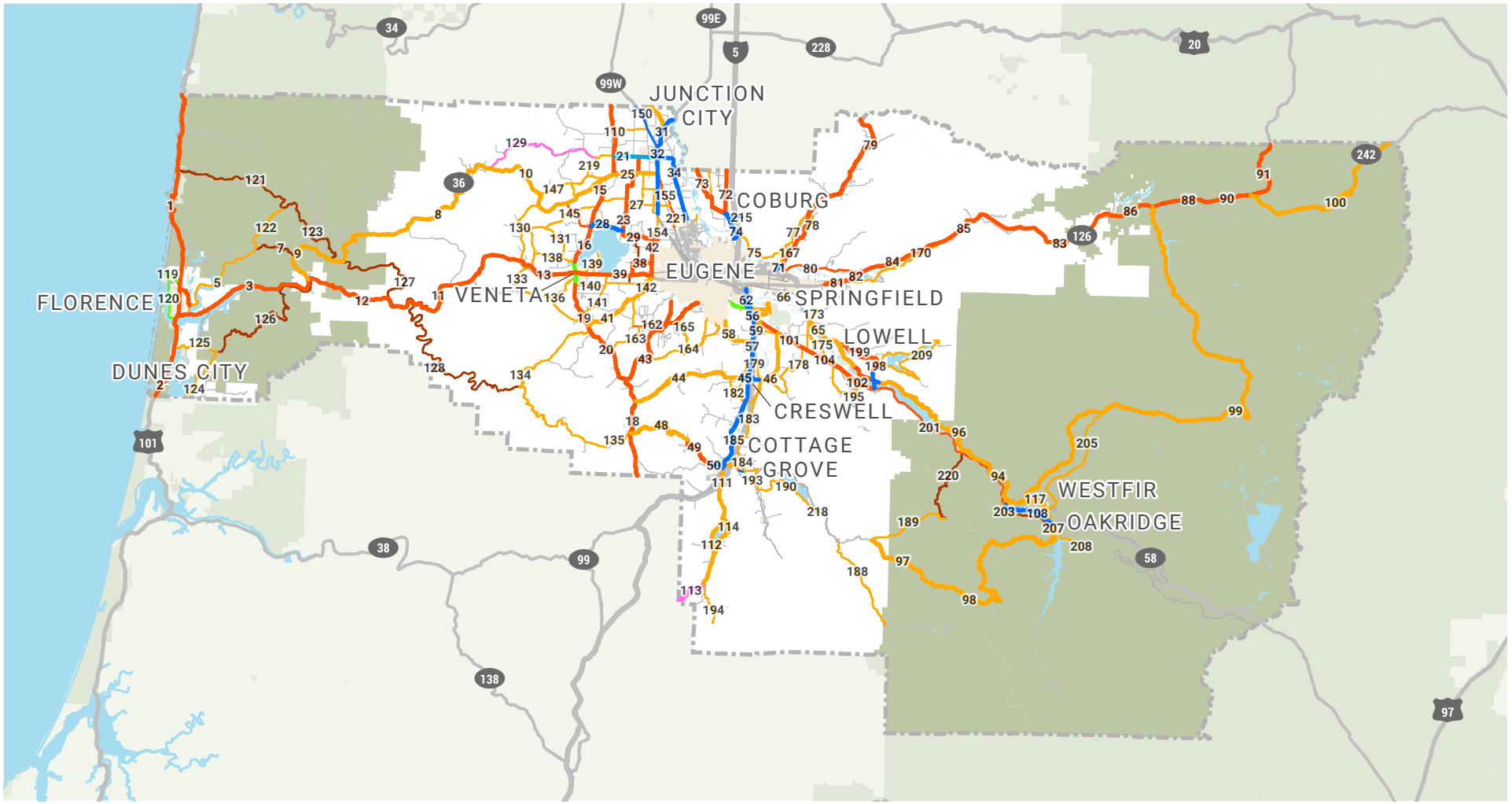
Moving Forward

The recommendation of a Lane County Bicycle Network is the first of many steps toward implementation and realization of this Plan's vision. Orchestrating these improvements will require actions such as coordination between jurisdictions, cost assessment and funding, planning and detailed design, and measurement of network progress over time. In order to help make the Lane County bicycle network a reality, the Plan also includes information on implementation strategies, including design standards, funding resources, action steps, and performance measures.

Immediate next steps for the Lane County BMP include:

- Adopting TSP Amendments
- Securing additional funding and resources to support project implementation including
  - Advancing planning studies
  - Refining and developing near-term projects
- Coordinating with local and state agencies

Figure 3. Recommended Bicycle Facilities Map



Network

- Shared-Use Path
- Buffered Bike Lanes
- Bike Lanes
- 6 ft. Shoulder Bikeway
- 4 ft. Shoulder Bikeway
- Shared Roadway
- Unpaved Gravel Road
- U.S. Interstate
- U.S. Highway
- State Route
- County Roads
- Railroad
- City Boundary
- Parks
- National Forest
- Water
- Lane County

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Data provided by Lane County, ODOT
Map produced May 2022.

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Inset maps are available in Appendix D

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Why a Bicycle Master Plan?

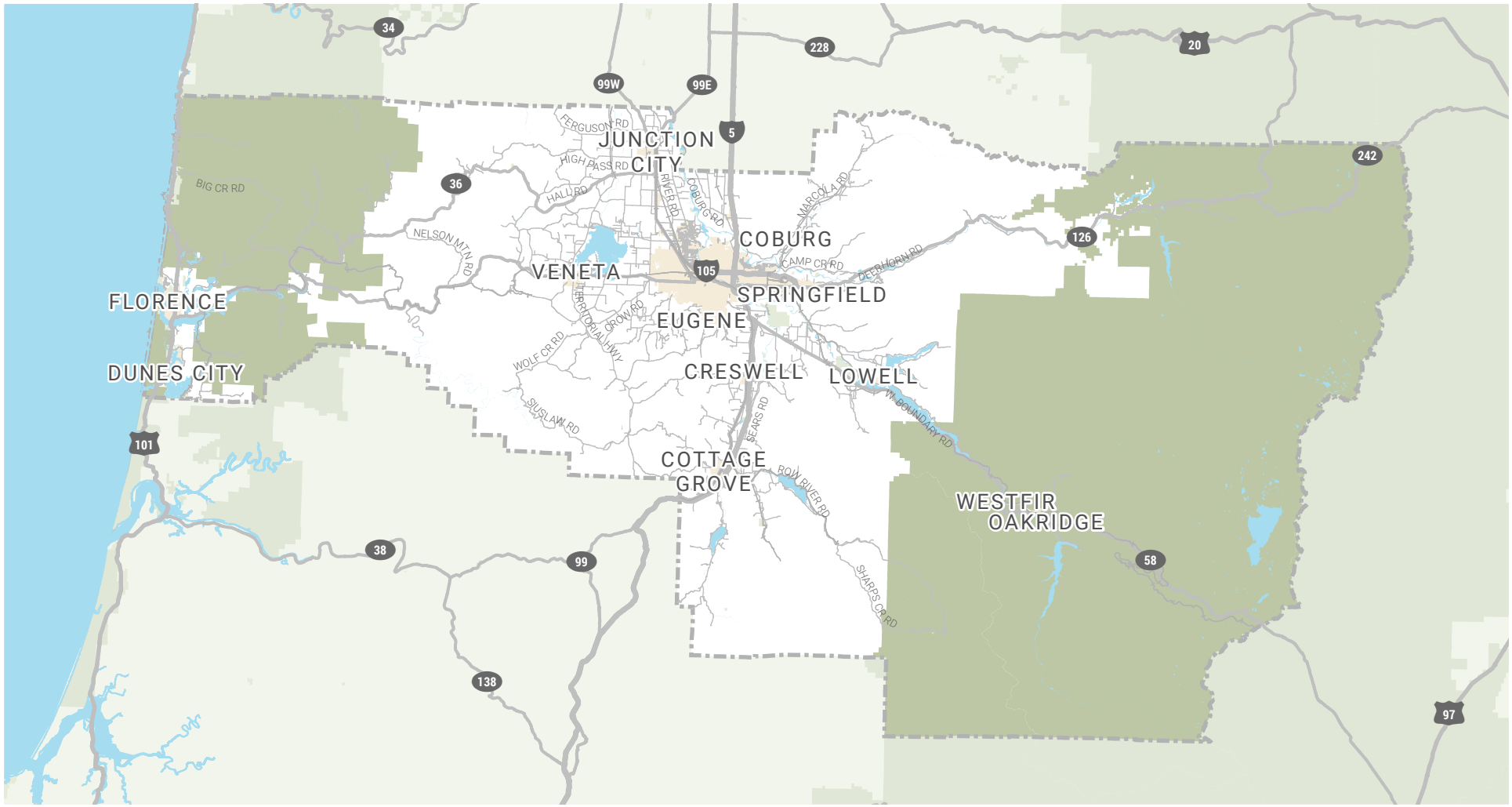
Project Purpose, Background, and Guiding Framework

Why a Bicycle Master Plan?

The Lane County Bicycle Master Plan is the County's framework for amending the existing 2017 Transportation System Plan (TSP) to be in compliance with Oregon's planning regulations, which call for a network of bicycle facilities in the public right-of-way (ROW). Oregon's Transportation Planning Rule (TPR) requires that bikeways be provided along major County roadways, including arterials and major collectors. While these roads may currently not be the most comfortable routes for those on bicycles, they are often the most direct routes between Lane County's communities and can therefore provide transportation function and serve people who lack other transportation options. Other transportation routes, such as off-road paths and more indirect on-road routes preferred by recreational cyclists, are important and recognized by this Plan but remain second to bicycle routes that provide a direct transportation and utilitarian function. Thus, this plan focuses on providing Lane County with better direction about how to prioritize limited resources to make investments where there are the greatest needs and demands for bicycling infrastructure in the public right-of-way.

Photo by Evan MacKenzie; submitted via the "Photo Share" on the Lane County Bicycle Master Plan website (lanecountybmp.com).

Figure 4. Lane County Map



Background

Lane County consists of 4,620 square miles extending from the Pacific Ocean to the Cascade Mountains. Eugene, the County's largest city and County seat, hosts three universities, including the University of Oregon. Other cities in the County (listed in order of population size) include Springfield, Cottage Grove, Florence, Junction City, Creswell, Veneta, Oakridge, Dunes City, Lowell, Coburg, and Westfir. Beyond these cities, approximately 40 percent of Lane County's population resides in 35 unincorporated rural communities.

The economy of the rural portions of Lane County makes use of the natural resources present. Some of the county's important land uses include farms, wine-growing regions, and forests. In addition to the productive function of rural areas, Lane County's varied landscape and terrain make it attractive for many types of outdoor recreation, including bicycling, but also camping, hiking, kayaking, and other activities. In Eastern Lane County, the towns of Oakridge and Westfir are major destinations for mountain biking, while other areas throughout the county, such as Florence and Dunes City, have a combination of natural beauty and low-volume roads that make recreational road cycling a popular activity.

Transportation for the employed population of Lane County currently takes many forms. According to data from the 2018 American Community Survey, a majority pf employed residents (70 percent) drive to work, and another 11 percent carpool. Seven percent work from home, four percent walk, three percent take public transit, and another three percent travel to and from work by bicycle.

Transit options across the County include fixed bus routes throughout the Eugene-Springfield metropolitan area, as well as rural transit service to and from the Eugene-Springfield metropolitan area to the McKenzie Bridge area, Veneta, Junction City, Coburg, Cottage Grove, and Lowell. Other public transportation options for Lane County residents include "Link Lane" between Eugene and Florence and the "Diamond Express" route between Eugene and the Oakridge area. The Oregon Department of Transportation (ODOT) also offers a free ride matching service. Transit services also exist for elderly and disabled residents for those with special transportation needs.

The 2020 Holiday Farm Fire affected over 173 thousand acres along the McKenzie River Highway (OR 126), between the communities of Rainbow and Vida. The wildfire caused massive damage, and the area is currently in recovery mode with clean up, timber clearing, hazardous materials removal, and in some cases, the rebuilding of homes and businesses. The impact to the area and

affected communities was considered carefully during the Lane County Bicycle Master Plan (LCBMP) planning process, including how to reach the public for input on potential LCBMP strategies to support community recovery, resiliency, and potential economic development opportunities.

Guiding Framework

VISION

Bicycling is a viable regional transportation option throughout Lane County for people of all ages and abilities, linking communities to destinations and services, and connecting where we live, work, and play.

GOAL 1: SAFETY AND COMFORT

- Objective 1.1: Identify a bicycle network on County roads that prioritizes safety and comfort for people biking and addresses existing problem areas or substandard facilities.
- Objective 1.2: Prioritize the improvement and construction of bicycle facilities that are safe and comfortable for all ages and abilities, when feasible.
- Objective 1.3: Establish minimum design standards for all arterial and collector roads to enable comfortable bicycle travel, and identify potential alternative solutions where on-street facilities are not feasible.
- Objective 1.4: Align public agencies under common goals and foster a collective responsibility for safety through education, encouragement, and traffic safety programs.
- Objective 1.5: Identify potential actions and/or other agencies for advancing public issues and preferences on bicycling outside County roads.

GOAL 2: REGIONAL CONNECTIVITY

- Objective 2.1: Establish regional bicycle corridors that facilitate connection between urban and rural areas.
- Objective 2.2: Identify gaps in the County's bicycling network, and prioritize "all ages and abilities" route connections that serve community destinations including schools, employment areas, recreational facilities and transit.
- Objective 2.3: Consider connectivity to regional recreational cycling routes, including unpaved gravel routes and trails.
- Objective 2.4: Develop an interconnected multi-modal system that serves existing networks, including transit, state, and local bicycle facilities and trail systems.

GOAL 3: EQUITABLE & INCLUSIVE ACCESS

- Objective 3.1: Create a Bicycle Master Plan that reflects broad representative engagement throughout the county.
- Objective 3.2: Prioritize the needs of transportation disadvantaged communities with limited transportation options.
- Objective 3.3: Identify and clearly articulate bicycle routes in the network that serve people biking at all levels of comfort and ability.

GOAL 4: ECONOMIC VITALITY

- Objective 4.1: Provide opportunities for low-cost active transportation to jobs, especially for people without other transportation options such as access to a private vehicle.
- Objective 4.2: Identify opportunities to support bicycle-related tourism, including regional partnerships and improving network connections that serve the needs of recreational long-distance cycling.
- Objective 4.3: Invest in amenities that attract bicycle tourism and recreation, including wayfinding, bike parking, campsites, and bicycle related businesses and services.

- Objective 4.4: Support bicycle-related economic development in areas where those investments can provide multiple benefits for local residents, with a focus on transportation-disadvantaged residents specifically.

GOAL 5: ENVIRONMENT AND QUALITY OF LIFE

- Objective 5.1: Encourage active, non-polluting transportation options as affordable, convenient, healthy, and safe choices for travel around Lane County.
- Objective 5.2: Explore opportunities to protect and enhance the local environment, minimize environmental impacts, and conserve resources as part of transportation improvement projects.

- Objective 5.3: Pursue programs, practices, and partnerships that expose people to the natural environment in Lane County, fostering environmental stewardship, education, and awareness.

