



P.O. Box 974
Ashland, OR 97520

Bike Lanes and Why They Are Necessary

- A Technical Paper -

November 2015

PART 1: The County's prohibition of bike lanes other than where sidewalks/pedestrian paths are adjacent to the roadway.

The existing policy set forth in Jackson County's TSP (and 10/14/14 M. Kuntz memo – attached as Exhibit A) limiting bike lanes to County roads with “pedestrian facilities” on both sides of the road is ill conceived.

Official Justification:

The official justification for not designating bike lanes is based upon the following statement:

“The shoulders on county high-speed rural facilities serve a multi-use function. This wide area is intended to serve as a facility for cyclists to ride on, for runners and joggers and pedestrians to walk in, for short-term parking and as an emergency breakdown area, and for an area for motorists to safely pass a vehicle making a left-turn on a two-lane road.”
(J. Vail, 10/30/14 memo – attached as Exhibit B)

Response:

We agree with the statement concerning the variety of functions that roads serve. It is the conclusion that bike lanes somehow preclude the other activities listed above that we take exception to.

- 1) **Pedestrians:** The designation and marking of bike lanes does not physically preclude runners, joggers and pedestrians from using these facilities nor does their use of bike lanes pose a verifiable conflict with cyclists. There have been no reported collisions (or even close calls) between these other road users and people riding bicycles (based upon the experience of the Velo bicycle club's 260 Club members) nor have there been any citations issued for walking/jogging in bike lanes in Jackson County. There are, in contrast, daily conflicts between motor vehicle drivers and people riding bicycles. Motorist often pass cyclists in violation of State law (Oregon Revised Statutes 811.065) encroaching illegally on the right-of-way set aside for people riding bicycles (see Part II, Section D).

People riding bicycles are ever alert to the roadway. Cyclists must be, for their own safety, ever diligent in their observation of autos entering the roadway from side streets and driveways as well as objects in their path: rocks, lumber, shreds of tires, etc . With this degree of watchfulness it can be safely assured that cyclists see runners and walkers on the roadway a long way in advance of actually passing them. When they are present, cyclists merge into the travel lane and provide a wide berth (see ORS 814.420 and ORS 814.430). There is essentially no danger of collision.



P.O. Box 974
Ashland, OR 97520

To rely exclusively upon the definition of “bike lane” (as Vail does in his 10/30/14 memo) and ignore the balance of the statutes governing both bicycles and pedestrians is a simplification of law. Oregon’s definition of “bike lanes” does limit their use to bicycles (ORS 801.155), presumably to make clear that auto/trucks cannot use bike lanes. Similarly, the definition of “shoulder” (ORS 801.480) limits its use “primarily for use by pedestrians.” Taking the two definitions together without looking at the balance of the ORS would suggest that cyclists must operate in the travel lane (when there isn’t a bike lane) and cannot operate on the shoulder. That would be consistent with ORS 814.400 which states “every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle concerning operating on highways”...

A quick review of other statutes included in ORS 814 makes clear that pedestrians have the right-of-way on paved shoulders as well as bike lanes. Both ORS 814.420 and ORS 814.430 explicitly acknowledge that people riding bikes will encounter a “pedestrian that is in the bicycle lane or path” and they can deviate from the bike lane or right edge of the roadway to safely pass pedestrians. These statutes plus ORS 814.400 makes clear that operating a bike whether in a bike lane or on a shoulder “does not relieve a bicyclist or motorist from the duty to exercise due care.” Had the legislature intended to prohibit pedestrians from using bike lanes there would be a State statute identifying it as a violation of the vehicle code and established a penalty for violation as with autos per ORS 811.435.

Additionally, “811.135, Careless driving; penalty, provides a person commits the offense of careless driving if the person drives any vehicle (emphasis added) upon a highway or other premises described in this section in a manner that endangers or would be likely to endanger any person or property.” Consequently, a bicyclist or any other vehicle driver who carelessly endangers any pedestrian (i.e. person) is subject to penalty. Complementary legislation, ORS 811.140 Reckless driving; penalty provides that “a person commits the offense of reckless driving if the person recklessly drives a vehicle upon a highway or other premises described in this section in a manner that endangers the safety of persons or property.” As defined by ORS 161.065, “Recklessly, when used with respect to a result or to a circumstance described by a statute defining an offense, means that a person is aware of and consciously disregards a substantial and unjustifiable risk that the result will occur or that the circumstance exists. The risk must be of such nature and degree that disregard thereof constitutes a gross deviation from the standard of care that a reasonable person would observe in the situation.”

The State statutes taken as a whole (as contrasted with limiting one’s review to the definitions) illustrate that vehicle drivers, which people riding bicycles are considered in the State, have an obligation and are legally bound to avoid pedestrians independent of whether they are walking on the road shoulder, bike lane, or in the travel lane itself. The County’s policy of limiting bike lanes to locations where there



P.O. Box 974
Ashland, OR 97520

are pedestrian facilities on both sides of the street is not justified based upon State statutes.

