



# WILLAMAZON CONNECTOR

Completing the Bikeways of Eugene, Oregon

## ABSTRACT

Bicycle routes are too often focused on segments of roadways that often redirect cyclists to less desirable streets on their journey. Bicycle routes should be considered as networks for all riders, including those who have yet to start biking. This paper analyzes the city of Eugene's built infrastructure as a system and recommends specific and manageable roadway changes to the bicycle network for creating better downtown accessibility and completing a vision 30 years in the making.

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## INTRODUCTION

Most arguments over bicycle transportation devolves into over-generalized, misleading representations of bicyclists as scofflaws and anarchists. It is true that in the United States this perception is prevalent, however, it is a stereotype perpetuated by the media and zealous automobile advocates. Despite the reputation, research continues to de-bunk the myths of cyclist behavior.

In the city of Eugene, bicycle commuting is widespread and wholly acceptable by the community. Like most U.S. cities though, infrastructure is incomplete, piece-meal, and woefully inadequate of the average rider. Bicycle maps often suggest a circuitous, and meandering set of inconsistent bike routes to go from point A to point B. This style of cobbled together bike routes fails to meet the criteria of a “world-class biking city.”

So, let’s pretend for a moment that bicyclists only need a couple options for crossing town. Let’s pretend that the tradeoff for confining bicycles to only a few arterials is that these arterials are as safe as possible for their mode. What would it take to complete this compromised vision of safe bicycling infrastructure? Where the gaps— and what are the needed facilities—for bicyclists ages 8-80 to feel safe and be comfortable as a legitimate road user?

I do not suggest that Eugene is a poor cycling city. On the contrary, the culture, attitudes, infrastructure, and geography make it a top cycling city on the West coast. However, it is necessary to illuminate a grand vision of a safe bicycle network to bring livability into our collective conscience. It’s often hard to think beyond our current frame of mind, or to envision entire transportation systems. So let’s continue to pretend that cyclists don’t want safe access to all the streets their taxes fund. Let’s just imagine the simplest of bicycle networks.

## PURPOSE

The intent of this paper is to inspire the city of Eugene to think critically about the goals and objectives previously adopted by the community through publicly guided plans. It will offer strategic recommendations to leverage as much system wide improvement, for the least amount of effort. While assessing streets at an individual level may match our bandwidth as planners of the built environment, this paper challenges the reader to *think holistically* about bicycle transportation and consider infrastructure as a *system of safe, encouraging, and connected pathways*.

## **BACKGROUND**

### *WHO RIDES BIKES?*

In 2009, Roger Gellar established the 4 typologies of bicyclists through preliminary research and studies of the general population. His research concluded that merely 7% of Portland residents feel confident enough to ride a bicycle on the existing roadways. His study also concluded that more than 60% of Portlanders are interested in cycling, but have strong fears about riding in city environments.<sup>1</sup> Mr. Gellar's research should focus transportation planners to create desirable places to ride a bicycle for purposes other than recreation.

### *WHERE DO THEY RIDE?*

There is no obvious answer to this question. While many would say, bicyclists ride in the bike lanes, others would argue that bicyclists ride where they can. Because roads are built with a specific design speed, regardless of the anticipated posted speed, traffic flows at a higher rate than posted generally. This affects comfort, safety, and desirability of roadways that may be intended as bicycle routes through town. Current research suggests through quantitative analysis that people prefer off-street paths, followed by bicycle boulevards. Furthermore, subjects prioritized routes based on the least amount of traffic and then the shortest path.<sup>2</sup>

### *WHAT DO THEY WANT TO RIDE TO?*

Bicyclists are not an enigma. They are people like all of us. Just as drivers wish to go shopping downtown, so do bicyclists. The library, cafés, grocery store, bus terminal, pub, city hall, music venue. These are all destinations that bicyclists want to pedal to as easily as drive. If you locate your civic amenities downtown, that's where people will want to go. As downtowns are the most congested area of a city, safe bicycle infrastructure only becomes more critical to protect and encourage residents who choose to bicycle.

### *WHAT HINDERS PEOPLE FROM PEDALING?*

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<sup>1</sup> Gellar, Roger (2009). "Four Types of Cyclists". Portland Bureau of Transportation.