GOAL 6: FEASIBILITY

- Objective 6.1: Balance long-term mobility objectives with low-cost, short-term improvements that will pave the way for larger projects.
- Objective 6.2: Address the mobility and safety needs of people biking when planning and constructing roadway improvements to enhance efficiency and promote project outcomes. Balance the need for controlling long-term pavement maintenance costs with providing improved road surfaces for biking.
- Objective 6.3: Identify and prioritize routes that are already identified in state and local plans, facilitate inter-jurisdictional partnerships, and position this plan to take advantage of existing funding opportunities and planning processes.
- Objective 6.4: Articulate the statewide need for increased funding for bicycle infrastructure and routine maintenance to roads that support cycling. Work with local, regional, and state agencies and elected officials to leverage state funding for bicycle transportation projects and road maintenance in Lane County.

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2 Biking in Lane County Today

Existing Conditions

Biking in Lane County Today

Traveling by bicycle in Lane County not only creates opportunities for local recreation and tourism but also provides a vital means of transportation for County residents. In Lane County, three percent of the population rides a bicycle to work, which is higher than both the Oregon (two percent) and U.S. (one percent) rates. Eugene and Springfield have by far the most complete bicycle infrastructure in the county, allowing residents to more easily and comfortably traverse the metro area. However, residents of smaller Lane County communities and those further from major population centers also use bicycles to get from place to place. For those who do not own a car, bicycles offer a low-cost transportation option. In rural areas and for residents with limited financial resources, traveling by bicycle can be a critical lifeline.

Existing Rural Bike Network

The majority of the rural bike network is on the roadways, mostly as shared travel space with vehicles or along narrow roadway shoulders. Federal and state cycling routes across the county include the Oregon Coast Bike Route, the Willamette Valley Scenic Bikeway, and US Bicycle Route 76. The US Forest Service and Bureau of Land Management also manage soft surface trails and paved paths. Soft surface trails are especially popular for mountain biking and recreational cycling. Paved paths include the Row River Trail, a 22-mile shared use path extending from Cottage Grove to the southeast, and the Fern Ridge Bike Path, a seven-mile shared use path southwest of Eugene.

A network of recommended cycling routes called the Connect Lane routes is under development, an effort spurred by Travel Oregon and led by Lane Council of Governments (LCOG). Almost 190 miles of County-owned roads have been identified as part of the Connect Lane network. This Plan seeks to support implementation of the Connect Lane recommendations.

Lane County manages a network of roads that connect with and pass through many communities. This County system totals close to 1,500 road miles. Many of these roads are popular routes for experienced, fearless cyclists; however, the high vehicle speeds and narrow shoulder

widths limit broader use. The width of paved shoulders has a considerable impact on the overall level of safety and comfort for people traveling by bicycle along these roads.

Within cities, the on-road bicycle network includes more formalized space for bicycling in the form of bike lanes. This network is a combination of state, county, and city facilities, as there is often mixed jurisdiction of roadways within cities. The bike lane network within cities, however, is incomplete, with many roads still lacking sidewalks and bike lanes.

Summary of Analyses

EQUITY ANALYSIS

Lane County strives for a transportation system that is accessible to people from all walks of life. Many communities rely on a variety of modes to connect to basic services and opportunities that are necessary to live productive, fulfilling, and healthy lives. However, convenient, safe, and affordable transportation options are not always available to those who need them the most. Without appropriate options, transportation disadvantaged individuals and communities can be prevented from fulfilling basic needs. Transportation facilities are essential components in creating communities of opportunity and reducing the disproportionate economic and health burdens of transportation disadvantaged communities.

To better understand the equity considerations of the Lane County Bicycle Master Plan in the county's transportation disadvantaged communities, the following ten metrics were evaluated in relationship to walking, bicycling and access to transit:

- Youth
- Older Adults
- Race
- Disability
- Bike Commuters
- Education
- Income
- Housing Tenure
- Vehicle Access
- Language

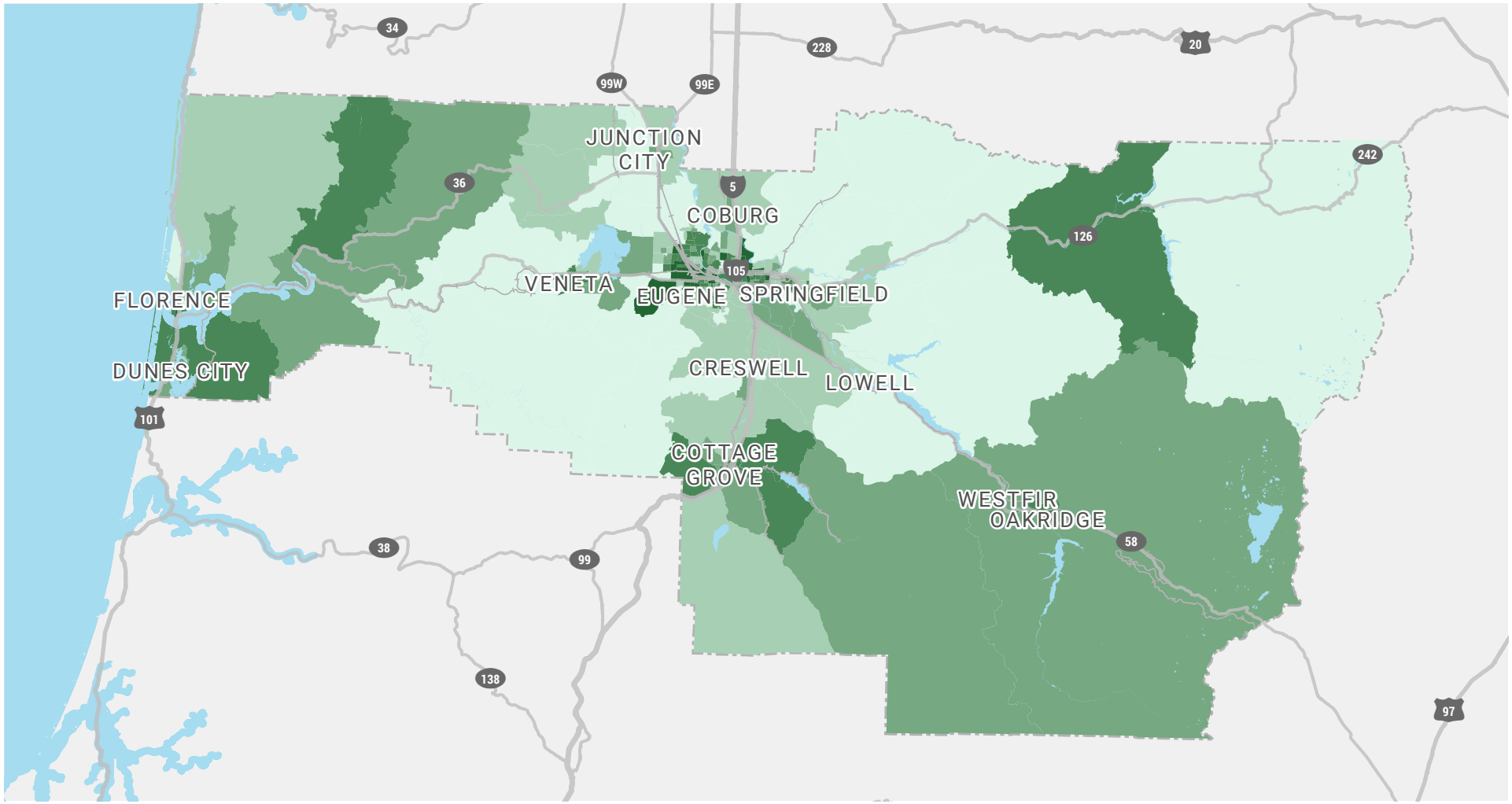
These metrics were then added together to create the composite score to identify priorities for transportation investments to address countywide equity concerns. Transportation equity addresses the historical inequities of underinvestment in transportation options for transportation disadvantaged people. Transportation-disadvantaged people are more likely to lack consistent access to a motor vehicle and may be more likely to be dependent on walking, bicycling, and riding transit.

The transportation investments recommended by this Plan are to expand walking and biking as a transportation option. This Plan prioritizes implementation of the facility recommendations based on this equity analysis.

In west Lane County, high-equity need areas include the area surrounding the cities of Florence and Dunes City; facilities within this area include OR 101, OR 126, Canary Road, Heceta Beach Road, and Rhododendron Drive. In central Lane County, examples of facilities in high-equity need areas include: Territorial Highway through Veneta, River Road northwest of Eugene, Green Hill Road southwest of Eugene, and High Pass Road through Junction City. In southern Lane County, equity investments are needed on OR 99, London Road, Cottage Grove-Lorane Road, and Shoreview Drive. East Lane County has an area of significant equity need surrounding the unincorporated communities of Blue River, Rainbow, and McKenzie Bridge. Tragically, this is the area that was devastated by the Holiday Farm Fires. More than ever, investments are needed on the main transportation facility serving the area which is OR 126 E (McKenzie Highway).

Areas of high equity need are shown in Figure 5. The facility recommendations and prioritization are provided in Appendix D.

Figure 5. Equity Score Map



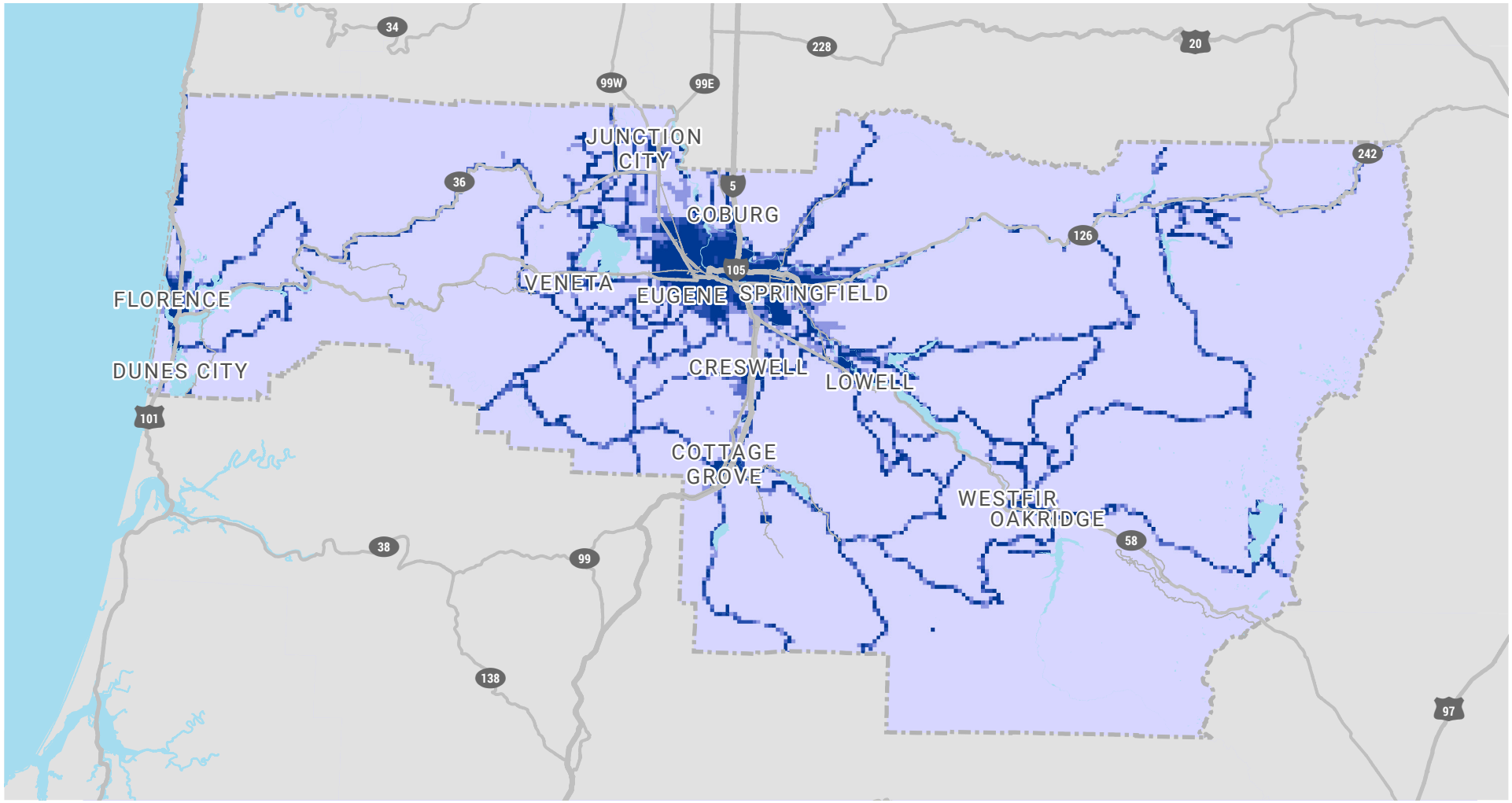
DEMAND ANALYSIS

To help identify expected walking and biking activity throughout Lane County, a demand analysis (also referred to as a "suitability analysis") was conducted to understand key destinations and areas of activity throughout the county. This analysis overlays activity centers to create a composite sketch of user demand. The areas where there is the greatest density and proximity of locations have higher concentrations of schools, which may indicate a higher demand for bicycle network improvements. Locational factors accounted for in the demand analysis include places where people:

- **Live**: Areas of Lane County with higher population density may contain more trips starting and ending.
- **Work**: Depending on the job, employment can act as a place where trips start and end their trips (e.g., office parks and industrial areas) and can attract other travelers making other non-work related trips (e.g., coffee shops and malls).
- **Play**: Areas in Lane County such as parks, shared-use paths, and bicycle routes can often be a destination for people on bicycles.
- **Shop**: Places where Lane County residents already go to consume goods or a service may support additional trips by bicycle.
- **Learn**: Every school building in Lane County can be a source of demand for safe bicycle routes with each having unique challenges and opportunities identifying safe routes for students walking and biking to school.
- **Take transit**: Places with greater access to transit may support a more diverse variety of travel modes as opposed to areas where there is more of a tendency for travel by automobile.

A composite demand map (Figure 6) illustrates the spatial results of each of these analyses to indicate areas of overall high demand for walking and biking trips based on the volume and density of trip production and attractions. As expected, the composite demand analysis reveals strong demand in the central region of Lane County, but also highlights regions outside the cities of Eugene and Springfield including large areas of demand in Florence, Junction City, Creswell, Veneta, Coburg, Cottage Grove, and smaller demand concentrations in Oakridge and Lowell.

Figure 6. Demand Score Map



SAFETY ANALYSIS

To better understand where safety improvements can be made on County facilities, a safety analysis was performed to map reported bicycle-involved collisions on Lane County roads.