- 2) **Emergency Parking:** Short-term parking, for a disabled vehicle, is permitted under ORS 811.570, Improperly Positioning Parallel Parked Vehicle. Section two of the statute specifically states: “the provisions of this section do not apply to the driver of a vehicle that is disabled in such manner and to such extent that the driver cannot avoid stopping or temporarily leaving the disabled vehicle in a position prohibited by this section.” Further support for this view comes from the Oregon Bicycle and Pedestrian Plan. “Motorists are prohibited from using bike lanes for driving and parking, but may use them for emergency avoidance maneuvers or breakdowns.” (ODOT, Bicycle and Pedestrian Plan, Appendix L, Bike Ped Design Guide, page 1.1)
- 3) **Parking:** ORS 368.256 prohibits “any structure, tree, drainage way, soil deposit or other natural or man-made thing on that land to present a danger to or create a hazard for the public traveling on a public road or facilities within the right of way of the public road by obstructing, hanging over or otherwise encroaching or threatening to encroach in any manner on a public road that is under county jurisdiction.” A car parked on the paved portion of the right-of-way clearly creates a hazard just as any other object would (including solid waste and recycling containers). Rarely (almost never) is an auto parked on the pavement. Most people know to park well off the pavement in rural areas so as to avoid having their vehicle hit by a passing car and to obey the law. Parking along rural roadways need not preclude designation of bike lanes.
- 4) **Passing on the right:** ORS 811.415, Unsafe passing on right: states, in part, passing on the right is only permitted when:
 - “(A) The overtaken vehicle is making or the driver has signaled an intention to make a left turn;
 - “(B) The **paved** portion of the highway is of sufficient width to allow two or more lanes of vehicles to proceed lawfully in the same direction as the overtaking vehicle; and
 - “(C) The roadway ahead of the overtaking vehicle is unobstructed for a sufficient distance to permit passage by the overtaking vehicle to be made in safety.”“Paved” portion (article B) can only be interpreted to include the paved shoulder or bike lane. Thus the designation of a bike lane has no effect on the legality of passing on the right.

Conclusion: Oregon statutes nor the experience of cyclists/pedestrians/joggers support the position set out in the 10/30/14 memo (and the County TSP) to designate bike lanes **only** where pedestrian facilities are present on both sides of the road. Most telling, ODOT and all other local governments don’t consider sidewalks as a factor in designating bike lanes.



P.O. Box 974
Ashland, OR 97520

Part II: Why bike lanes are essential to the creation of a multi-modal transportation network within the Metropolitan area and the benefits thereof.

Section A: Network Issues

“The transportation network encompasses not just a person’s immediate neighborhood or community, but also the entire region or metropolitan area. Connected bicycle and walking networks and designated pedestrian zones and amenities can provide safe, reliable, and equitable access to robust transit networks, providing viable and reliable travel options for all.” - See more FHWA: <http://www.transportation.gov/policy-initiatives/ped-bike-safety/safer-people-safer-streets-pedestrian-and-bicycle-safety#sthash.IEmST8Fg.dpuf>

“Facilities for cyclists, whether on-road or off-road, should be part of a network that connects cyclists to urban, suburban, and rural land uses. The context of the road for a bicycle facility is a key element that should be considered in the design. The type and level of accommodation must be appropriate for the characteristics of the surrounding conditions. A “one-size-fits-all” approach may result in an underutilized facility or a facility that does not improve cycling safety, and, in some instances, may degrade cyclist safety. There are several factors that should be considered in all contexts to provide safe accommodations for cyclists.

“Directness—The cycling network should be direct between key destinations, considering both distance and time.[\(17\)](#) On a corridor level, it is important to understand the “desire lines” of cyclists accessing key destinations. While directness typically refers to the shortest path to access destinations, it is influenced by travel time factors (e.g., the speed of a route) that may be influenced by the number of stops, grade, and other factors. Frequent stops and steep, uphill sections along a corridor can be a significant burden to cyclists operating under their own power.

“Continuity and Connectivity—The cycling network should be continuous (i.e., without gaps or abrupt changes) and provide convenient linkages to destinations. Often, it is the transition between different land uses and environments where the nature of cycling accommodations changes. For example, a separated facility along public property may become a bicycle lane or an undesignated area where cyclists ride with traffic. Continuity may also relate to any aspect of a facility, such as available riding space or quality.