<sup>2</sup> Broach, et al (2012). "Where do cyclists ride? A route choice model developed with revealed preference GPS data". Transportation Research. 1730-1740

An evaluation of Portland’s SW Broadway cycle track analyzed traffic and survey responses of both motorists and cyclists. The survey responses from both groups indicated that the cycle track provides much needed safety to the corridor. It also proved to maintain an acceptable Level of Service (LOS) throughout the corridor, quelling fears of automobile back-ups.<sup>3</sup> Yet time and again, research into bicyclist motivations, incentives, and disincentives demonstrate that cycling facilities, perceptions of safety, land use patterns, and automobile restrictions are the most important factors for people to start pedaling instead of driving.<sup>4</sup> Ultimately, facility design is not keeping pace with public desirability and needs in regards to bicycle transportation.



*Commuters in Albany, NY contend with vehicles on the roadway*

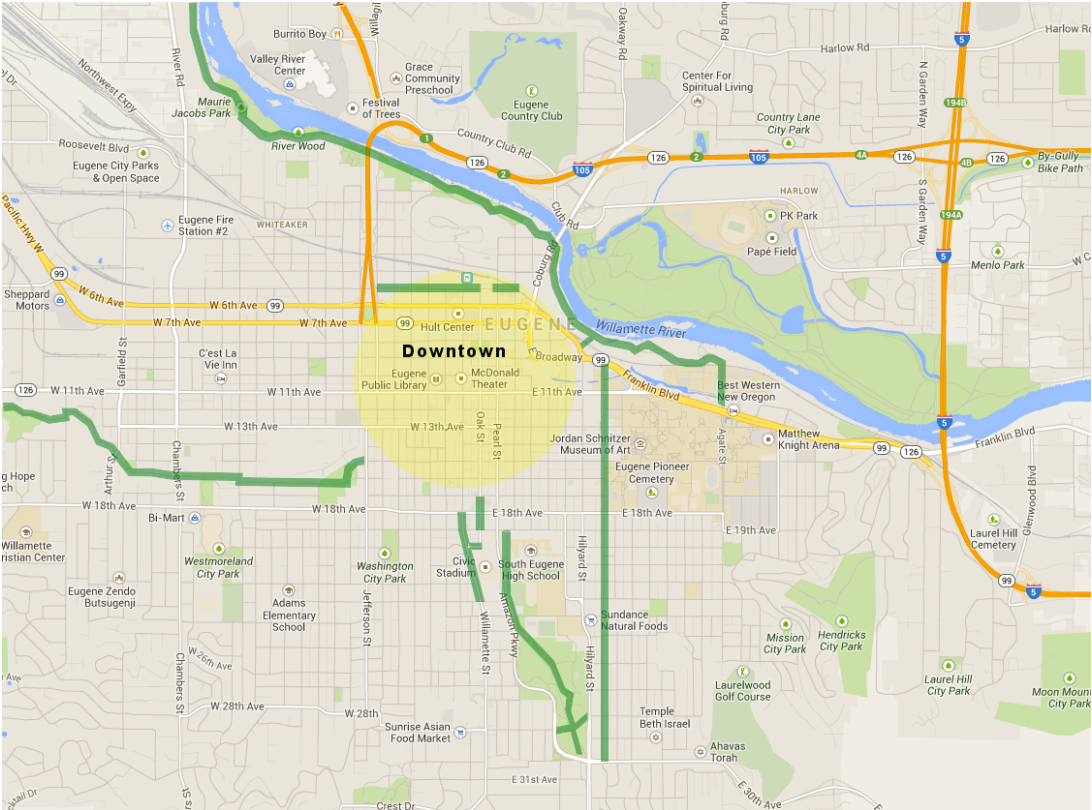
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<sup>3</sup> Monsere, Christopher (2011). “Evaluation of Innovative Bicycle Facilities”. Portland State University, Center for Transportation Studies.

<sup>4</sup> Pucher et al (2010). “Infrastructure, programs, and policies to increase bicycling”. Preventative Medicine.

**EXISTING BICYCLE NETWORK**

So as we've concluded what constitutes adequate bicycle infrastructure for safety and encouragement, let's examine the city of Eugene:

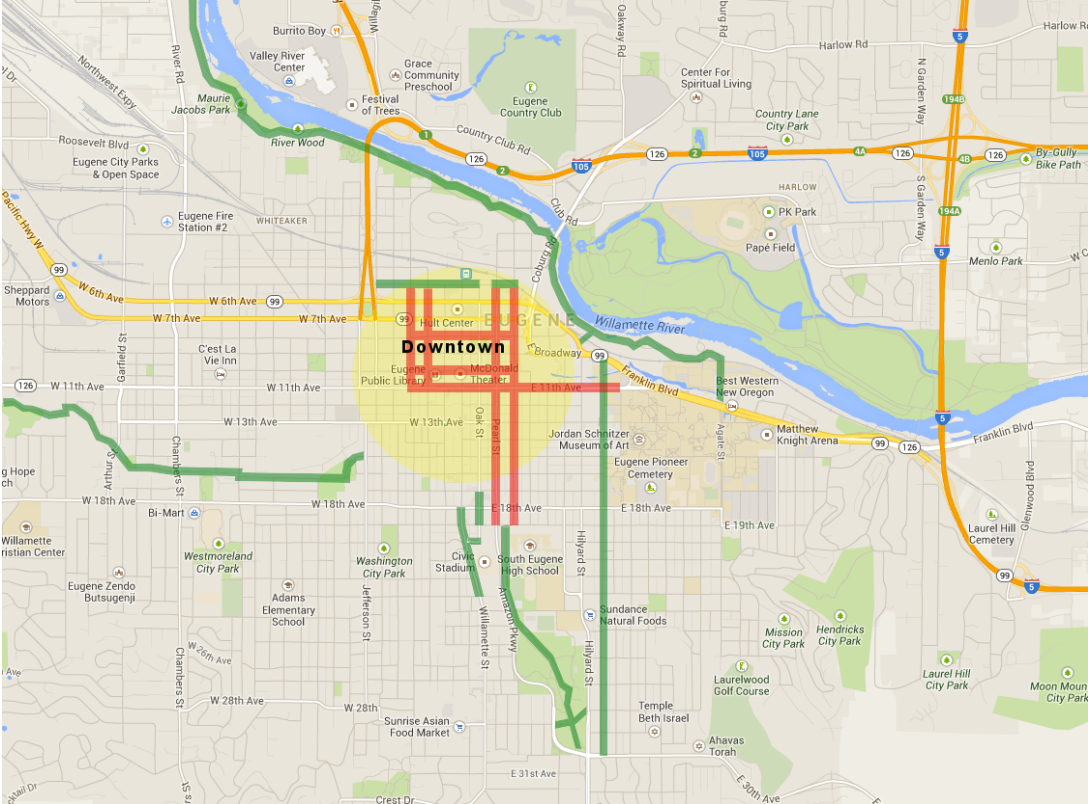


*Figure 1: Existing buffered bike routes nearby downtown*

The green highlighted routes show safe and comfortable routes. The River Bank trail system is depicted above by the south side segment along the Willamette River. Amazon path to the south of downtown reaches recreational facilities and major neighborhoods to both the east and west. Parallel to University of Oregon is Eugene's only two-way on-street protected bikeway, where at the south end it becomes a highly functional bike boulevard. And connecting much of West Eugene is the Fern Ridge path that ends westerly at Jefferson. Unfortunately, the off-street and buffered bike lanes present in Eugene do not travel through, or into, the downtown area, where destinations like the Eugene Public Library, Lane Community College, or the revitalized downtown entertainment attract many segments of the population. While the River Bank, Amazon, and Fern Ridge bike paths provide excellent protection, comfort and desirability, there are major gaps between these world class facilities that serve both recreational and commuting purposes.

*POINT A TO POINT B, VIA POINTS C, D, E, F...*

The map below shows the downtown core (yellow circle), and the bike lanes available to cyclists (red). The green lines represent the off-street, buffered, or otherwise adequate infrastructure for cyclists of all ages and abilities (also see figure 1). Readers should note again that none of these safe forms of bicycle infrastructure penetrate the downtown core. In addition, none of the bike lanes entering downtown are extensions of the common off-street facilities, except for High Street. While bike lanes exist downtown, this map shows the specific streets, limited length, and indirect nature of present bicycle routes.



*Figure 2: Current buffered bike routes and downtown bike lanes*

With the limited number of streets that cyclists are encouraged to ride via local signage, bicycle maps, and roadway characteristics and use, it is a wonder that bicycle routes are not prioritized as systems over anything else. As referred to before, let's just assume that cyclists will settle for a single crosstown route in each cardinal direction. At this point in time, there are no direct routes for less confident riders to travel the entirety of town, and these gaps in the system are most clearly depicted in the downtown core, a vital destination for all residents.