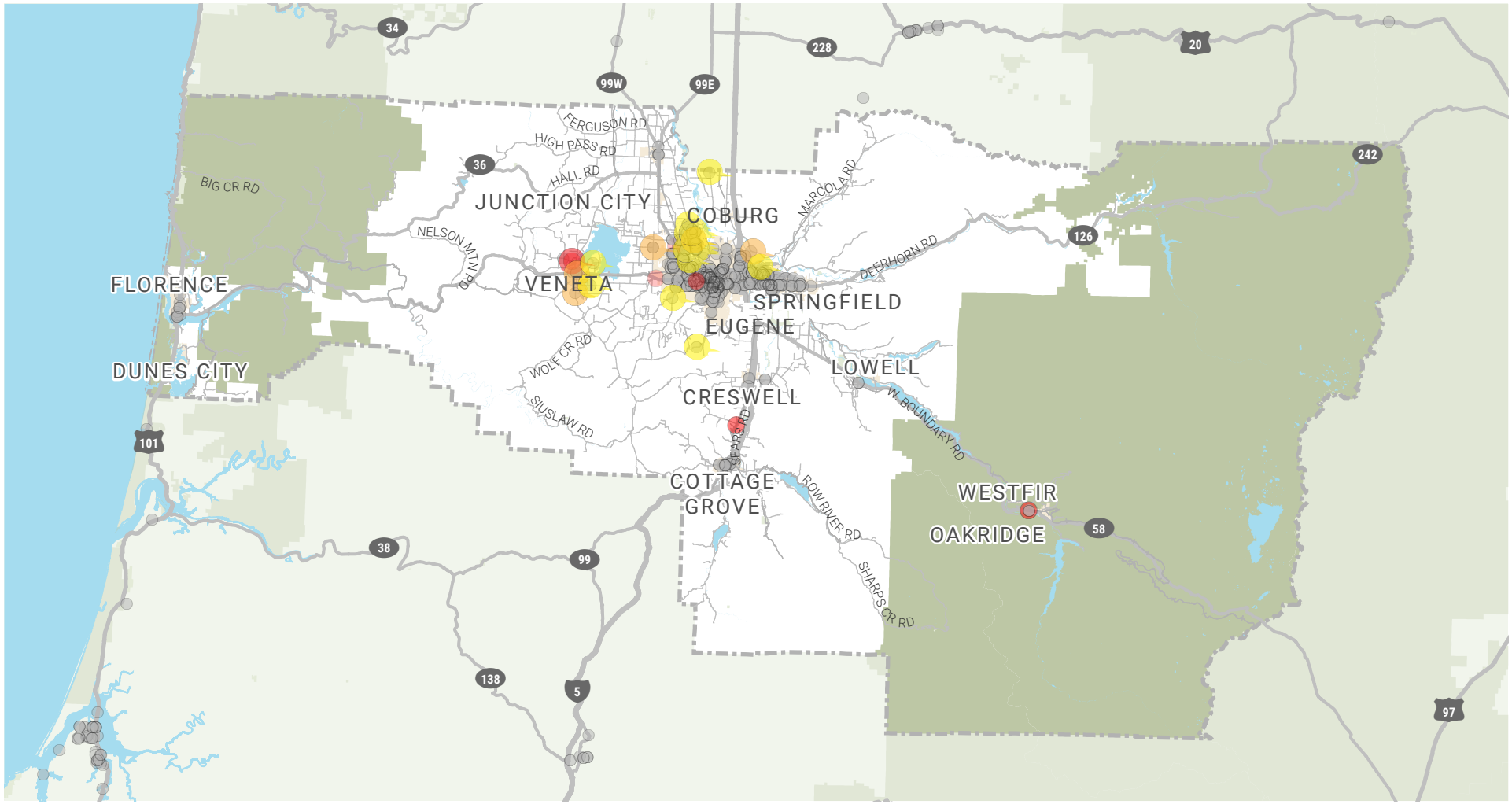
Between 2014 and 2018, 28 bicycle-involved collisions occurred on County roads in Lane County. The number of bicycle-involved collisions reported per year has dropped significantly since the beginning of this period. Ten of these crashes occurred in 2014, and another eight occurred in 2015. Only two collisions were reported in 2016, three in 2017, and two in 2018.

The analysis suggested that most collisions in Lane County (64 percent) occurred during vehicle turning movements and that higher speed roads (40-55 mph) in rural areas presented the greatest danger to people bicycling. Other areas of safety concern include roadways with a large number of curves and/or mountainour terrain that limits visibility, intersections and driveways, and the transition of the urban roadway network into the rural roadway network.

BICYCLE LEVEL OF TRAFFIC STRESS (LTS) ANALYSIS

A Bicycle Level of Traffic Stress (LTS) analysis was performed to assess the level of comfort for people biking on County and state roads in Lane County. The results of this analysis can be used as a starting point for

Figure 7. Bicycle-Involved Collisions Map



Collisions on Lane Cty Roads

- Minor Injury
- Severe Injury
- Fatal

Collisions on Other Road Networks

- Fatal Collision
- Non-Fatal Collision

- U.S. Interstate
- U.S. Highway
- State Route
- County Roads
- Railroad
- City Boundary
- Parks
- National Forest
- Water
- Lane County

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Data provided by Lane County, ODOT
Map produced February 2022.

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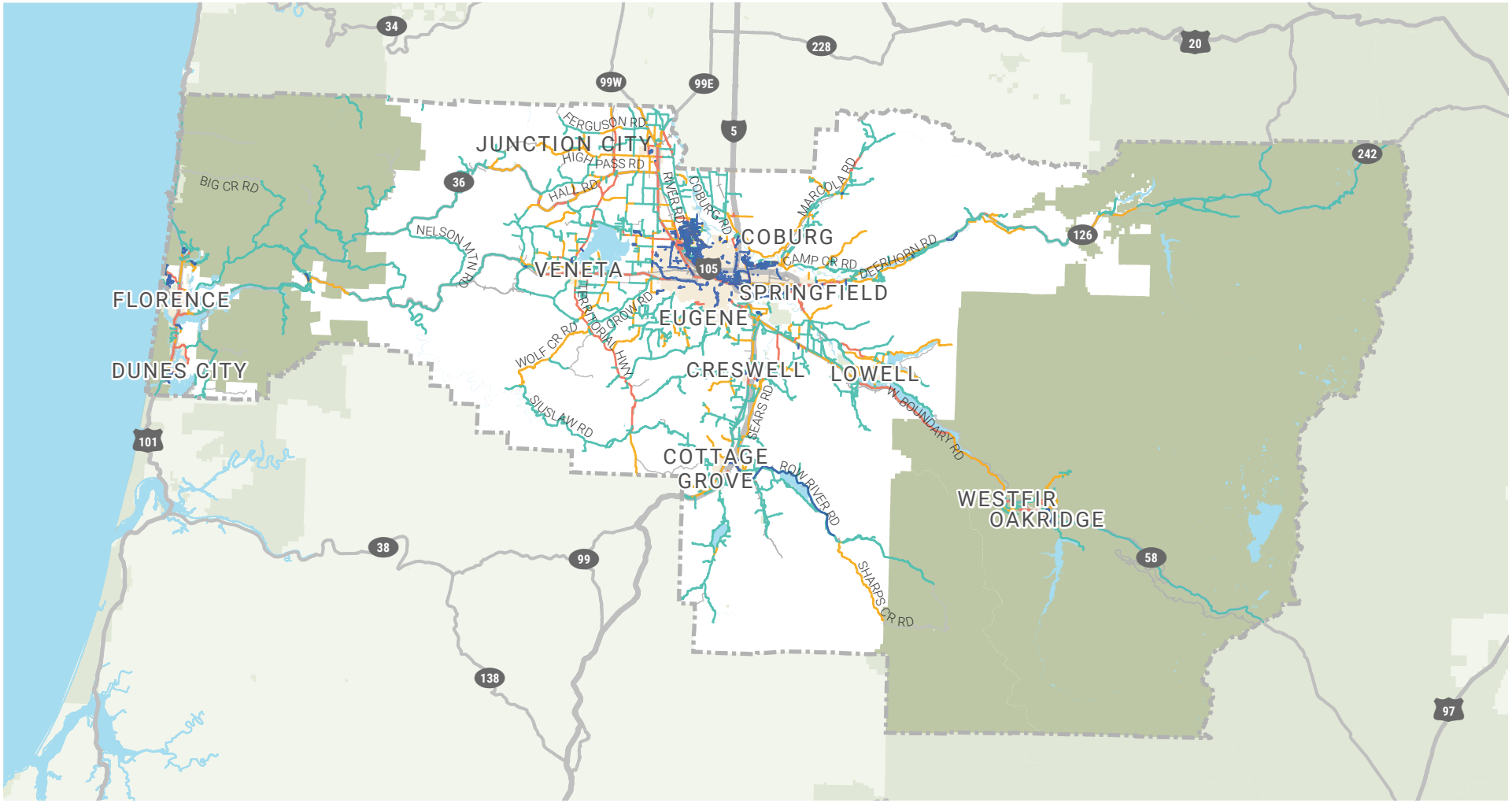
identifying opportunities to enhance comfort for people bicycling traveling throughout Lane County. Because this Plan focuses on County roads, this LTS analysis does not include data on local roadways owned by municipalities in Lane County. Several criteria were used to estimate the Bicycle LTS:

- Posted speed limit (or statutory speeds where the speed limit is not posted)
- Presence or absence of bicycle facilities
- Number of travel lanes
- Roadway volume in annual average daily traffic (AADT)
- Conditions at intersections

The Oregon Department of Transportation's (ODOT) Analysis Procedure Manual was used to guide this analysis, and three different factors were assessed to produce a score for each roadway: the segment, the intersection approach, and the crossing. Higher LTS scores such as 4 indicate a higher level of bicycle level of stress while lower LTS scores such as LTS 1 represents roadways where people bicycling of all ages and abilities would feel comfortable riding. The highest-scoring portion of the roadway denoted the score for the entire roadway link.

The analysis revealed that rural roads generally scored between LTS 2 and LTS 3 and that wider shoulders provided a more comfortable experience for people traveling by bicycle. Lane County's freight routes in particular were shown to create less-comfortable conditions for people on bicycles.

Figure 8. Bicycle Level of Traffic Stress (LTS) Map



Level of Traffic Stress (LTS)

- 1: Bicyclists of All Ages and Abilities
- 2: Most adult Bicyclists
- 3: Experienced Bicyclists
- 4: Strong and Fearless Bicyclists

- City Boundary
- Parks
- National Forest
- Water
- Lane County

0 10 20 MILES

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Data provided by Lane County, ODOT
Map produced February 2022.

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Key Opportunities and Challenges

Planning efforts already completed at the state and local level have documented major opportunities and constraints related to bicycling in Lane County. These considerations should be used as a touchstone and guide project priorities moving forward in the Lane County Bicycle Master Plan process.

OPPORTUNITIES

- Many partner agencies and jurisdictions support and prioritize bicycle network improvement in their own planning processes. There are rich opportunities to align improvement efforts with concurrent projects, including local on-street bicycle network development, state bikeway system development, paved off-road paths, and promotion of recreation, bike tourism, and access to nature county-wide. There are also opportunities for Lane County to identify new ways to collaborate and support jurisdictions and agencies that have yet to prioritize bicycling in their respective planning processes.
- Beyond jurisdictional support specifically, regional culture towards cycling is strong. This has fueled stand-alone regional examples of collaborative solutions to support cycling, including the Row River Trail and the University of Oregon/City of Eugene cycle tracks. These

examples provide a firm foundation that can be built upon to make cycling more accessible for Lane County residents who may be underserved and/or hesitant to participate.

- Low volume rural roadways with available paved shoulders present opportunities for improved network development when the proper safety measures are considered. These can include physical improvements (signage, pavement marking, rumble strips/stripes) as well as policy/programmatic improvements (speed reduction, education, and awareness).
- Many rural roads with high LTS scores are already identified on Lane County's maintenance and operations Capital Improvement Program (CIP) project list. These roads represent potential "low-investment/high-reward" projects to enhance bicycle connectivity and safety.
- For people bicycling that are confident and able, there are many opportunities for off-road cycling as an alternative to on-street long distance travel. This Plan identifies opportunities to enhance connections to these alternative routes. It will be important to clearly communicate the intended users for such routes.

CHALLENGES

- The standard speed for rural roads, where not posted, is 55 mph. When people bicycling share high-speed rural roads with vehicles, overtaking will be common. This presents a dangerous scenario for people biking along a roadway without sufficient clearance and safety measures.
- Topography in mountainous areas limits the accessibility of many County roads for less-experienced and less-confident people bicycling. Generally, slopes in excess of five percent are not suitable for all ages and abilities.
- Many of Lane County's areas of demand are distant from one another, and because of that, there are significant gaps in cross-County connectivity for people bicycling. The results of the LTS Analysis indicate that many rural stretches of County roadways warrant enhanced bicycle facilities to promote safe travel but simultaneously indicate low demand according to the metrics included in the Demand Analysis. Regardless, the Plan should consider the potential future demand these routes may attract as a result of improved infrastructure and safety for people bicycling.
- Due to the specific scope of this Plan on rural County roads, the focus on local conditions within urban areas will be limited. However, these critical connections are essential to the success of the Plan. Lane County will continue to coordinate closely with partner agencies and jurisdictions to understand evolving local conditions, and to align recommendations and priorities.
- The transition from rural to urban environments presents a particular challenge for people biking, due to rapid changes in the street context that impact safety and comfort. It will be important to work closely with partner jurisdictions in order to coordinate necessary improvements on local roads to foster safe connections.
- The 2020 Holiday Farm Fire event presents challenges for public input in affected areas. The County must carefully consider how to ensure that their needs and perspectives are captured and reflected in this and other planning processes.

Photo by Evan MacKenzie; submitted via the "Photo Share" on the Lane County Bicycle Master Plan website (lanecountybmp.com).

3

What We Heard From You

Public Engagement

What We Heard From You

With Lane County's expansive geographic scope, the diversity of stakeholders, and the County's commitment to broad and accessible community input for its planning projects, the BMP public involvement approach embraced five primary objectives for the process to be:

- **Realistic**: Be clear about the project constraints, objectives, and parameters.
- **Accountable**: Respond to public feedback in a timely manner.
- **Inclusive**: Reach out to everyone, including those who don't use computers or face other participation barriers.
- **Meaningful**: Provide timely information that is accurate and easily accessible.
- **Transparent**: Make the decision-making process easily understandable and accessible with critical project materials available on the project website.

The table below summarizes the 18-month timeline of key outreach strategies and input opportunities.

Key Activities	2020	2021					
	SPRING	SUMMER	AUTUMN	WINTER	SPRING	SUMMER	AUTUMN
Technical Advisory Committee							
Stakeholder Interviews							
Stakeholder E-updates							
Community Stakeholder Forums							
Equity Approach: Targeted Outreach							
Public Open Houses							
Public Hearing & Comment Period							

FINAL PUBLIC INVOLVEMENT PLAN

GUIDING FRAMEWORK

VISION, GOALS, OBJECTIVES

DATA EVALUATION

PLAN RECOMMEN-DATIONS

IMPLEMEN-TATION STRATEGY

PUBLIC PLAN REVIEW AND ADOPTION PROCESS

Specifically, the process offered multiple opportunities and formats to inform and gather community input throughout Lane County, including:

- **Preliminary Stakeholder Interviews** with core community-based organizations and representatives to ensure proposed BMP outreach strategies would reach intended audiences.
- **Community-based Stakeholder Forums** representing seven communities designed to capture the diverse perspectives about needs, issues, and opportunities early in the process. Participants included government agencies, chambers of commerce, bike shops, social services, tourism, bicycle advocates with varying levels of cycling comfort or expectations, elected officials, key destinations (e.g., wineries), and Emergency Management Services (EMS) representatives.
- **Online Public Open Houses** offered twice in spring and fall 2021 to review existing conditions, understand the issues and opportunities for bicycling in Lane County and review the proposed network before route prioritization.
- **Online survey and interactive map** received over 2,500 general and location-specific comments on issues, concerns, and suggestions on current and potential Lane County bicycling routes.