“Comfort—Cyclist comfort level and perceived risk should be considered, as they may influence route choice and riding behaviors. When presented with facilities on high-speed, high-volume roadways, some cyclists may be more comfortable when dedicated space is provided to create separation from motorized traffic. A lack of adequate riding space or a concern for personal safety will often influence route selection and other riding behaviors, including cyclist use of sidewalks. Within an area studied as part of an RSA, it is critical to understand that cyclist behavior is greatly influenced by route preference and the cyclist’s perceived risk of the route or path intended for their use. “[\(Bicycle Road Safety Audit Guidelines and Prompt Lists, FHWA, May 2012\)](#)



P.O. Box 974
Ashland, OR 97520

The County's, ODOT's and incorporated cities' transportation networks for automobiles are interconnected and seamless. Not so for bicycles. The current County TSP policy effectively undermines the cities' and ODOT's efforts to create a safe and convenient bicycle network. The term "safe and convenient" is defined by the Transportation Planning rule as "bicycle ... routes, facilities and improvements which:

- "(A) Are reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage ... cycle travel for short trips;
- "(B) Provide a reasonably direct route of travel between destinations such as between a transit stop and a store; and
- "(C) Meet travel needs of cyclists and pedestrians considering destination and length of trip."

Conclusion: Jackson County's approach under the current TSP policy does not help to create a bicycle network that is reasonably free from hazards (particularly at high speeds and volumes), fails to contribute to the creation of network that provides direct routing (except as may occur using lower volume roadways), nor does it meet travel needs of cyclists (particularly considering trips between Rogue Valley cities).

Section B: Safety

"In the past, cyclists were categorized corresponding to riding ability and comfort with speed and proximity to other vehicles to simplify considerations in the planning and design process. Now it is better understood that different abilities of cyclists should be considered on all types of facilities. To accommodate a range of cycling characteristics on any bicycle facility, it is important to understand the physical and operational attributes of bicycles and cyclists."

"The amount of space afforded to cyclists may directly impact their ability to safely navigate a route, as cyclists expend a high amount of mental effort to maintain course in narrow or constrained conditions rather than paying due attention to potential obstacles or harmful conflicts with other facility users.

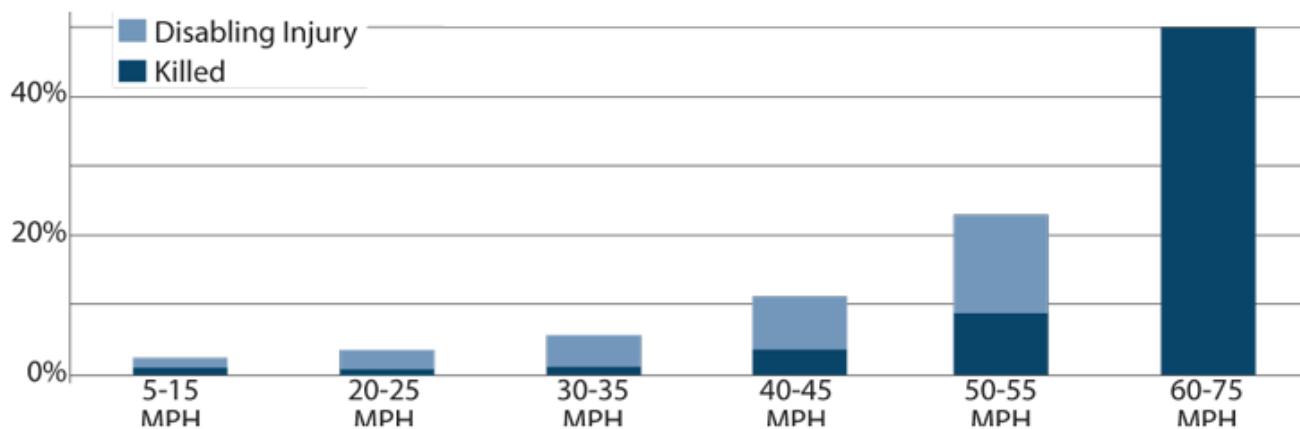
"Cyclists typically need to maintain a reasonable level of speed to remain stable. At slower speeds, cyclists begin to lose stability and will often "zigzag" to maintain stability. In the context of bicycle control, "zigzagging" is moving from side-to-side (i.e., laterally) in an effort to maintain balance.⁽¹⁷⁾ This behavior is also performed at higher speeds with less lateral deflection. The speed and stability of a bicycle are related to its space requirements (i.e., the wider the zigzag movement, the more unobstructed lateral space required).

"Cyclists are vulnerable road users. Unlike motorists, who are afforded protection within the structure of a vehicle, bicycles offer little or no protection to a cyclist. Cyclists may or may not understand their vulnerability and, as a result, may allow real or perceived environmental factors, such as availability of dedicated bicycle facilities, frequency of conflict points with other users, time of day, surface quality, types of vehicles, and terrain to influence route selection and other riding behaviors. For example, cyclists may choose routes with more conflict points, such as at driveways or intersections, to reduce perceived conflicts with same-direction traffic.