**PROPOSED CONNECTIONS**

*THE BIG PICTURE*

The map below depicts the current buffered and off-street paths with only 3 small changes to help access downtown from all 4 cardinal directions. An extension of the Alder Street cycletrack along 13<sup>th</sup> Avenue, as proposed by University of Oregon student group LiveMove, would provide a direct campus to downtown connection in both directions.<sup>5</sup> Also, a bike boulevard is recommended as an extension of Fern Ridge path from Jefferson Street to Olive Street, with a dog-leg connector to 13<sup>th</sup> Avenue on Olive. Most importantly, a 2-way buffered bike lane or cycle track is suggested to make the connection from Amazon to 5<sup>th</sup> Avenue, serving 13<sup>th</sup> Avenue and the River Bank path system as well. These simple additions will fill much needed gaps in the infrastructure and allow people to penetrate downtown safely by bike.

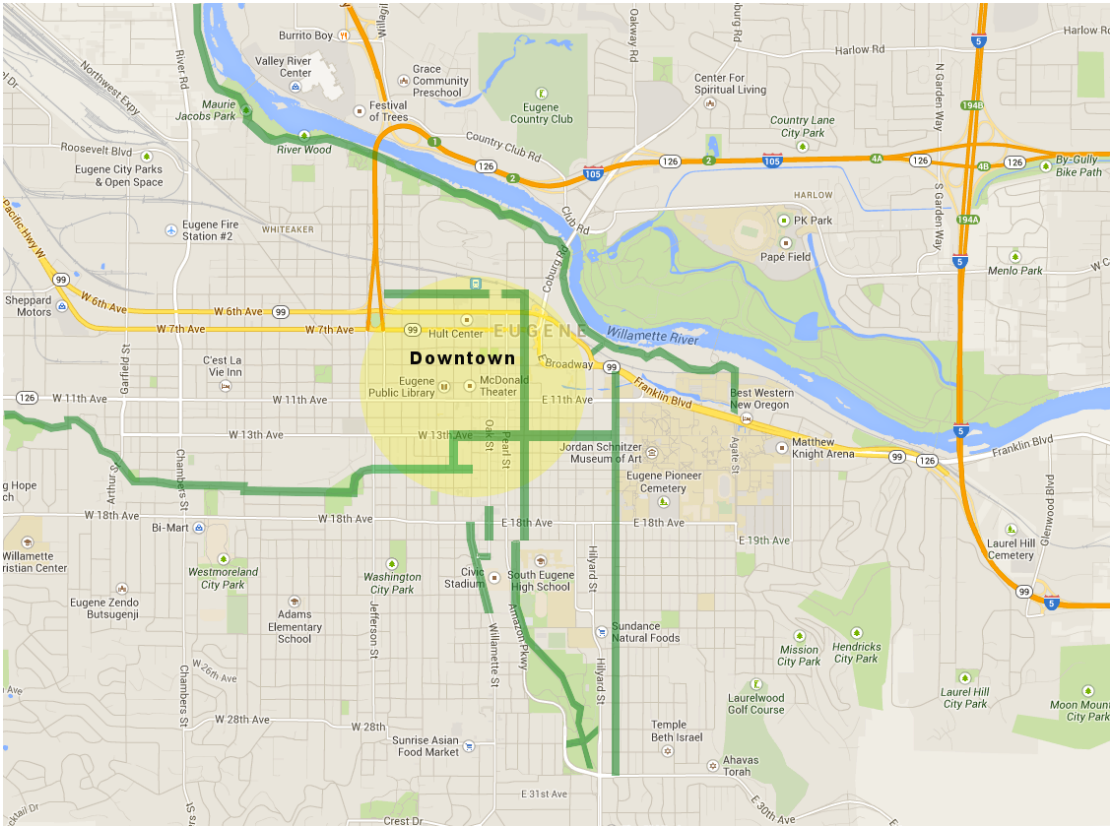


Figure 3: Proposed buffered bike routes for immediate implementation

<sup>5</sup> LiveMove (2013). “13<sup>th</sup> Avenue: Downtown-Campus Corridor Concept Plan”. Sustainable Cities Initiative.

## *WILLAMAZON CONNECTOR*

In terms of system wide infrastructure, the High Street connection is a crucial link to serving downtown and the north and south off-street paths. This critical connection can be branded to increase notoriety, gain public support, and simplify directions for those attempting to cross town. It's here that I propose the city of Eugene use the name Willamazon Connector. This name is indicative of the start and finish for the downtown link of these two path systems.