Map Legend

User Comments

- Driving Concern
- Biking Barrier
- Biking Destination

Existing

- Shared Use Paths
- County Roads

Relative Demand

HIGH — LOW

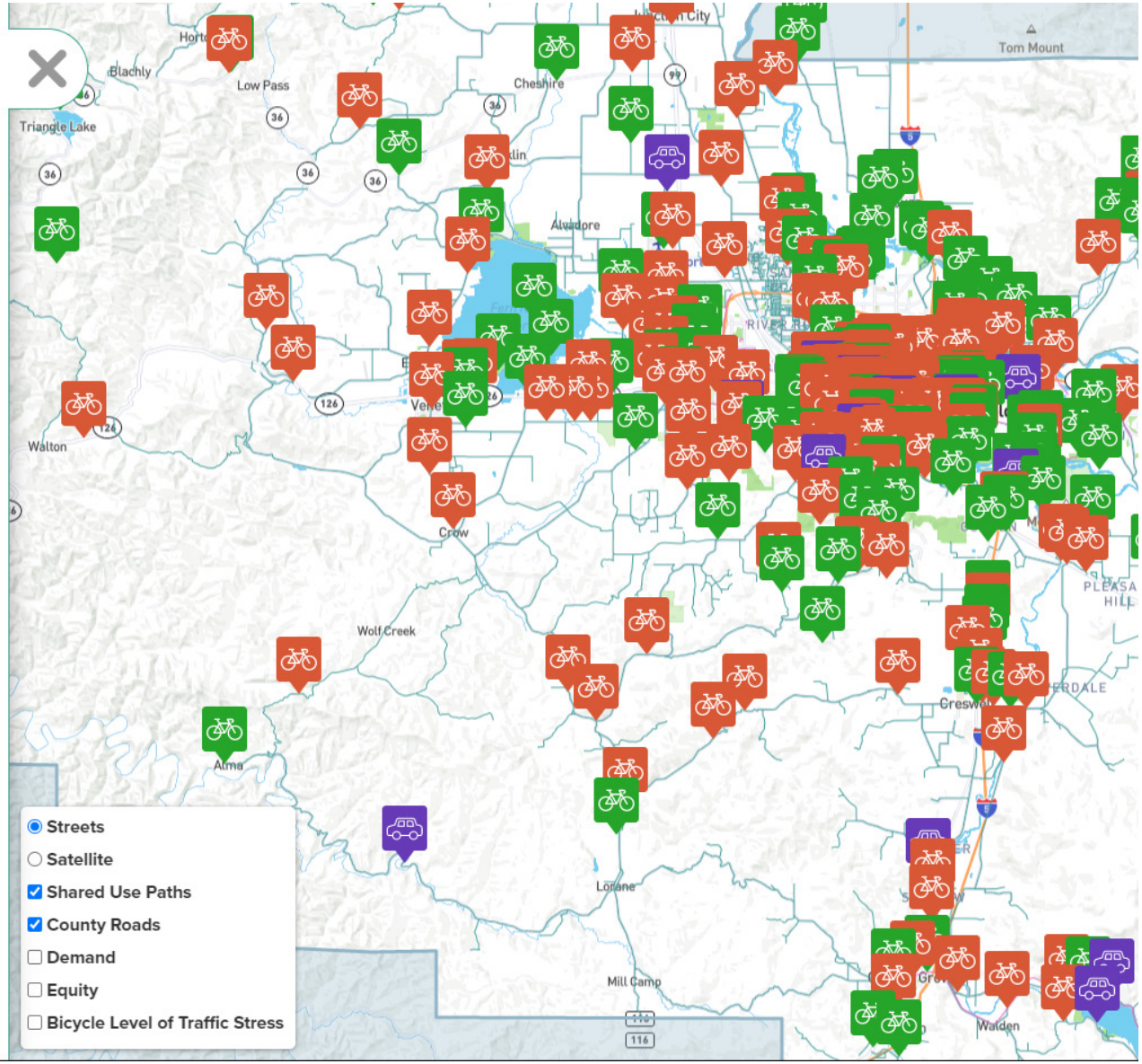
Composite equity score

HIGH NEED — LOW NEED

Bicycle Level of Traffic Stress

HIGH STRESS — LOW STRESS

About this data



Screenshot from the Public Input Map showing user comments on driving concerns, biking barriers, and desired destinations.

- **E-updates** to an interested parties list of over 850 individuals, organizations, jurisdictions, agencies, and groups provided continual, up-to-date, and accurate information on project status, deliverables, and input opportunities.
- **Bi-lingual factsheet** distribution to available communication networks throughout Lane County to introduce the project, purpose, schedule, access to available resources, and the project manager contact information.
- **Equity Approach - Targeted Outreach** to reach underrepresented voices and non-computer households with bi-lingual printed surveys and community maps to mirror the online versions. Due to pandemic health restrictions, the critical partnerships were formed to assist with survey distribution and collection. Input to the LCBMP benefitted greatly through the tremendous and supportive help from Homes for Good, Saint Vincent de Paul, Florence Food Share, Cottage Grove Family Resource Center, Mid-Lane Cares, local bikes ships, and community libraries. Thanks to this collaboration, over 90 surveys from non-computer households added to depth of analysis. In addition, connecting with Lane County-based Spanish-speaking media outlets and community groups such as La E-Kiss and Border Boys Biking Club helped reach and inform Lane County's Latinx communities.

LANE COUNTY
BICYCLE MASTER PLAN

El Condado de Lane está formulando un Plan Maestro de la Bicicletas para mejorar la SEGURIDAD Y LA COMODIDAD | LA CONECTIVIDAD | LA EQUIDAD DE ACCESO | LAS OPORTUNIDADES DE DESARROLLO ECONÓMICO | LOS BENEFICIOS DE SALUD PÚBLICA de sus vías rurales y rutas pavimentadas.

Por favor ayúdenos a comprender sus experiencias al utilizar las rutas del Condado de Lane. Por favor responda las siguientes preguntas acerca de las rutas moradas en el mapa de Veneta/Elmira a continuación.

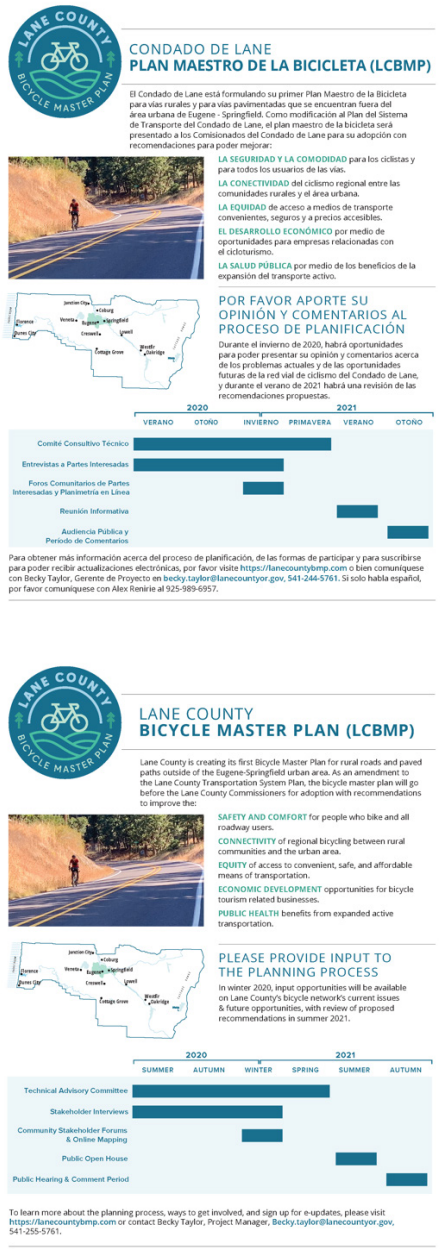
ELMIRA
VENETA

1. ¿Utiliza usted su bicicleta o un dispositivo de movilidad en alguna de las rutas moradas en el mapa anterior?
☐ Sí
☐ No
☐ Nunca andaría en bicicleta ni usaría un dispositivo de movilidad en alguna de estas rutas. (Saltar a pregunta 5.)

En caso de responder que sí, por favor marque el mapa:
- Escriba una "**R**" en las rutas por las que usted circula.
- Encierre en un **círculo** los lugares donde usted no se siente seguro.
- Escriba una "**S**" en las rutas en las que usted podría circular, si el Condado de Lane las hiciera más seguras y más cómodas.

En el espacio al final de esta encuesta, por favor cuéntenos más acerca de sus experiencias.

2. **Si usted marcó con un círculo cualquier lugar en el mapa anterior donde no se siente seguro, ¿cuáles son sus inquietudes?** *(Marque todas las opciones que correspondan.)*
☐ Demasiado tráfico
☐ El tráfico es demasiado rápido
☐ No hay carril para bicicletas ni hombro de carretera
☐ El hombro de carretera es demasiado estrecho
☐ Demasiadas subidas o ruta empinada
☐ Otra inquietud:



CONDADO DE LANE
PLAN MAESTRO DE LA BICICLETA (LCBMP)

El Condado de Lane está formulando su primer Plan Maestro de la Bicicleta para vías rurales y para vías pavimentadas que se encuentran fuera del área urbana de Eugene - Springfield. Como modificación al Plan del Sistema de Transporte del Condado de Lane, el plan maestro de la bicicleta será presentado a los Comisionados del Condado de Lane para su adopción con recomendaciones para poder mejorar:

LA SEGURIDAD Y LA COMODIDAD para los ciclistas y para todos los usuarios de las vías.
LA CONECTIVIDAD del ciclismo regional entre las comunidades rurales y el área urbana.
LA EQUIDAD de acceso a medios de transporte convenientes, seguros y a precios accesibles.
EL DESARROLLO ECONÓMICO por medio de oportunidades para empresas relacionadas con el cicloturismo.
LA SALUD PÚBLICA por medio de los beneficios de la expansión del transporte activo.

POR FAVOR APORTE SU OPINIÓN Y COMENTARIOS AL PROCESO DE PLANIFICACIÓN

Durante el invierno de 2020, habrá oportunidades para poder presentar su opinión y comentarios acerca de los problemas actuales y de las oportunidades futuras de la red vial de ciclismo del Condado de Lane, y durante el verano de 2021 habrá una revisión de las recomendaciones propuestas.

2020 2021
VERANO OTOÑO INVIERNO PRIMAVERA VERANO OTOÑO
Comité Consultivo Técnico
Entrevistas a Partes Interesadas
Foros Comunitarios de Partes Interesadas y Planimetría en Línea
Reunión Informativa
Audiencia Pública y Período de Comentarios

Para obtener más información acerca del proceso de planificación, de las formas de participar y para suscribirse para poder recibir actualizaciones electrónicas, por favor visite https://lanecountybmp.com o bien comuníquese con Becky Taylor, Gerente de Proyecto en becky.taylor@lanecountyor.gov, 541-244-5761. Si solo habla español, por favor comuníquese con Alex Renirie al 925-989-6957.

LANE COUNTY
BICYCLE MASTER PLAN (LCBMP)

Lane County is creating its first Bicycle Master Plan for rural roads and paved paths outside of the Eugene-Springfield urban area. As an amendment to the Lane County Transportation System Plan, the bicycle master plan will go before the Lane County Commissioners for adoption with recommendations to improve the:

SAFETY AND COMFORT for people who bike and all roadway users.
CONNECTIVITY of regional bicycling between rural communities and the urban area.
EQUITY of access to convenient, safe, and affordable means of transportation.
ECONOMIC DEVELOPMENT opportunities for bicycle tourism related businesses.
PUBLIC HEALTH benefits from expanded active transportation.

PLEASE PROVIDE INPUT TO THE PLANNING PROCESS

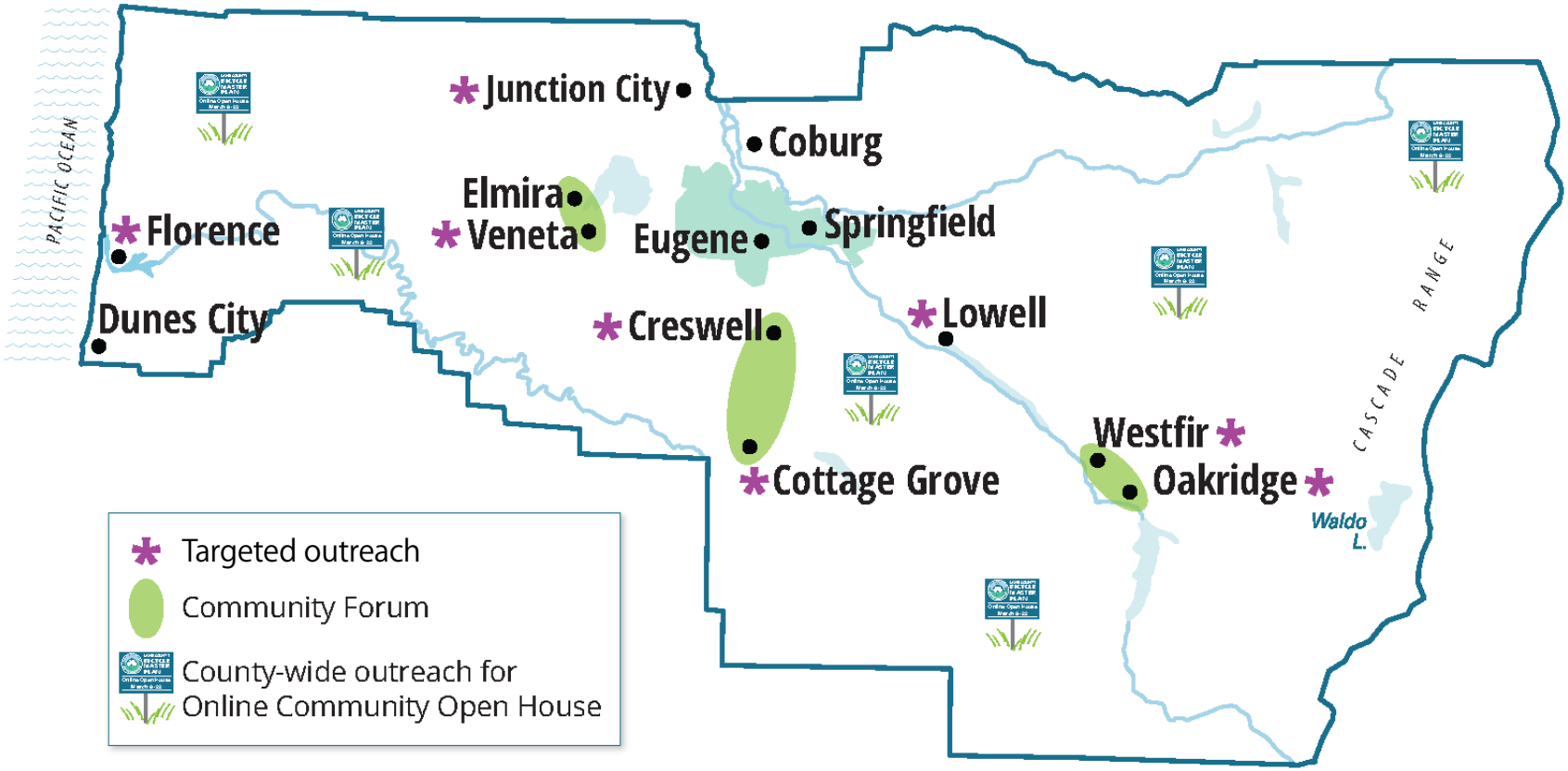
In winter 2020, input opportunities will be available on Lane County's bicycle network's current issues & future opportunities, with review of proposed recommendations in summer 2021.

2020 2021
SUMMER AUTUMN WINTER SPRING SUMMER AUTUMN
Technical Advisory Committee
Stakeholder Interviews
Community Stakeholder Forums & Online Mapping
Public Open House
Public Hearing & Comment Period

To learn more about the planning process, ways to get involved, and sign up for e-updates, please visit https://lanecountybmp.com or contact Becky Taylor, Project Manager, Becky.taylor@lanecountyor.gov, 541-255-5761.