P.O. Box 974
Ashland, OR 97520

“The speed differential between vehicles and bicycles on higher speed roadways is greater than on lower speed roadways, which may present additional challenges for cyclists and motorists, such as judging gaps between vehicles when crossing the road or the time and distance required for vehicles to stop or overtake a cyclist. Figure 7 illustrates the relationship between the posted speed limit of a road and the severity of a crash involving cyclists. The severity of a crash involving a cyclist and motorist increases exponentially with speed. In rural areas, many two-lane highways are designed for relatively high speeds and provide few separate accommodations or alternative lower-speed routes between destinations for cyclists. Although the overall frequency of bicycle crashes tends to be higher in urban areas, where more cycling takes place, crashes in rural areas more often result in fatal or serious injuries. For example, in North Carolina, fatalities resulted 3.5 times more often from a crash in rural areas compared with those in urban areas of the State.” (IBID, May 2012)



Percentage of Bicyclists Killed or Seriously Injured in Bicycle-Motor Vehicle Crashes by Posted Speed Limit in North Carolina. (The University of North Carolina Highway Safety Research Center. North Carolina Bicycle Crash Facts 2004 – 2008. August 2010.

The incidence of disabling injuries and death roughly doubles with each five mile per hour increase in speed. The death rate more than doubles with each five mile per hour increase in speed beyond 35 MPH. Sobering statistics when you consider that rural County roads have posted speeds of 45 MPH or more.

“Crashes involving motorists overtaking bicyclists may include situations where the motorist may fail to detect the bicyclist in time due to a curve or other sight distance issue, the bicyclist may suddenly swerve left to avoid a pothole or other obstacle, or the overtaking motorist may detect the cyclist but fail to allow adequate time or space for safe passing.” (IBID, FHWA). In metropolitan/urban areas this type of crash represented between eight and nine percent of motor vehicle-bicycle crashes. However, “in rural North Carolina, this type of crash represented nearly 30 percent of motor vehicle-bicycle crashes, indicating that this may be a more significant issue in rural areas. Measures to improve sight distance, reduce vehicle speeds, enhance lighting, or provide delineated space for cyclists may be appropriate, depending on conditions present.” (IBID, FHWA)



P.O. Box 974
Ashland, OR 97520

Bicycle lanes serve as thru-lanes for people riding bicycles. Crucially, State law reflects that fact and extends the right-of-way to people riding bicycles in a bike lane, whereas similar laws for cyclists on road shoulders do not exist. ORS 811.050 requires “a motor vehicle operator to yield to a rider on a bicycle lane.” The law protects cyclists from being passed on the left by a motor vehicle only to have the driver immediately turn right, cutting-off the person on the bike, and risking collision.

Conclusion: Delineating bike lanes, as opposed to shoulder markings, could create a safer environment for cyclists based upon FHWA’s findings. Clearly, most cyclist feel safer when bike lanes are present. Additionally, ORS 811.050 requires motorists to yield the right-of-way to cyclists but only when they are within bike lanes.

Section C: Pavement Markings

The University of Texas, Center for Transportation Center (CTR) conducted an extensive video analysis of the behavior of auto drivers and cyclists. The authors of the Study, Evaluation of On-Street Bicycle Facilities Added to Existing Roadways concluded “without a marked bike lane, there appears to be a lot of uncertainty about how much space each person needs—even when adequate road space is provided,” said Randy Machemehl, the Nasser I. Al-Rashid Centennial Professor in Transportation Engineering and director of the University of Texas, Center for Transportation Research (CTR). “Bike lanes reinforce the concept that bicyclists are supposed to behave like other vehicles, and make life safer for everyone involved as a result,” said Ian Hallett, CTR researcher. “To ensure that the study findings would be broadly applicable, the CTR engineers chose volunteer cyclists of different ages, gender and cycling experience to observe during more than 8,000 passing events.” (<http://news.utexas.edu/2006/09/18/engineering>)

“Wrong-way riding either in the street or on a sidewalk is a frequent factor in bicycle-motor vehicle crashes.” (See Hunter, Stutts, Pein, and Cox, 1996)

There is a high likelihood that bike lane stencil markings contribute cyclists’ adherence to riding with, rather than against, traffic. That is especially true for people with less experience riding a bicycle.

A FHWA study, Bicycle Versus Wide Curb Lanes: Operational and Safety Findings and Countermeasure Recommendations, 2009, found that “Wrong-way riding, or riding facing traffic, was present for approximately 6 percent of the videotaped bicyclists. There” (was) “a prevailing feeling that this practice is more widespread in BLs” (bike lanes), “but in this study a higher proportion of the wrong-way riding tended to occur at WCL” (wide curb lane) “sites, whether in the roadway or on the sidewalk.”

“Given the stated preferences of bicyclists for BLs in prior surveys (e.g., Rodale Press, 1992) along with increased comfort level on BLs found in developing the Bicycle Compatibility Index (Harkey et al., 1998), use of this facility is recommended



P.O. Box 974
Ashland, OR 97520

where there is adequate width, in that BLs are more likely to increase the amount of bicycling than WCLs." (Ibid, 2009)

Conclusion: Bike lanes increase both bicyclist safety and comfort when compared to wide lanes, and may lead to increased bicycling.