*Graphic Rendering: Willamazon Connector (High Street between 17<sup>th</sup> and 16<sup>th</sup>)*

The proposed Willamazon Connector is 1.06 miles in length stretching from 19<sup>th</sup> Avenue to 5<sup>th</sup> Avenue. A facility of this magnitude has been suggested in the 2012 Bicycle Pedestrian Master Plan for Eugene, but with a 20-year timeline and a cost of \$1.8 Million.<sup>6</sup> This figure may be substantially higher than necessary. Although there are 8 signalized intersections along the route, informal discussions with traffic engineers suggest that modified and swapped signal heads can reduce costs substantially. While paint should remain a relatively low-cost for 1 mile of striping, signage may also help to reduce new conflicts with roadway users and be a cheaper option than elaborate signalization.

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<sup>6</sup> Bicycle Pedestrian Advisory Committee (2012). "Master Plan". City of Eugene.



### *MAKING THE CASE FOR BETTER FACILITIES*

Despite all the information outlined above, the most important aspect to consider are local plans, culture, and community ideologies. The city of Eugene is highly process oriented and places great emphasis on public participation.<sup>7</sup> Eugene should take pride in the goals, policies, and spirit that the community directs our leaders and planning staff to move. The community has already established a direction for the community to move, it is now up to the city to create this vision.

The Envision Eugene plan calls for providing compact urban development, efficient transportation options, and addressing climate change at the local level. This publicly-shaped document asks the city of Eugene to “plan growth to reduce the need for vehicles” with “continuous and direct routes, and convenient connections” for cyclists.<sup>8</sup>

In addition to the documents that shape the overall planning of Eugene, the Eugene Transportation System Plan (TSP) explicitly states in Goal 3: “Require bikeways to connect to new development with nearby neighborhood activity centers and major destinations.” As the city of Eugene revises the TSP, draft goals also push the activities to promote safe cycling infrastructure by creating “an integrated multimodal transportation system that is safe and efficient,” and “reduces reliance on single-occupancy vehicles”. Other goals also demand consideration of health, well-being, and social equity when planning transportation systems in Eugene. And draft Goal 3 seeks “adaptations to transportation networks.”<sup>9</sup>

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<sup>7</sup> City of Eugene, Planning Division (2013). “What We Do”. <http://www.eugene-or.gov/index.aspx?NID=758>

<sup>8</sup> Envision Eugene (2012). City of Eugene.

[http://issuu.com/cityofeugenerecreation/docs/ee\\_recommendation\\_v.2/1?e=0](http://issuu.com/cityofeugenerecreation/docs/ee_recommendation_v.2/1?e=0)

<sup>9</sup> City of Eugene (2013). Draft Goals, Objectives and Policies of Transportation System Plan.

[http://www.centrallanertsp.org/sites/default/files/EugeneTSP\\_GoalsObjectivesPolicies\\_ToTCRG.pdf](http://www.centrallanertsp.org/sites/default/files/EugeneTSP_GoalsObjectivesPolicies_ToTCRG.pdf)

**ANALYSIS**

*HIGH STREET*

On Thursday, December 5<sup>th</sup> at 3:00pm, I conducted a preliminary observation of the corridor to assess qualitative data about the street environment, as well as quantitative data about parking, parking occupancy, type of parking, and number of lanes. Also, Average Daily Traffic counts were used to analyze traffic and parking together on block by block segments. The table below shows the data collected for High Street, sorted by block from the south to north between 19<sup>th</sup> Avenue and 5<sup>th</sup> Avenue:

<b>Block</b>	<b>Type</b>	<b>Parking Spaces</b>	<b>Occupancy</b>	<b>Lanes</b>	<b>Direction</b>	<b>ADT</b>
19th-18th	No Permits/Restrictions	10	80.00%	2	N Only	6600
18th-17th	2-hour; Neighborhood Permit	11	81.82%	2	N Only	6600
17th-16th	2-hour; Neighborhood Permit	6	33.33%	2	N Only	6600
16th-15th	No Permits/Restrictions	14	92.86%	2	N Only	6600
15th-14th	No Permits/Restrictions	6	83.33%	2	N Only	6600
14th-13th	No Permits/Restrictions	11	90.91%	2	N Only	6600
14th-13th	30 Minute Commercial	2	50.00%	2	N Only	6600
13th-12th	2-hour; Neighborhood Permit	7	85.71%	2	N Only	7700
12th-11th	2-hour; Neighborhood Permit	7	42.86%	2	N Only	8500
12th-11th	30 Minute Commercial	1	0.00%	2	N Only	8500
11th-10th	Meter (2-hour)	16	6.25%	2	N Only	8100
10th-9th	Meter (2-hour)	15	6.67%	2	N Only	10600
9th-8th	Meter (2-hour)	9	0.00%	3, 4	N Only	9300
8th-7th	Meter (2-hour)	6	0.00%	3	N Only	9600
7th-6th	Illegal (travel lanes)	0	---	2	N Only	4200
6th-5th	Meter (1- and 2-hour)	18	50.00%	2	N-S	3800