The map below summarizes the geographic scope of the BMP targeted outreach, community forums, and community-wide notification.

Figure 9. Lane County Bicycle Master Plan Public Involvement Map



The Public Engagement team conducted targeted outreach with key housing providers, social service agencies, and other entities. For more information, see Appendix A.

Lane County additionally sought input from jurisdictional agency partners through a Technical Advisory Committee (TAC) with the charge to review, comment, and guide the development of key project deliverables. Composition included:

- City of Cottage Grove
- City of Creswell
- City of Eugene
- City of Florence
- City of Oakridge
- City of Springfield
- City of Veneta
- Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians
- Confederated Tribes of Siletz Indians
- Lane County Parks
- Lane Educational Services District
- Lane Council of Governments
- Lane Transit District
- Willamalane Park and Recreation District
- OR126E/McKenzie Area
- Oregon Department of Transportation
- Travel Lane County
- US Forest Service

Meeting six times throughout the process, the TAC guided the BMP development, provided guidance and support for public outreach strategies, and reviewed and provided critical analysis of project key deliverables.

Leading Themes From the Public Engagement

Over the course of 18-months, the BMP project staff received a wealth of thoughtful public input from stakeholder interviews, community forums, online and hard copy distribution of bi-lingual surveys, interactive mapping tools, open houses, and direct phone calls and emails to the BMP Project Manager, a series of common ideas arose. Captured here are the commonly referenced themes gathered from an extensive public input process. Comments on specific corridors and roads may be found in Appendix A.

CONSIDER OFF-ROAD TRAILS/PATHS.

- "Let's do something exceptional like a combined bike/pedestrian path. It shouldn't be a prerequisite to have a driver's license, car or bike in order to access jobs/schools from low income rural areas. Safe reliable transportation systems should be accessible for rural residents too."
- "Biking on Lane County roads is too unsafe. We need more bike paths. It's expensive but worth it."

VEHICLE SPEED IS A SAFETY HAZARD FOR BICYCLISTS.

- "Speed limits on most county roads are too high for conditions, surfaces, curves, entries, etc."
- "I do not ride more because I don't feel safe on the roads."
- "Lower speeds in high risk areas of road curves."

BICYCLING IS CRITICAL NOT ONLY FOR COMMUNITY CONNECTIVITY BUT FOR THE ECONOMIC DEVELOPMENT OF RURAL AREAS.

- "I'm glad this is happening. I've thought for many years that the rural roads in Lane County could be a mecca for cyclists from all over the country. The concept "Build it, and they will come," with bicycle shops and other services coming to life in little towns."
- "Better, longer biking trails encourage not just Oregonian biking but also bicycle tourist from across the country will bring tourist dollars here."

MANY RURAL COMMUNITIES REQUIRE SAFE ACCESS TO LANE COUNTY ROADS VIA NON-LANE COUNTY ROADS (E.G., ODOT, US FOREST SERVICE).

- "The North Boundary road is an opportune Eugene-Lowell-Oakridge key connecting route. Lane County should collaborate with other agencies to formalize it as a viable route and alternative to OR 58. Need to partner with US Forest Service."

SHOULDER WIDENING IS CRITICAL.

- "I'm an older fella who enjoys cycling as often as weather permits. But road conditions (lack of shoulders) and heavy traffic is taking some of the enjoyment out of it. I feel that more warning signs (share the road) are needed as are wider shoulders. These would help make me feel safer."
- "Once you leave Eugene city limits, biking is not a transportation mode. It is bad enough for cars, since there is no shoulder if a car needs to pull off."
- "I personally enjoy riding some of the county roads but often wish there was a safer shoulder. Perhaps that dream will come true."

Off-road paths are outside of the scope of the BMP, yet the project staff recommends that Lane County Parks Division conduct a Master Trail Plan.

CREATE MORE BUFFERS BETWEEN VEHICLES AND BICYCLISTS/OTHER DEVICES IN RURAL AREAS.

- "I wish cars were more aware of cyclists, and I wish there were more bike lanes separated from normal traffic."
- "I pray every day when I ride in my mobility device on the side of the road. I believe prayers worked for me because I almost got hit on the roads I took several times."

THE BICYCLE PLANNING PROCESS IS APPRECIATED.

- "I am so happy to see this plan and believe it is in the best interest of bicycle riders, vehicle drivers, and everyone living or using the routes involved. Thank you, thank you for developing the plan, and looking forward to seeing it taking place."
- "It's a great opportunity to share ideas about how we could move forward to make Lane County more sustainable, healthy, and safe."

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4 Bicycle Improvement Recommendations

Network development, facility assignment, and project prioritization

Prioritizing Bicycle Improvements

In order to develop a network of bicycle routes that adequately serve Lane County's communities, the planning process took into account existing plans, public feedback, and the results of the analyses described in Chapter 2. The Plan used the following steps to arrive at a prioritized list of projects:

- **Network Development:** Selecting the routes that comprise the county's bicycle network
- **Facility Recommendation:** Determining the appropriate bikeway facilities on the bicycle network routes
- **Project Identification**: Dividing the routes into projects
- **Prioritization:** Analyzing all projects to determine near-term, medium-term, and long-term project implementation

The following sections describe the results of each step in this process.

Network Development

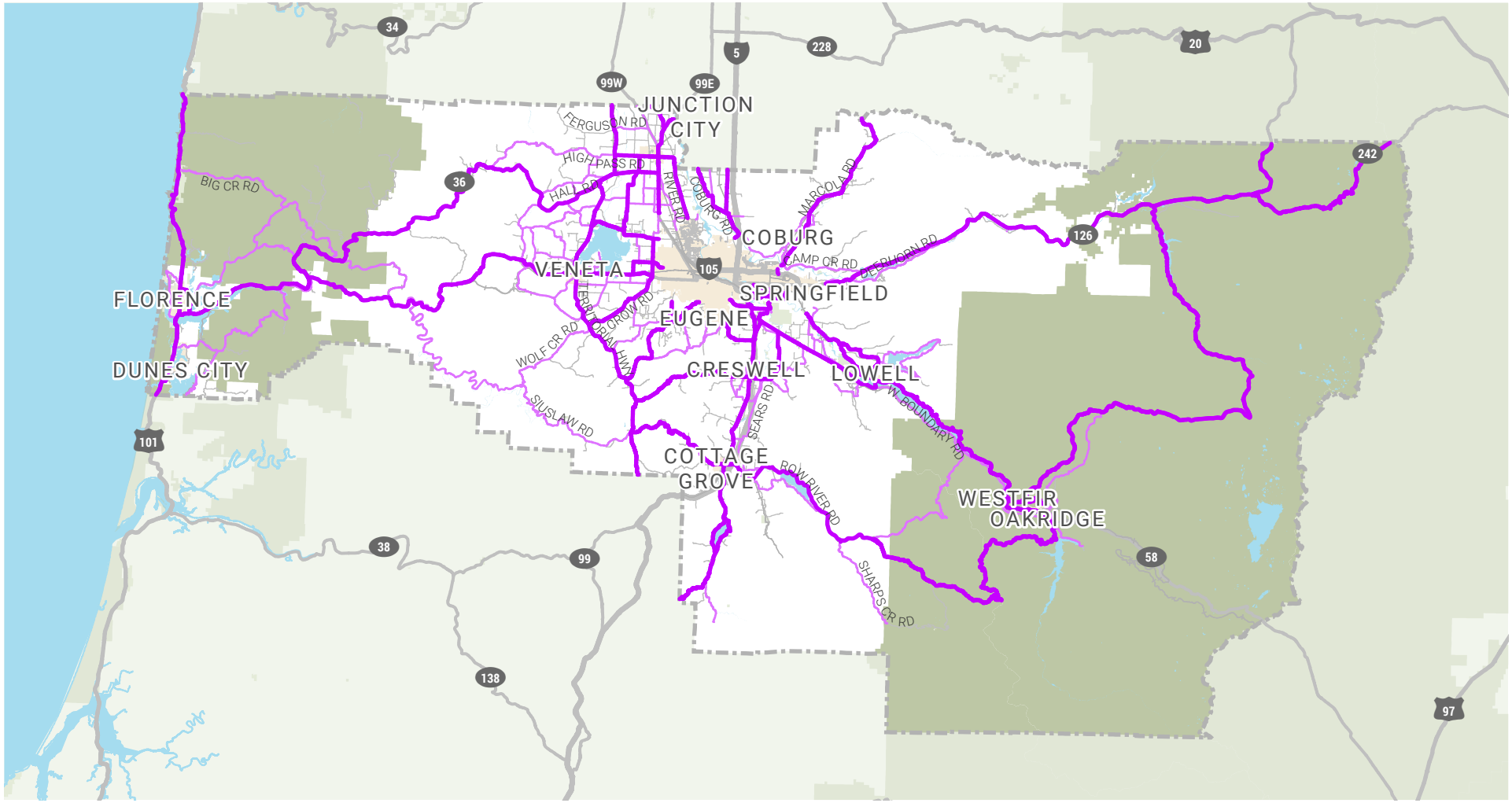
Using the analysis of existing conditions outlined in Chapter 2, as well as knowledge gained through discussion with the Technical Advisory Committee (TAC), an initial system of roads was designated to serve as Lane County's bicycle network. This network includes County roads, as well as critical routes managed by other jurisdictions. The network reflected available information on corridors with high incidence of pedestrian- and bike-involved crashes, areas of high demand, and areas that establish a higher need with regard to equity and distribution of resources and services.

Other resources were considered including the Strava Global Heat Map, which displays recreational bicycling routes according to current use, and Google Earth and Google Streetview, which allowed for closer inspection of road conditions. The network was then adjusted and refined based on input from the Public Input Map and discussion with Lane County, local stakeholders, TAC members, and focus group participants.

The resulting Lane County bicycle network (See Figure 10) includes both **Primary** and **Secondary** routes, which serve complementary purposes within the system.

- **Primary routes** provide the most direct, paved bicycle routes between jurisdictions, populated areas, and other major destinations within the county. They generally facilitate long-distance travel via the most direct routes possible. Because they follow major corridors, they are often on larger streets with heavier traffic and faster speeds. Where possible, primary routes were given facility recommendations that provided the highest degree of physical separation between vehicle traffic and people on bicycles.
- **Secondary routes** are lower-stress alternatives to primary routes. They may provide less direct, unpaved, and/or recreational experiences. They often fill in the gaps in the primary network, utilizing less-contiguous streets and traveling shorter distances to provide access to areas not on the primary network.

Figure 10. Recommended Bicycle Network Map



Recommended Network

- Primary
- Secondary
- U.S. Interstate
- U.S. Highway
- State Route
- County Roads
- Railroad
- City Boundary
- Parks
- National Forest
- Water
- Lane County

0 10 20 MILES

N

Data provided by Lane County, ODOT
Map produced March 2022.

alta

Recommended Facilities

Bicycle facilities that would provide increased safety and comfort were assigned for each segment along Primary and Secondary routes. These recommendations were based on a combination of several interrelated factors:

- Connections to higher-need areas as defined by the Equity analysis
- Connections to activity centers and popular destinations
- Traffic conditions, such as speeds, functional classifications, and traffic volumes, where available
- Road conditions, including surface type, lane width, and existing shoulder width
- Function within the network (primary or secondary, access to destinations)
- Existing adjacent facilities (for example, where routes in unincorporated areas connect to existing bicycle facilities within a local jurisdiction)
- Current recreational ridership (available through Strava's online heat map)
- Physical and geographic constraints, such as steep grades or water bodies

Table 1: Recommended Facility Types and Mileage

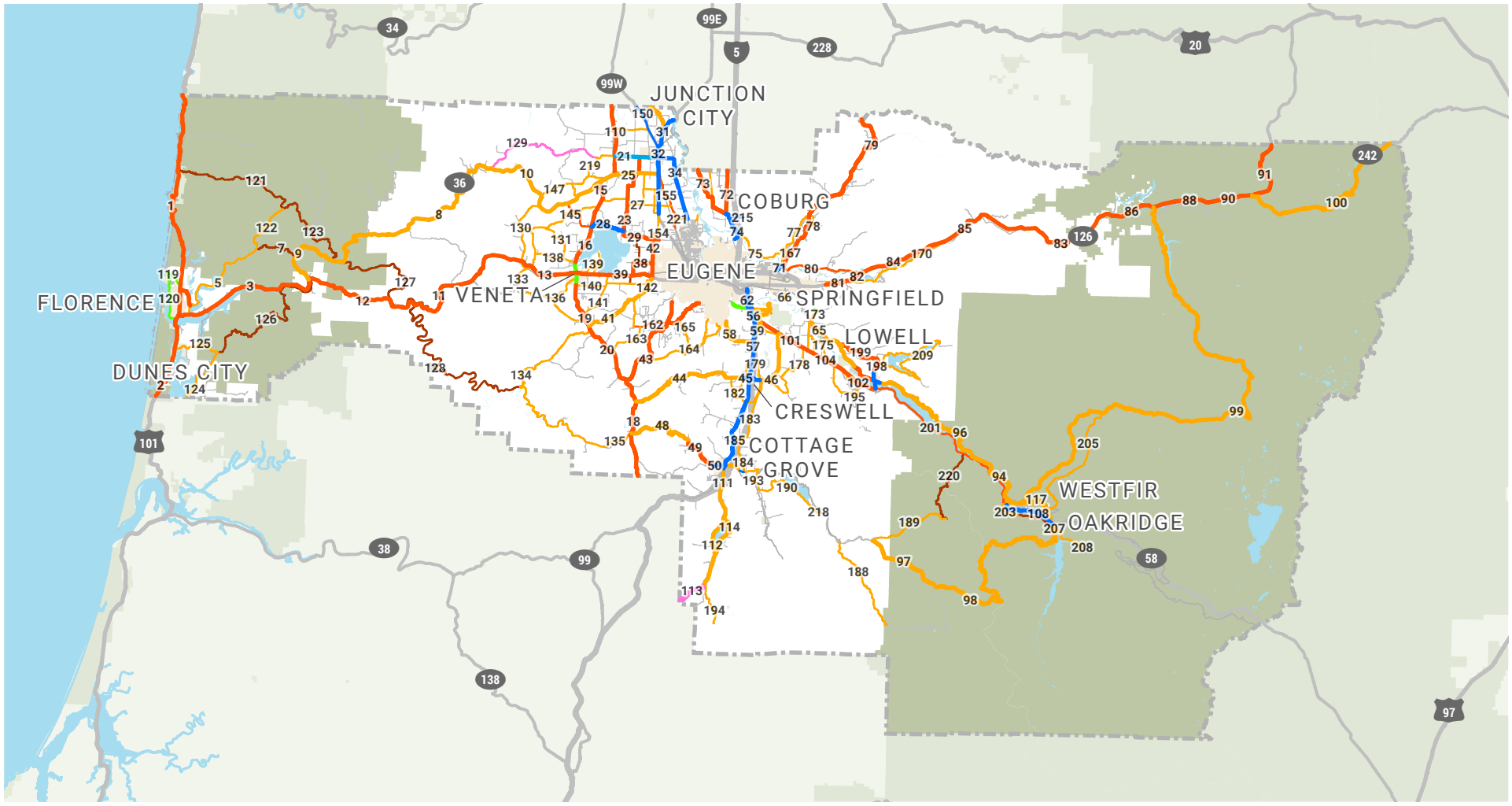
BIKEWAY FACILITY	APPROXIMATE MILEAGE
Buffered and Protected Bike Lanes	56 miles
Bike Lanes	4 miles
Shared-Use Paths (SUPs)	12 miles
Shoulder Bikeways	926 miles
Shared Roadways	18 miles
Unpaved Gravel Roads	99 miles

The following facility types were recommended within Lane County:

- **Buffered and Protected Bike Lanes:** Buffered and protected bike lanes are enhanced bike lanes that feature a buffer between the bike lane and the adjacent travel lane. The presence of this buffer provides more physical distance between people biking and driving, and increases the comfort level of the facility. Protected bike lanes feature a raised barrier in the buffer and/or grade separation from the roadway. There are several types of protected bike lane separator types, but they often take the form of flexible delineators, raised curb, bollards, planters, and/or vehicle parking to physically separate the bike lane from the vehicle travel lane. Grade separation of the protected bike lanes involves elevating the bike lane to sidewalk level (or an intermediate height between sidewalk and road) to further separate the bike lane from the vehicle travel lanes.
- **Bike Lanes:** Conventional striped bike lanes are common on many streets within Lane County, providing people on bikes a clearly delineated, exclusive travel space. They may not be suitable on higher volume, higher speed, and/or higher stress roadways.
- **Shoulder Bikeways:** Shoulder bikeways feature wider striped shoulders (4ft, 6ft, or greater) that can be used by people on bikes. These facilities make up the largest percentage of the recommended County bike network, particularly in rural parts of the County.