Section D: Signing

When a motorist is driving at speeds greater than 35 MPH and bike lanes are not present ORS 811.065, Unsafe Passing of a Person Operating a Bicycle, applies. The statute states, "The driver of a motor vehicle may only pass a person operating a bicycle by driving to the left of the bicycle at a safe distance and returning to the lane of travel once the motor vehicle is safely clear of the overtaken bicycle. For the purposes of this paragraph, a 'safe distance' means a distance that is sufficient to prevent contact with the person operating the bicycle if the person were to fall into the driver's lane of traffic." The image below illustrates the requirements of the law.



The Manual of Uniform Traffic Control Devices, MUTCD, doesn't include this sign and only approved signs can be used on Oregon's roads and highways. But that doesn't mean that there are not approved signs that can be used to convey the requirements of ORS 811.065.

See excerpt from mutcd.fhwa.dot.gov_knowledge_faqs_faq_part9, below, concerning a similar circumstance:



P.O. Box 974
Ashland, OR 97520

Signs

- 1. Q: The agency I work for has recently enacted a law that requires the motorist to keep a minimum lateral distance of feet from the bicyclist when overtaking the bicyclist. I have seen this sign used elsewhere, but cannot find the sign in the Manual. Where can I find the standard sign for this situation?**

A: No standard sign exists. The purpose of highway signing is not to create awareness, which is typically the intent of a sign conveying programmatic rules of the road. Other media—such as radio, television, and newspaper ads; notices on 511 travel information systems; postal mailings; and Web sites—are more appropriate for and conducive to promoting and/or marketing specific programs and new regulations. Special word message signs for the three-foot law should not be installed haphazardly and should be limited to locations where the operation of the two vehicle types is demonstrating a problem or crash history. Thus, installing these signs where say a physically-separated bikeway exists would be counterproductive to achieving the agency's goal. An example of a special word-only message sign for this application could be a four-line black on white regulatory sign with the legend CHANGE :: LANES :: TO PASS :: BICYCLES.

“Comprehension of the familiar “Share the Road” signage as a statement of bicyclists’ roadway rights has been challenged, based on arguments that it is ambiguous, imprecise, frequently misinterpreted, and not designed for that purpose [31–32]. Although often described as a reminder to motorists that bicyclists may use the travel lane [26], bicyclists frequently complain that motorists interpret the sign to mean that they should get out of the way. In fact, the US state of Delaware discontinued use of the “Share the Road” plaque in November, 2013, because “some believe the plaque puts more onus on the bicyclist to share the road than the motorist” [33] (Bicycles May Use Full Lane Signage Communicates U.S. Roadway Rules and Increases Perception of Safety, G. Hess & N. Peterson, August 2015)

Share the road signs have little or no effect on the passing behavior of motorists. “There was no statistically significant difference in responses between those who saw “Share the Road” signage and those who saw no signage in any scenario we tested. (Ibid, Hess) The County’s expenditure to put up “share the road” signs is a waste of money.

The authors “suggest that Departments of Transportation should evaluate replacing “Share the Road” signs—which are already located in areas of potential motorist-bicyclist conflict—with “Bicycles May Use Full Lane” signs to provide a less ambiguous, more educational statement, with no net increase in visual clutter.” (Ibid, Hess) Better still, the money the County spends on “share the road” signs should be spent actually making cycling safer by using the sign “change lanes to pass bicycles.”



P.O. Box 974
Ashland, OR 97520

Conclusion: The use of a **Change Lanes to Pass Bicycles** sign on higher volume County roads is consistent with the MUTCD and would promote motorists' adherence to Oregon passing law. People who ride bicycles are passed by motorists everyday (maybe every hour) in violation of ORS 811.065. The County, by signing consistent with the MUTCD, could help improve safety and the attractiveness of cycling as a mode of travel. There is little doubt that such a sign would be more effective than the "share the road" sign that the County currently uses.

Section E: Popularity

Biking continues to be among the most popular physical activities in the nation during 2013. Including people who ride off-road or on-road, cycling was the third most popular activity, accounting for 49,430,000 participants. It followed "walking for fitness" with 117 million participants and "running/jogging" at 54 million participants. (data from Sports Marketing Surveys USA).

"For inactive or sedentary Americans, there are so many great activities for people to start on their road to being active, fit and healthy. There are countless options. We just need to get more Americans active and increase their frequency of participating," said Keith Storey, Vice President, Sports Marketing Surveys USA, the firm which conducted the survey for the Physical Activity Council. Help to make America healthier; encourage your family and friends to become more active. Better yet, ask them to join you on a bike ride.

Unfortunately, the growth of cycling is limited because "people say they don't bike... because they feel it's too dangerous, and the #1 thing that would make them feel safer is more bike lanes. "Even if bike lanes don't help, it's unlikely that they hurt." ([Pros and Cons of Bike Lanes by Mike Dahmus, 2005](#))

Conclusion: Bike lanes are an essential part of a comprehensive network of bicycle facilities.