*Table 1: High Street Parking Study*

Preliminary analysis suggests that High Street has a demand for parking on the south end, but does not require 2 lanes of traffic for the relatively low ADT number collected in 2013. This is likely the result of High Street beginning at 19<sup>th</sup> Avenue and not acting as a thoroughfare from South Eugene to Downtown. As High Street crosses 12<sup>th</sup> Avenue, parking and ADT switch in dominance of street use. ADT increases substantially as Downtown streets funnel automobiles towards High Street where access to Coburg Road and Franklin Boulevard are encouraged. Conversely, parking occupancy on these street segments plummets and becomes wasted space for the public domain. There is adequate room to spare on High

Street without removing high-demand parking spaces or travel lanes. At certain intersections, like 8<sup>th</sup> Avenue and High Street, a shared through and right-turn travel lane may need to be implemented.

### *13<sup>TH</sup> AVENUE*

Efforts are currently being made to implement a two-way buffered bike lane on 13<sup>th</sup> as a downtown-campus connector.<sup>10</sup> The process unfolding with 13<sup>th</sup> Avenue is based on a unique case of student volunteers redesigning the corridor based on parking, traffic, bicycle, transit, and pedestrian data. In depth study like this cannot be performed all the time. Should the city of Eugene find the data valid from the 13<sup>th</sup> Avenue student design plan, much of that data collection can be repeated at low cost. Furthermore, extrapolations may be performed to understand the dynamics of the road and potential focal points in the analysis and implementation to speed up research and study performed by staff.

### *15<sup>TH</sup> AVENUE*

The Fern Ridge path ends eastbound just before Jefferson Street. At Jefferson, safety is an issue as cars tend to travel fast and visibility can be difficult. The traffic and street design is perfectly ripe for a bicycle boulevard treatment on 15<sup>th</sup>, much like the south end of Alder Street. As properly designed and placed bicycle boulevards are highly desirable for current and potential cyclists, 15<sup>th</sup> Avenue should be considered for long term vision that connects downtown to West Eugene.

### *POTENTIAL IMPACTS, LIMITATIONS, AND FURTHER STUDY*

The greatest potential for traffic impacts lies with a High Street conversion of parking and traffic lanes. Further study must be conducted to understand the habits of residents and commuters along High Street. Also, between 6<sup>th</sup> and 5<sup>th</sup> Avenues there will be design problems to overcome with parking and through traffic for bicycles. As stated before, signalization and costs will have to be weighed against immediate demand for facility improvements. Little to no study needs to be conducted for 15<sup>th</sup> Avenue and Olive Streets. As for 13<sup>th</sup> Avenue, similar problems exist for this stretch as they do on High Street.

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<sup>10</sup> [www.livemove.org/13th](http://www.livemove.org/13th)

EXAMPLES OF ADEQUATE FACILITIES









## RECOMMENDATIONS

It is my recommendation that the city planning department prioritize the connections discussed in this report (High Street, 13<sup>th</sup> Avenue, 15<sup>th</sup> Avenue, and Olive Street). The bones of a great bicycle system are in place, but the gaps present in the downtown core magnify the accessibility issues for current and potential bicyclists. Linking High Street with the River Bank and Amazon paths will send a clear message to the community that bicycle transportation is a priority for safety, equity, sustainability, and livability issues set forth by the residents of Eugene. Connecting east-west routes through 15<sup>th</sup>, 13<sup>th</sup>, and Fern Ridge path will create a system that, despite being a compromise for most cyclists, will satisfy system-wide connectivity problems.

### *HIGH STREET*

- Implement a two-way buffered bike lane from 19<sup>th</sup> Avenue to 5<sup>th</sup> Avenue.

### *13<sup>TH</sup> AVENUE*

- Implement the alternative set forth by LiveMove, a two-way buffered bike lane.

### *15<sup>TH</sup> AVENUE*

- Implement stop sign treatments by adding one to Jefferson Street and switching stop signs at various intersections to establish a bike boulevard from Jefferson Street to Olive Street.

### *OLIVE STREET*

- Implement facility treatments to guide cyclists and create awareness for motorists that Olive connects 13<sup>th</sup> buffered lane to 15<sup>th</sup> Bike Boulevard.