- **Shared Roadways:** Roadways where the travel space is shared by people driving and biking. These are typically lower volume, and/or lower speed streets where people on bikes can be comfortable riding in mixed traffic. A special type of shared roadway is called a “neighborhood greenway” which is characterized by the addition of traffic calming design elements and enhanced crossing improvements.
- **Unpaved Gravel Roads:** Some routes on the County network may not be paved, but nonetheless provide a connection between regional or local destinations. In some cases, these routes are sought out by recreational bike riders due to their lower vehicle traffic volumes and speeds, and more scenic riding experience.
- **Shared-Use Paths (SUPs):** Shared-Use Paths are paved paths (also often referred to as “trails” or “greenways”) that are ADA accessible. SUPs are removed from the roadway and are intended for exclusive use by people walking and biking. Special consideration should be given at locations where SUPs intersect with roads, particularly at unsignalized and uncontrolled crossings. SUPs are reasonable alternatives to any of the above recommended facility types, but may depend on specific road or land use conditions, environmental factors, and available funding.

Figure 11. Recommended Bicycle Facilities Map



Network

- Shared-Use Path
- Buffered Bike Lanes
- Bike Lanes
- 6 ft. Shoulder Bikeway
- 4 ft. Shoulder Bikeway
- Shared Roadway
- Unpaved Gravel Road
- U.S. Interstate
- U.S. Highway
- State Route
- County Roads
- Railroad
- City Boundary
- Parks
- National Forest
- Water
- Lane County

0 10 20 MILES

N

Data provided by Lane County, ODOT
Map produced May 2022.

alta

Bicycle Network Design Standards

The Lane County Bicycle network is composed of a range of bicycle facility types that vary in terms of visual/physical separation from other road users, surface type, user experience, and comfort levels. These bicycle facilities and their design standards were assigned to segments and routes of the Primary and Secondary routes based on the combination of the bicycle level of traffic stress analysis, equity analysis, existing conditions on County roads,and routes that are frequently used by cyclists today. Bicycle facility assignments also take into account Transportation System Plan (TSP) functional classifications, posted speed limits, and vehicle volumes. The Lane County Bicycle Network Design Standards are intended to expand on the County TSP roadway design standards to prescribe more specific design standards for the bicycle facilities. These Design Standards apply exclusively to Lane County roadways, but also align with other current local and state bikeway design guidance, as appropriate. On State highways, bike facilities will be determined according to design standards and criteria in the ODOT Highway Design Manual and other design guidance such as the Blueprint for Urban Design.

In order to make the Lane County Bike Network accessible to the widest range of riders, assignment of these bicycle facilities is geared toward encouraging the less

experienced, less confident riders, and people who may not be riding bikes today at all due to concerns about safety, accessibility, and connectivity. Recommendations reflect the reality that not all routes and facilities on existing County roadways will be able to achieve an "All Ages and Abilities" bikeway designation since the majority of County bicycle routes are on high-speed rural county roads with minimal shoulders, require out-of-direction travel, and/or involve significant elevation grade changes. While it may not be possible to provide a direct, all ages and abilities route between all parts of the County, every effort was made to identify a route and facility type that would provide a base level of connectivity and comfort corresponding to LTS 2.

These design standards are intended for new roadway construction, reconstruction, or relocation per ORS 366.514, but should also apply to pavement preservation projects along the bicycle network routes. Facility design is contingent on best practice and subject to engineering judgment of the County Engineer.

The bikeway facilities types listed in the previous section are further detailed in the context of predominantly rural land use and transportation facilities;

- **Buffered/Protected Bike Lane** - along higher volume, high speed primary routes where SUPs are not feasible.
- **4 ft Shoulder Bikeway** - along secondary network routes (including but not limited to collectors and local roads). Shared use paths may be preferred over shoulder bikeways for increased separation from traffic along higher speed roadways.
- **6 ft Shoulder Bikeway** - along primary network routes (including but not limited to principal arterials, minor arterials, and collectors). Shared use paths may be preferred over shoulder bikeways for increased separation from traffic along higher speed roadways.
- **Shared Roadway** - where lower prevailing speeds, and volumes would provide a comfortable shared roadway experience for people biking
- **Unpaved Gravel Road** - primarily on secondary routes that are currently unpaved and are not designated for future paving.
- **Shared Use Path** - along higher volume, high speed primary routes. These paved paths accommodate bicycles and pedestrians, including people in personal mobility devices, and must be ADA compliant.

Table 2: Rural Roadway Bikeway Design Guidelines

BIKEWAY FACILITY	PREFERED WIDTH	MINIMUM SIDTH (APPLIED ONLY IN CONSTRAINED LOCATIONS)	SURFACE TYPE	NOTES
Shared Use Path	10-14 ft wide + 2 ft shoulders	8 ft + 2 ft shoulders	Asphalt or concrete	Minimum 6 ft buffer from roadway
Buffered/Protected Bike Lane	6.5 - 8 ft marked bike lane, 3-5 ft buffer	5 ft marked bike lane, 2-3 ft buffer	Asphalt or concrete	If bike lane buffer is 4 ft or greater, add chevrons/diagonal hatching.
6 ft Shoulder Bikeway	6 ft shoulder or greater clear space (exclusive of striping, rumble strips, and curb/gutter)	6 ft shoulder clear space (exclusive of striping, rumble strips, and curb/gutter)	Asphalt	Shared-use paths are a suitable substitute for shoulder bikeways along high-speed roadways (>35mph).
4 ft Shoulder Bikeway	4 ft shoulder or greater clear space (exclusive of striping, rumble strips, and curb/gutter)	4 ft shoulder clear space (exclusive of striping, rumble strips, and curb/gutter)	Asphalt	Shared-use paths are a suitable substitute for shoulder bikeways along high-speed roadways (>35mph).
Shared Roadway (2-lane roads)	10-14 ft travel lanes with shared lane markings and other traffic calming measures to ensure slow speeds; 12-20 ft total roadway width, if there is no centerline stripe (not including parking lane)	N/A	Asphalt or concrete	Does not include parking lane space
Unpaved Gravel Road	N/A	N/A	Aggregate	

Lane County design standards are consistent with these guidelines. Actual designs for each facility will be refined during the Design Concept process.

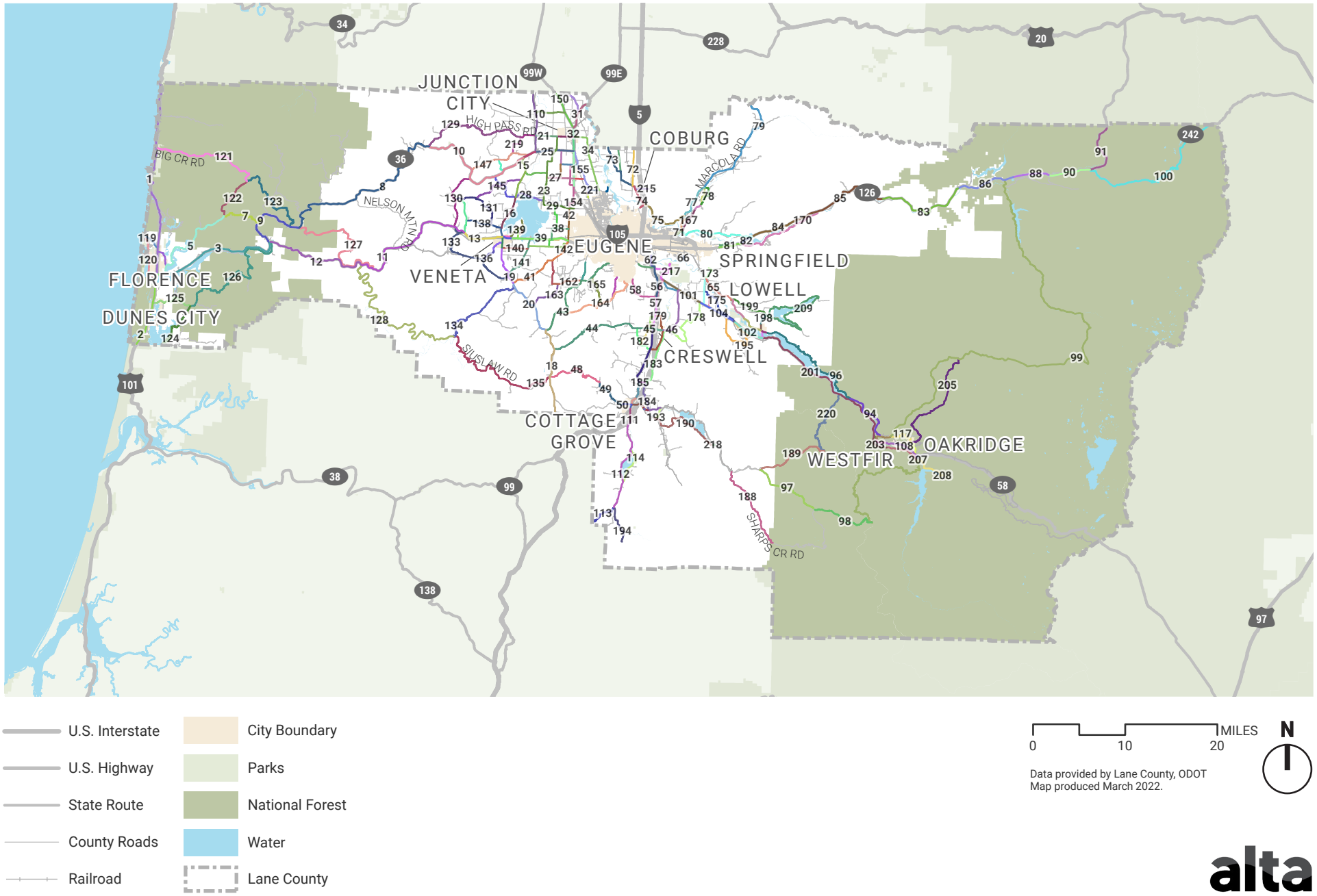
Project Identification

Bicycle facilities are often not implemented along the entirety of a corridor all at once. Some sections of road will be a higher priority for near-term improvements than others. Dividing the countywide network into smaller project segments allows the County to focus investments where they are needed most. This Plan designated facilities for the network and then divided the network into project segments to determine priority projects countywide. Where possible, individual projects followed these criteria:

- Projects should have only one facility recommendation.
- Projects should be on either the primary or secondary network.
- Project segments can contain multiple roads, but these segments should be as directional as possible (East-West, NW-SE).
- Projects should terminate at jurisdiction limits unless the corridor continues through the jurisdiction.
- Projects should break at important locations or junctions within the network.

Figure 12 represents the resulting 217 project segments

Figure 12. Recommended Projects Map



within the network.

Project Prioritization

A prioritization framework enables Lane County to focus bicycle investments where they are most needed and phase their implementation accordingly. This prioritization framework uses five main criteria and several subcriteria to evaluate Lane County's Bicycle Network and ultimately assign them to three implementation timelines: near, medium and long-term.

- Near-term projects are those scheduled for implementation within 1-5 years
- Medium-term projects are those scheduled within a 5-10 year timeframe
- Long-term projects are those scheduled within a 10-20 year timeframe

Additionally, the prioritization process divides the network into two categories: County-owned roads and roadways that are managed by other agencies or jurisdictions.

This is an important distinction to make, as this planning process identified need for improvements on networks outside of the County-owned street network. This network demonstrated that all Lane County bicycling routes are interdependent and establishes the need for continued planning and coordination with project partners in regards to their own planning processes and bicycle facility improvements.

Based on the project goals and on community, stakeholder, and agency input, five overarching prioritization criteria were established to prioritize potential improvements: safety, equity, demand, connectivity and significance. These factors were especially important to consider as the County focuses its limited resources on investments that best serve local communities and people making trips to school, work, shopping, and other everyday trips.

This network was further revised to better reflect the concerns of stakeholders who have participated in the robust engagement process. This revised prioritization framework is outlined in Figure 13, and detailed criteria are located in Appendix H.

Improvements will be assigned into one of three prioritization tiers- Near-term, medium-term, and long-term- and differentiated by the road authority.