Section D: Economic Impact

According to a 2012 Travel Oregon commissioned study, [The Economic Significance of Bicycle – Related Travel in Oregon, Detailed State and Travel Region Estimates, 2012](#), bicycle-related expenditures totaled \$38.7 million, helped create 490 jobs and \$1.8 million in local tax receipts in the Southern region in 2012. Surprisingly, Southern Oregon's Bicycle-Related Travel: Party-Trips represent just 8 percent of statewide totals.

Designation of bike lanes in the County can contribute to a better cycling environment, increase visitors' comfort on the rural roads, and potentially increase Jackson County's share of Statewide bicycling related expenditures and employment. Jackson County's TSP could promote cycling.



P.O. Box 974
Ashland, OR 97520

Table III-5. Southern Travel Region Bicycle-Related Travel Impacts, 2012

Total Bicycle-Related Travel Expenditures	\$Million
Overnight	\$32.9
Day	\$5.8
Total	\$38.7
Bicycle-Related Travel Expenditures By Commodity Purchased	\$Million
Accommodations	\$8.6
Restaurants/Bars/Lounges	\$8.9
Groceries/snacks	\$5.1
Fuel/Gas/Transportation/Parking	\$6.8
Bicycle related repairs/clothing/gear	\$2.6
Bicycle Event Fees	\$3.3
Recreation and Entertainment	\$0.9
All other retail	\$1.9
Airfare (if applicable)	\$0.6
Total	\$38.7
Earnings Generated by Bicycle-Related Travel Expenditures	\$Million
Accommodation & Food Services	\$7.6
Arts, Entertainment & Recreation	\$1.5
Retail	\$1.3
Visitor Air Transportation	\$0.0
Total	\$10.6
Employment Generated by Bicycle-Related Travel Expenditures	Number of Jobs
Accommodation & Food Services	340
Arts, Entertainment & Recreation	90
Retail	60
Visitor Air Transportation	0
Total	490
Tax Receipts Generated by Bicycle-Related Travel Expenditures	\$Million
Local Tax Receipts	\$0.6
State Tax Receipts	\$1.3
Total	\$1.8

Conclusion: Development of a complete network of bike lanes, shared roadways, and multi-use paths is essential if Jackson County is to share in the economic benefits of cycling.

Section F: FHWA Guidance

“DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.” United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations, March 2005.



P.O. Box 974
Ashland, OR 97520

Conclusion: Jackson County's current policy regarding bike lanes does not appear to meet FHWA guidance. This is particularly true in regard to the provision of safe and convenient bicycle travel and facilities that can be confidently used by people of all ages, including people with little experience riding a bicycle.

Section G: County Road Standards

The current TSP's rural roadway standards include 12 and 11 foot lane widths for rural arterial/collector and minor collector, respectively. The use of 12 foot lanes in the County appears unnecessary given the traffic volumes and could be used for wider shoulders or, as we recommend, bike lanes in areas where there is adequate width. The following tables help to illustrate the relative modest impacts associated with going from a 12-foot lane to 11-foot lane (or 11 to 10-foot lanes, or 10 to 9-foot lanes).

FWHA provides guidance on lane widths, as below,

[Ranges for Lane Width](#)

Type of Roadway	Rural	
	US (feet)	Metric (meters)
Freeway	12	3.6
Ramps (1-lane)	12-30	3.6-9.2
Arterial	11-12	3.3-3.6
Collector	10-12	3.0-3.6
Local	9-12	2.7-3.6

(Source: [A Policy on Geometric Design of Highways and Streets, ASHTO](#)

The wider lane widths have some impact on safety. But the FHWA data shows there is little difference between 11 and 12-foot lanes.



P.O. Box 974
Ashland, OR 97520

Figure 6 shows accident modification factors for variations in lane width on rural two-lane highways. Note that there is little difference between 11- and 12-foot lanes.

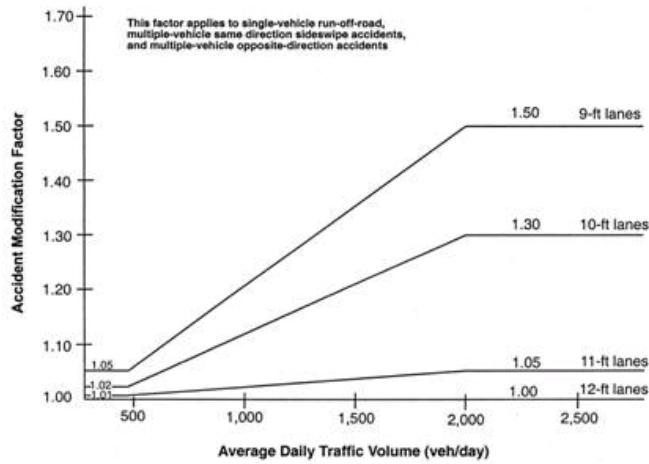


FIGURE 6

Accident Modification Factors for Lane Width on Rural Two-Lane Highways.

(Source: Prediction of the Expected Safety Performance of Rural Two-Lane Highways, FHWA)

Narrower lanes do have an impact on travel speeds. But Highway Capacity Manual shows the differences between 12 and 11-foot lanes is negligible.

Operational Effects of Freeway Lane Widths

Lane width (ft)	Reduction in Free-Flow Speed (mi/h)
12	0.0
11	1.9
10	6.6

Source: Highway Capacity Manual

And the very minimal reductions in speed can be off-set by wider shoulders (bike lanes). See table from the Highway Capacity Manual that follows.



P.O. Box 974
Ashland, OR 97520

Operational Effects of Lane and Shoulder Width on Two-Lane Highways

Lane width (ft)	Reduction in Free-Flow Speed (mi/h)			
	Shoulder Width (ft)			
	≥0<2	≥2<4	≥4<6	≥6
9<10	6.4	4.8	3.5	2.2
≥10<11	5.3	3.7	2.4	1.1
≥11<12	4.7	3.0	1.7	0.4

Source: Highway Capacity Manual

Conclusion: Reducing the TSP's lane width standards by one-foot would (changing the minimum to the maximum and reducing the minimum by one foot) dramatically change the space available for pedestrians and cyclists with relatively little impact on safety.

Part III: Where bike lanes are needed

Section A: Biking Network

The County's network of bike lanes should extend and connect with bike lanes in cities and on ODOT's system. Ultimately, the network should connect all major centers throughout the region.

These roads are high on the list for bike lanes:

- E. Main in Ashland (City Limits to OR66) – a part of the Siskiyou Cascade Scenic Bikeway *
- West Main in Medford (City Limits to OR238) – the Don Stathos Bikeway *
- Table Rock Road (Central Point/Medford City Limits to Antelope Road)
- Foothill Road (Medford City Limits to OR140)
- South Stage Road (OR99 to Griffin Creek Road)
- Griffin Creek Road (South Stage Road to South Stage Road)
- South Stage Road (Griffin Creek Road to Jacksonville) *
- Arnold Lane (South Stage Road to W. Main)
- Hanley Road (OR238 to Central Point City Limits)
- Biddle Road (Medford City Limits to Central Point City Limits)
- Colver Road (OR99 to Phoenix City Limits) *
- North Phoenix Road (Phoenix City Limits to Medford City Limits)
- Talent Avenue (Talent City Limits to OR99)
- Oak Street (Ashland City Limits to Eagle Mill Road)
- Eagle Mill Road (Oak Street to S. Valley View Drive)
- South Valley View Drive (OR99 to W. Valley View Drive)



P.O. Box 974
Ashland, OR 97520

W. Valley View Drive (South Valley View Drive to Talent City Limits)

Fern Valley Road (Phoenix City Limits to Payne Road)

Houston Road (Phoenix City Limits to Coleman Creek Road) *

Blackwell Road (I5 interchange to Gold Hill City Limits)

Kirkland Road (Blackwell Road to Table Rock Road)

Antelope Road (Kirkland Road to Kershaw Road)

Agate Road (OR62 to Linn Road)

Linn Road (Agate Road to Eagle Point City Limits)

North River Road (Rogue River City Limits to Gold Hill City Limits)

Foothill Boulevard (Rogue River City Limits to Josephine County line)

Most of the roads, listed above, have three foot or wider shoulders. Narrowing the lane width would provide, in many cases, adequate roadway width for the designation of a bike lane. Some roadway segments recommended for bike lanes would require reconstruction.

* Roadway segments where bike lanes have been decommissioned by restriping from 8-inch to 4-inch lines even though bike stencil(s) are still present. This outcome is contrary to the statement made by J. Vail in his 10/30/14 memo that bike lanes have not been removed.

Exhibit A



JACKSON
COUNTY
Roads

MEMO
INTER-OFFICE

Roads
Engineering

Mike Kuntz, P.E.
County Engineer
2120 Arney's Ferry Road
Wheeler, OR 97801
Phone: (541) 774-0228
Fax: (541) 774-0226
Mike.Kuntz@jackson.or.us

Date: October 3, 2014
To: Carl Rhoden; James Philip, P.E.
From: Mike Kuntz, P.E. 
Subject: Striping and Signing Standards for Bicycles and Pedestrians

Some of our current practices of signing and striping for bicycles and pedestrians are inconsistent. I have reviewed our current practices, Oregon's Bicycle and Pedestrian Design Guide, the MUTCD and the Oregon Supplement to the MUTCD (collectively, "Oregon Standards") and provide the following direction regarding how future maintenance and capital projects are to be performed.