Figure 13. Prioritization Framework Overview

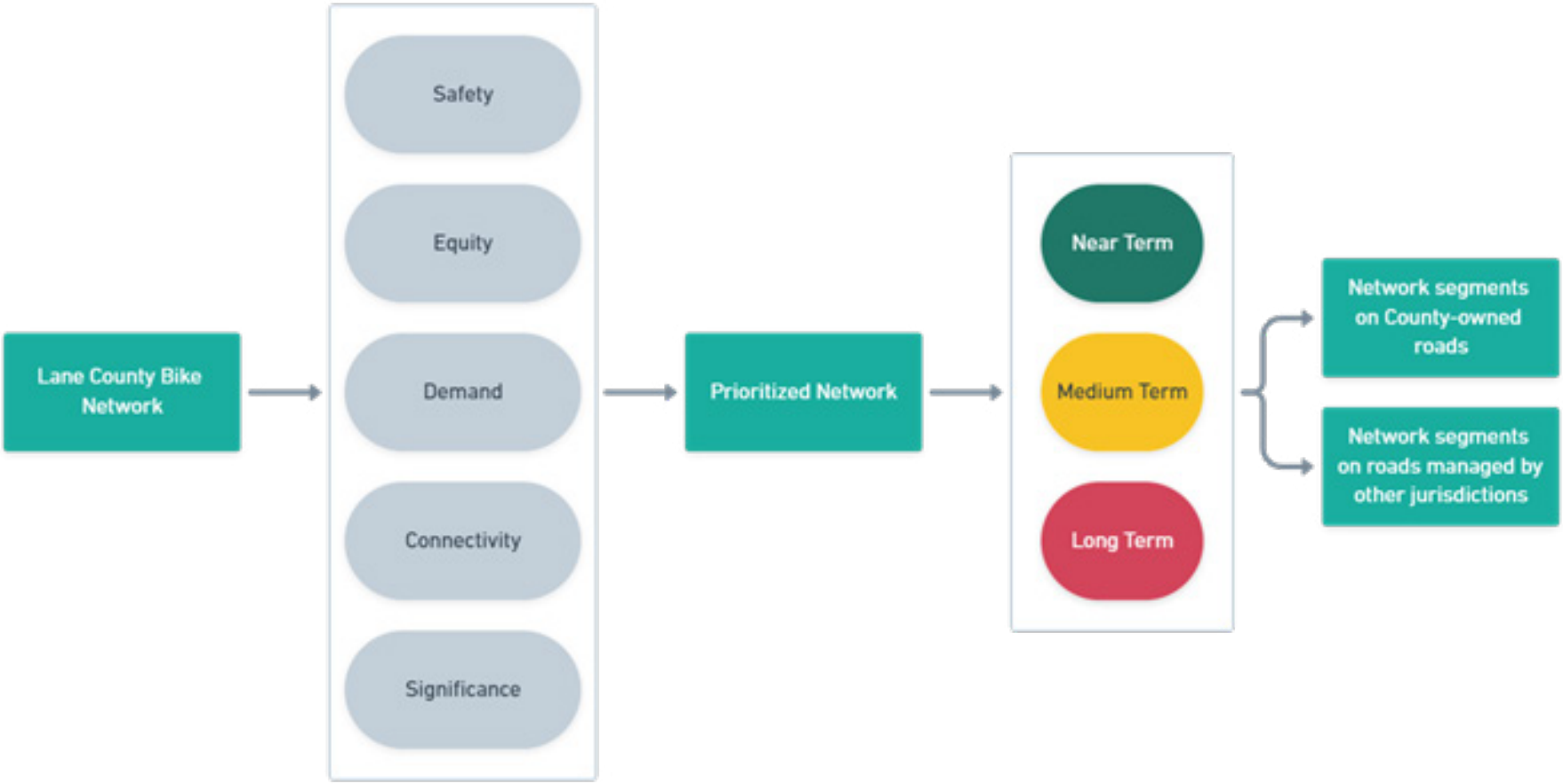
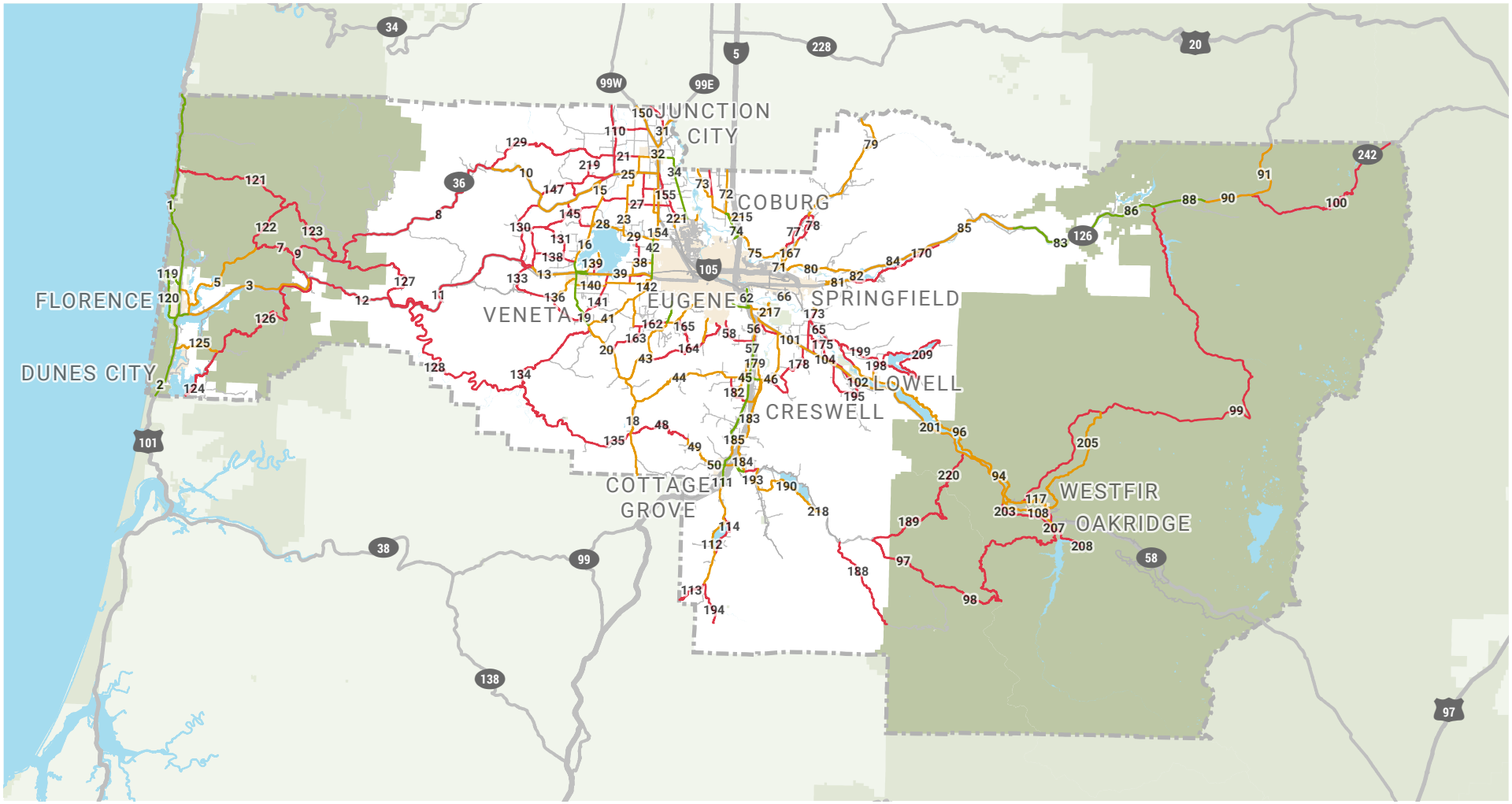


Figure 14. Prioritized Projects Map



5 Policy, Practices, and Programs Recommendations

Policy, Practices, and Programs Recommendations

PROPOSED LANE COUNTY TSP POLICY AMENDMENTS

This Plan recommends several amendments to the existing policies contained within the Lane County Transportation System Plan (TSP). Proposed amendments are described below, organized by TSP goal. For a complete list of TSP goals and specific recommended text changes, see Appendix F.

GOAL 1: SAFETY

The TSP includes the goal to eliminate fatalities and reduce severe-injury collisions in Lane County. Specific policy recommendations include participating in the Towards Zero Death (TZD) program, as well as making sure that safety is a top priority when considering capital improvements, operations, maintenance, and repair. The TSP also commits to aligning County departments, public agencies, and external groups toward common transportation safety goals. This Plan proposes adding an additional policy

of considering factors that contribute to crashes and specifically prioritizing safety improvements that intervene on those targeted issues.

GOAL 2: ECONOMIC VITALITY

TSP policies to encourage economic vitality include recognizing the value of active transportation and recreation investments, as well as the importance of agriculture and forestry, and investing in targeted industries and sectors. This plan does not propose amendments to these existing policies.

GOAL 3: NATURAL ENVIRONMENT

The TSP commits to creating and maintaining a transportation system that first avoids, then minimizes, and finally mitigates impacts to the natural environment of Lane County. This includes encouraging a reduction in greenhouse gases (GHG), mitigating potential adverse affects of projects, and exploring opportunities to enhance the environment. This plan does not propose amendments to these existing policies.

GOAL 4: EQUITY & ACCESSIBILITY

The TSP states the goal of providing safe and efficient access for populations within Lane County. This includes accommodating all modes, making the transportation system accessible to all users, improving access to basic

needs, and encouraging the provisions of transportation services to meet the needs of transportation disadvantaged populations. This plan does not propose amendments to these existing policies.

GOAL 5: MOBILITY

Policies within Goal 5 seek to promote the efficient and cost-effective movement of people, goods, and services by all modes. This means considering functional classification when maintaining and improving roads and reclassifying roads where appropriate. The County should provide an adequate motor vehicle system and consider the requirements of freight vehicles. This plan does not propose amendments to these existing policies.

GOAL 6: CONNECTIVITY

Connectivity means providing improved and new transportation connections within and between significant areas of Lane County. Safe and convenient pedestrian and bicycle connections are a key part of this goal. The TSP includes commitments to consider opportunities to purchase right-of-way and encourage off-street trail network integration into the pedestrian and bicycle networks. This plan recommends adding to this the development of county-wide recreational routes of regional significance, such as the Connect Lane bicycle routes identified in the East Lane County Bicycle Tourism Studio.

GOAL 7: ACTIVE TRANSPORTATION AND PUBLIC HEALTH

Goal 7 focuses on creating a built environment that encourages healthy, safe, comfortable, and convenient active transportation options that are viable for all users. This goal includes policies to support creation of regional bicycle and pedestrian corridors between urban and rural communities, as well as coordinating with Lane County Department of Health to recognize, promote, and track the public health benefits of active transportation. This plan amends the first policy (to develop a Bicycle and Pedestrian Master Plan) to consider and balance the needs of different trip users (recreation vs. transportation) and abilities. When feasible,the County should prioritize those facilities that are safe and comfortable for all users.

GOAL 8: COORDINATION

Coordination means working with the public, community groups, transit providers, cities, and other government agencies to implement the goals of the TSP. This plan does not propose amendments to these existing policies.

GOAL 9: FUNDING

When it comes to seeking adequate and reliable funding for transportation, the policies in the TSP include prioritizing improvements to connect to existing or planned facilities, distributing funding in a balanced way, and seeking funding sources for transportation. This plan adds a recommendation for the development of a system for identifying and tracking new and recurring sources of funding.

GOAL 10: MAINTENANCE AND PRESERVATION

The final TSP goal focuses on adequately maintaining and preserving the County's transportation facilities. This plan amends these policies by instructing that, when feasible, the County should prioritize maintenance of road surfaces identified as part of the Lane County Bicycle Network.

6 Implementation Strategies

Implementation Steps

Implementation of the Lane County Bicycle Master Plan will require additional resources and investments, public involvement, and coordination with other agencies. Next steps for implementing the project recommendations are below. Additionally, programmatic (such as maintenance, wayfinding signage, and safety education) and policy implementation guidance is detailed in Appendix F.

Planning Studies

This Plan has identified a number of potential projects for new paths (see Appendix G). More study is needed before the community considers specific recommendations. The study projects are intended to enable further exploration of potential path alignments, considering natural resource constraints, and property impacts. The goal would be to identify community-preferred path alignments and the general footprint of the affected area. Although the study process would not include property acquisition, the intent is that projects requiring acquisition would be done with voluntary participation by interested property owners. The outcome of the studies would include specific

alignment recommendations, cost estimates, potential funding sources, timing for implementation, preliminary environmental analysis and identification of needed environmental and land use permits.

Project Refinement

This Plan has identified a number of projects and facility recommendations for the proposed bicycle network. The Lane County TSP project list will be amended to include the projects recommended in this Plan. The projects of this Plan and the TSP are defined at the planning-level with general descriptions of the facility type and location. For example, buffered bike lanes may be recommended on a road in this Plan with reference to associated design standards that establish a range of widths for the lane and buffer. The expectation is that the greatest widths to provide the most buffer would be the starting point of the design process. However, physical constraints along the road, such as trees and wetlands, may necessitate application of the minimum widths.

Similarly, a recommendation for six-foot shoulders on both sides of the road may be later refined as a side path on one side of the road, upon further study of surrounding land uses and natural resources. The goal is to arrive at a design that achieves the transportation need while responding to the environment.

All of the projects recommended in this Plan need to be refined prior to implementation to determine design elements, resolve feasibility issues, refine location and alignment, and develop preliminary designs – or "design concepts". The design concept process includes stakeholder identification and involvement, and notices to abutting property owners. A written report documenting the process, public comments received, alternatives considered, and the community-preferred design is developed and included as materials as part of a public hearing and recommendation by the Lane County Transportation Advisory Committee (TrAC). The TrAC recommendation then goes to the Board of County Commissioners for approval. Lane County has a strong policy commitment to public involvement in the capital project development phase through Lane Manual Chapter 15, which requires all projects (other than maintenance and bridges) to have design concepts approved as a Board Order by the Lane County Board of Commissioners.

Projects may also need to be phased or broken into smaller segments to match available funding; the cost estimates provided below may provide guidance for determining smaller projects.

Right: A shared use path (also known as a sidepath) along a busy road provides separation of people walking and biking from traffic. (Photo: Small Town and Rural Multimodal Networks Guide)

Additional Safety Considerations

The facility types recommended in this plan define the bicycle travel space, such as a six-foot shoulder or buffered bike lane. As stated previously, the projects in this plan need to be refined during the design phase of each project to determine the design elements relative to the surrounding land use context and roadway conditions. Project refinement is the process of evaluating details such as intersection crossing treatments or in some cases, determining that a higher order facility may be needed due to specific safety issues.

Crossing locations, such as intersections and driveways, are where people on bicycles are the most vulnerable due to increased exposure to vehicles. The existing conditions analysis conducted during this planning effort confirmed that most bicycle crashes occurred at intersections. In addition to considering the safety of crossings during the project refinement process, interim measures should be considered to improve bicycle safety on existing facilities until additional funding is available to implement the project recommendations.

Other roadway features such as bridges and tunnels often present constrained physical conditions that warrant additional safety measures for people traveling by bike, such as signage, pavement markings, and beacons, but also increased facility width, buffers, and physical separation.

Project refinement will occur on a case-by-case basis as the County moves each project moves through design. Locations and conditions along county roadways that may be likely for a higher degree of project refinement include (but are not limited to) the following refinement options:

- **Intersections and driveway crossing treatments**
  - Traffic signals, beacons, or other traffic control devices
  - Dotted bike lane extension markings across conflict areas (through intersections and major driveways)
- **Shoulder bikeways**
  - Shoulder facility widening, buffers, and/or physical separation
  - Contrasting pavement materials (chip seal vs asphalt) and striping to delineate the bikeway
  - Shoulder and centerline rumble strips/stripes
  - Shared use path alternative along higher speed roadways

Rather than widening a low-volume historic 2-lane bridge to accommodate people walking and biking, space was reallocated to create a single bi-directional lane for traffic, and two wider shoulders for people on foot or bike.

Shoulder rumble strips and contrasting pavement materials for a shoulder bikeway.

- **Bridges and tunnels**
  - Bike facility widening, buffers, and/or physical separation
  - Shared roadway with reduced speed limit
  - Advisory beacons and signage
  - Lighting
- **Rural/urban transition zones**
  - Higher order bike facility (such as buffered bike lane or shared use path) through unincorporated communities or activity centers with higher vehicle volumes and/or higher expected bike ridership

Capital Cost Estimates

The following estimated project construction costs are based on planning-level unit cost assumptions. These unit costs are typical or average costs of infrastructure for Lane County Public Works. These cost assumptions do not factor in project-specific or location-specific details that may affect actual costs, such as acquisition of right-of-way, environmental permitting or relocation of infrastructure. For some projects, actual costs may differ significantly from the planning level estimates, which are listed in Table 3.

Table 3: Planning Level Costs

FACILITY OR IMPROVEMENT	UNIT	COST ESTIMATE (LOW)	COST ESTIMATE (HIGH)
Paved Shared-Use Path	Per Mile	$150,000	$1,000,000
Buffered / Protected Bicycle Lane	Per Mile	$10,000	$50,000
Bicycle Lane	Per Mile	$5,000	$15,000
Paved Shoulder Widening	Per Mile	$15,000	$30,000
Shared Roadway Improvments (Pavement Markings / Signage)	Per Mile	$11,000	$15,000
Unpaved Gravel Road Maintenance	Per Mile	$2,500	$3,275

New or upgraded bridges and tunnels that may be necessary to provide safe bike facilities are not included in these cost estimates, and should be factored as separate or additional cost during planning and design on a project-by-project basis. Similarly, new or upgraded stormwater drainage facilities are also excluded from the cost estimates presented here and will need to be determined during the design phase of each project.

Cost estimates are provided in 2021 dollars and due to annual inflation, cost estimates will increase in the future. Cost estimates by project are located in Appendix E as part of the complete Prioritized Project List.

Funding Resources

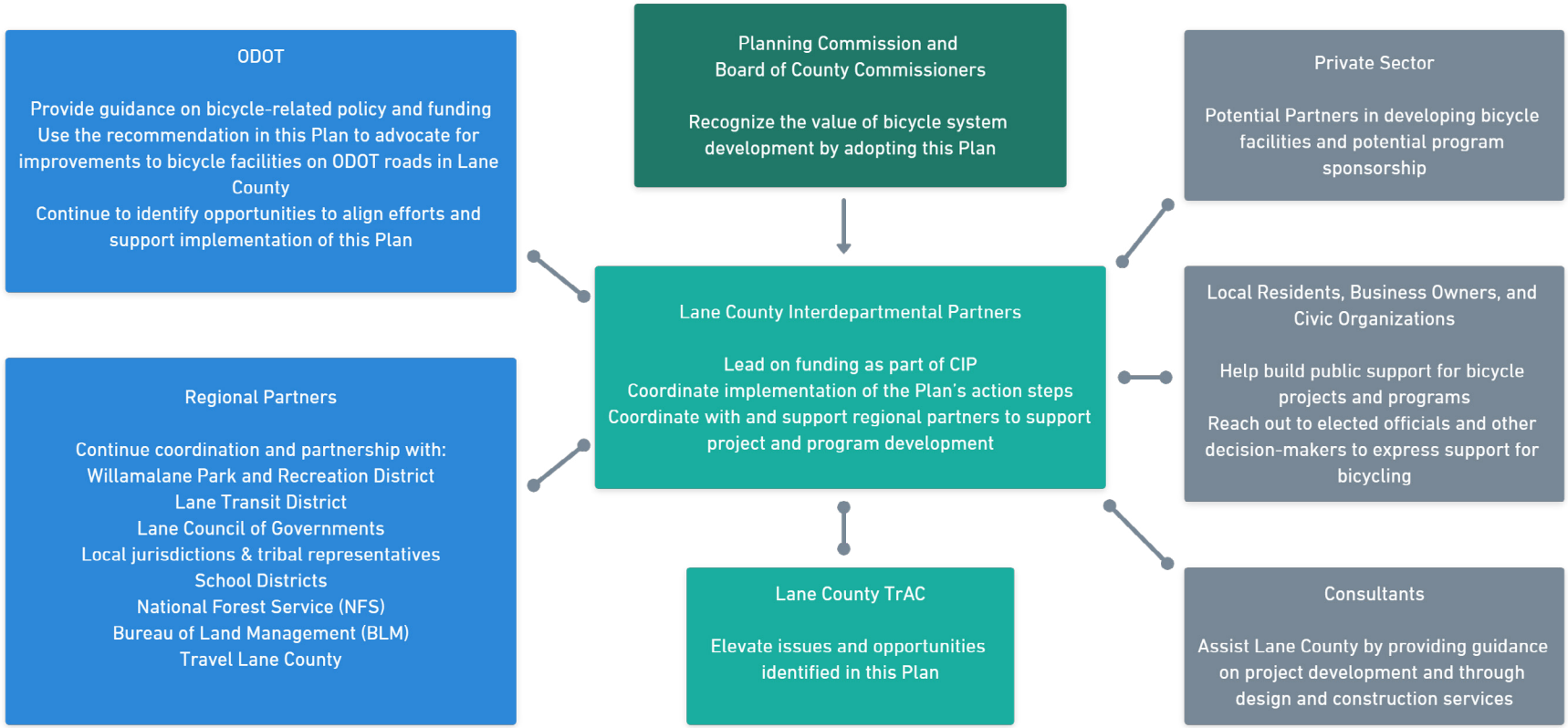
Lane County currently faces significant funding challenges, limiting the ability to construct needed transportation improvements. The majority of available funds are used to preserve and maintain the existing transportation system. Because of this, implementation of the BMP recommendations will require additional funding and resources, likely from diverse local, regional, state, and federal sources, as well as coordination with multiple agencies.

The majority of non-local public funds for bicycle and pedestrian projects are derived through a core group of federal and state programs. To facilitate funding efforts, Appendix H presents an inventory of different funding sources and strategies. That section summarizes available funding resources and their potential relevance to the Lane County Bicycle Master Plan. In addition, the table notes relevant eligibility considerations and whether Lane County currently utilizes the resource for infrastructure development. This list is intended to capture the full range of possible funding sources at federal, state, regional, and local levels, recognizing that funding sources may derive (trickle down) from larger funding sources, and that project funding requirements and awards are largely dependent on respective funding streams.

Additional Implementation Guidance

In addition to funding, implementation of the Lane County Bicycle Master Plan will require dedication and involvement from a wide range of community partners. Figure 16 illustrates the relationship between the County and its partners in the context of implementation of the Plan's recommendations. Appendix H provides additional guidance for the County to support implementation. Table 4 outlines specific implementation actions for the County to tackle, including implementation partners and additional details.

Figure 16. Key Partners and Roles in Implementation



Absent additional funding, short-term implementation strategies for improving bicycling conditions on the bicycle network include considering the following as part of pavement preservation projects:

- Reallocating roadway space by narrowing the number and width of vehicle travel lanes to provide shoulder space for bicycling
- Adding pavement to roadway shoulders that have sufficient gravel base.

The flowchart in Figure 17 provides an example decision-making framework used by ODOT.

Tracking implementation progress through the use of performance measures will help Lane County communicate successes and challenges to the community and provide data to decision makers if further support or action is needed.

Appendix H lists performance measures that could be used to support each Plan goal. Due to the difficulty in tracking all of these measures, suggestions for measures for which data is more readily available is recommended.

Figure 17. ODOT Decision-Making Flowchart

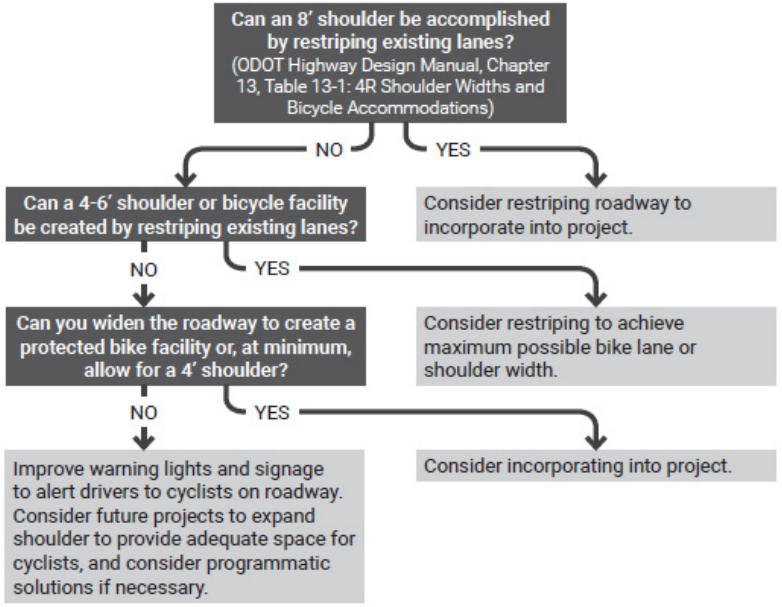


Table 4: Implementation Actions Matrix

ACTION	IMPLEMENTING PARNTERS	NOTES/CONSIDERATIONS/EXAMPLES
1. Establish typical design standards to clearly identify urban/rural transition zones on County Roads.	Internal	Some roads will require greater or lesser accommodation for all modes, based on the surrounding land use context, and will vary in application throughout the County. Consult ODOT's Blueprint for Urban Design (BUD) for guidance based on ODOT-designated urban, suburban and rural contexts.
2. Coordinate with partner agencies to identify alternative connections where on-street facilities are not feasible on County roads, and support them in their planning processes. Recommend the Parks Division create a Trails Plan addressing regional trail connectivity between parklands.	Oregon Department of Transportation (ODOT), Willamalane Park and Recreation District, local jurisdictions, National Forest Service (NFS), Bureau of Land Management (BLM)	This planning process identified need for improvements on networks outside of the County-owned street network, and demonstrated that all Lane County bicycling networks are interdependent. The County should use this Plan as a platform to communicate the need for continued planning and coordination with project partners in regards to their own planning processes to support biking. Consider a proposed bicycle facility's importance in providing access to the Lane County Bicycle Network when recommending bicycle facilities on other networks for implementation.
3. Consider forest roads and gravel roads as opportunities for Lane County Bicycle Network development.	NFS, BLM, Willamalane Park and Recreation District, Travel Lane County, U.S. Army Corps of Engineers (ACOE)	Work with partner agencies to encourage access, enhance routes and close network gaps on gravel and forest roads identified in the Lane County Bicycle Network.
4. Identify opportunities to enhance connections to off-road, recreational bicycling routes outside of the Lane County Bicycle Network, while clearly communicating the intended users for such routes.	NFS, BLM, Willamalane Park and Recreation District, Travel Lane County	See proposed amendment to TSP Policy 6-c. Specific actions include: • Partner with agencies that administer forest roads and park lands to encourage public access for walking and biking. • Identify opportunities to re-purpose right-of-way, including haul roads and abandoned rail lines, for off-road cycling • Partner with other transportation and economic development agencies/organizations to coordinate and promote the development of county-wide recreational routes of regional significance.
5. Consider other safety interventions, including speed reduction and roadway redesign, when selecting appropriate facility designations on the Lane County Bicycle Network.		The recommended facilities on the Lane County Bicycle Network contained on this Plan are based on current roadway conditions, and are subject to revision over time. Safety and comfort for cyclists may also be enhanced by interventions such as speed reduction or roadway reconfigurations (i.e. road diets) that may inform a change in the recommended facility type.
6. Provide appropriate roadway surface type for bicyclists on newly constructed or reconstructed roadways, including temporary bicycle access during roadway construction or maintenance.	Internal	Considerations include providing a smooth, level path of travel, of generous width, physical separation, and clear instruction/signing through construction zones, and ensuring that on shoulder bikeways, rumble strips/stripes and drainage grates are placed so as not to interfere with the bicycle path of travel. It also speaks to maintenance concerns about debris, loose gravel, rutting, etc. in the shoulder/bikeway which can pose a significant challenge for bicyclists.

7. Develop a consistent and intuitive regional wayfinding system on the Lane County Bicycle Network.	ODOT, local jurisdictions, Lane Transit District, Travel Lane County	Establish a regional wayfinding system for bicycle routes and other points of interest throughout the region. After more of the longer distance routes are connected throughout the region, a wayfinding system is recommended to create a cohesive and easy-to-use platform for navigating the regional bicycle route system. The system should be designed so that it is flexible enough to be updated as new projects are completed, Coordinate with ODOT Scenic Bikeways wayfinding system, which already identifies many bikeways in Lane County. See NACTO's guidance on wayfinding programs: https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/
8. Consider the implications of e-bikes on medium and long-term Plan implementation.	ODOT, local jurisdictions	There are several considerations, including increased demand for longer-distance bicycling connections, and presence of bicyclists (including those of varying ability) on rural and/or more topographically challenging routes.
9. Improve access to and understanding of emerging technology that supports bicycling including e-bikes, bike share, and multimodal integrated trip planning (Mobility-as-a-Service).	Local jurisdictions, Lane Transit District	The purpose of this action is to expand the availability of emerging technology and shared travel options to smaller cities and neighborhoods in the region, many of whom may have interest in these applications but do not have the capacity to implement them. Lane County could support partner jurisdictions in areas such as determining feasibility of pilot programs such as bike share or promoting commercial services/amenities that support e-bikes.
10. Develop a bicycle count program to measure trip volumes on the Lane County Bicycling Network, and use metrics as a tool to inform both project prioritization and evaluation.	CLMPO	Bicycle facility usage data is needed to strengthen grant requests and influence policy and funding decisions. A lower-cost solution to a bicycle count program can include using Strava's available metrics to understand trip volume and popular routes. See the Performance Measures section of this Plan for additional guidance.
11. Coordinate with public and private transit providers to leverage opportunities to incorporate options for bicycles, and prioritize projects that improve access to transit and offer first/last mile benefits.	Lane Transit District, Travel Lane County	Use the Demand Analysis prepared as a part of this planning process to inform this Plan, and/or rely on demand metrics provided by transit providers to determine need and prioritization.
12. Use the Equity Analysis metrics and public input provided in support of this Plan to prioritize improvements to the Lane County Bicycle Network in transportation disadvantaged communities.	Internal	See proposed amendment to TSP Policy 1-d, and also the Performance Measures section of this Plan for guidance on tracking this goal.
13. Expand bike share to other jurisdictions and areas beyond the Eugene-Springfield metropolitan area.	Local jurisdictions, ODOT, Cascadia Mobility	Bike share systems offer a number of benefits to the cities that choose to invest in them. Benefits can include getting more people on bicycles, improved community health, economic benefits, and synergies with public transit. Well-planned expansion can also lead to ridership increases and increased viability as a transportation option. Sponsorships are used to offset operating costs and private property owners can partner with the siting and installation of stations.
14. Develop bicycle parking requirements and encourage end of trip facilities.	Internal	Examples of support for end of trip facilities include: working with rural communities to develop lower density parking requirements, establishing bike parking requirements at County facilities, or strategizing around centralized rural "Mobility Hubs" with transit providers. Association of Pedestrian and Bicycle and Professionals' Bicycle Parking Guidelines: http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/bpg_exec_summary_4-21-10.pdf

15. Develop a Request-a-rack program to address unmet demand for bicycle parking at businesses in unincorporated Lane County.	Local jurisdictions	A "Request-A-Rack" program can help address unmet demand for bicycle parking at existing businesses. City of Tucson Bicycle Parking Distribution Policy: https://www.tucsonaz.gov/files/bicycle/Bike_Rack_Distribution_Policy.pdf
16. Increase local capacity to execute and administer education and encouragement programs throughout Lane County.		Local capacity may refer to County staff and program funding and/or funding provided to local jurisdictions or community organizations.
17. Support and increase the existing capacity of the Lane County Safe Routes to School (SRTS) program.		While many schools and communities across the region have successfully engaged in these types of programs in the past, it is recommended that all schools and communities aim to increase the number of elementary and middle school students who safely walk and bike to school. See ODOT SRTS Program resources: https://www.oregon.gov/odot/Programs/Pages/SRTS.aspx
18. Incorporate bikeways into County transportation planning and project development.		For any development / redevelopment projects involving changes to County roadways, determine if those changes present an opportunity for timely or more cost-efficient implementation of Plan recommendations.
19. Develop an annual or semi-annual maintenance plan for County roads that includes the removal of potential hazards from bike lanes, shoulders and routes such as overgrown vegetation, debris, and snow..		As the existing system is refined and proposed recommendations are implemented, Lane County should establish a maintenance program and secure additional funding/resources for sweeping, pavement management, and weed abatement and eradication.
20. Develop a system for identification and tracking of new and recurring funding sources for bicycle infrastructure and programs including SRTS, Community Paths, bikeshare services for small communities, etc.		Up-to-date and easily accessible funding data can help transportation planners and engineers make better and more timely decisions, and be poised to take advantage of opportunities to implement Plan recommendations.