- Bike lanes shall be installed or maintained only on roads with shoulders and pedestrian facilities on both sides of the road. The shoulders and pedestrian facilities must meet the Oregon Standards and the Engineering Division shall determine whether the standards are met. Bike lanes shall be marked by at least 8" wide white stripe and bike emblems in accordance with the Oregon Standards. Roads meeting these requirements which are not currently marked with bike lanes shall have bike lanes added when the road is resurfaced. Roads marked with bike lanes not meeting these requirements shall be allowed to fade away.
- All shoulder stripes not designating a bike lane shall be 4" wide. Existing shoulder stripes wider than 4" and not designating a bike lane shall be maintained at 4" with the excess width allowed to fade over time.
- On roadways frequented by cyclists we currently utilize bicycle warning signs (W11-1) with "On Roadway" or "On Shoulder" riders. The use of these sign combinations shall cease. These signs shall be replaced with combination bicycle and pedestrian warning signs (W11-1P) and "Share the Road" (W16-1P) riders. The current signs shall be replaced with the new standard when they are otherwise scheduled to be replaced (i.e., when they are due for 10 year replacement or when they have been damaged and require replacement).

Please advise if you any issues implementing these new standards.



W11-1



W11-1P



W16-1P

cc: John Vial, Frank Baratta, Jenca Stanke

Exhibit B



JACKSON COUNTY Roads

ROADS & PARKS

JOHN VIAL
DIRECTOR

201 Antelope Road
White City, Oregon 97503
Phone: (541) 744-0239
Fax: (541) 744-0239
vial@jacksoncounty.org

October 30, 2014

Siskiyou Velo members,

There has been much discussion recently over Jackson County "removing" bike lanes, 8-inch stripes versus 4-inch stripes, proper bike lane markings and the like. One thing this discussion has clearly identified is that the county has not been consistent with our pavement markings (and upon closer review, the state and the cities have similar issues). This letter will hopefully clear up the county's position on this issue.

It is not our policy or intent to remove current designated bike lanes and we don't believe we have done so. It is our policy however, to bring our pavement markings into compliance with state and federal standards and to provide consistent markings for all users of the county roads. Therefore, we have restriped some roads with a 4-inch edge stripe when an 8-inch line was present before. However, this does not constitute the removal of a bike lane.

What Constitutes a "Bike Lane"

Under Oregon law, the Oregon Department of Transportation is tasked with "providing a uniform system of marking and signing highways within the boundaries of this state" (ORS 810.200). ODOT provides this uniform system and standards for bicycle lanes and paths in Oregon Administrative Rule (OAR 734-020-0060) and this OAR establishes that Oregon's standard for bicycle lane pavement markings is the Oregon Traffic Line Manual. The Traffic Line Manual reads:

Bike Lane markings shall:

1. Include longitudinal pavement markings to delineate bike lanes. A wide longitudinal white line (8-inch line) shall be used to separate motor vehicle lanes from bike lanes traveling in the same direction. (This 8-inch standard is also required in the OAR).

AND (and this is a key point)

2. Include bicycle stencils or signs placed after intersections to inform entering motorists of the restricted nature of the lane. (The use of signs has since been removed from the federal standard).

So under Oregon law, two elements are required to establish a bike lane, first an 8-inch stripe and second, bicycle stencils placed after intersections. An 8-inch line with no stencils doesn't establish a legal bike lane. Neither does a bicycle stencil with a 4-inch line. This standard is further clarified in

the Oregon Bicycle and Pedestrian Design Guide where it is clear that bike lanes must have both an 8-inch stripe and bicycle stencils. Jackson County is not aware of any area where we have restriped a road from 8-inch lines to 4-inch lines where stencils were present and thus removed a bike lane.

What Are We Doing?

The attached memorandum from County Engineer, Mike Kuntz, establishes Jackson County's striping and signing standards for bicycle and pedestrian use.

In summary, if we have roads which are inappropriately striped with an 8-inch line they will be restriped in the future to a 4-inch stripe. If we have roads that should have bike lanes (8-inch stripe plus stencils), and it appears we have a few, they will be added.

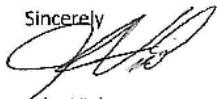
Why Are We Doing This?

1. As previously noted, we have found inconsistencies in our pavement markings and we need a uniform system of pavement markings for all users of our roads.
2. In some places we are out of compliance with current standards. Oregon Bicycle and Pedestrian Design Guide clearly states that bike lanes are not recommended on high-speed rural facilities and the Oregon Traffic Line Manual shows 4-inch lines for high-speed rural roads. We are out of compliance with this standard as we have found 8-inch lines with no stencils on several of our high-speed rural facilities. Our plan is to bring our facilities into compliance with established standards.
3. The shoulders on county high-speed rural facilities serve a multi-use function. This wide area is intended to serve as a facility for cyclists to ride on, for runners and joggers and pedestrians to walk in, for short-term parking and as an emergency breakdown area, and for an area for a possible area for motorists to safely pass a vehicle making a left-turn on a two-lane road. By designating these areas as bike lanes and delineating them as such, we preclude, by law, most all of these other uses. We believe that it is bad policy and it is not in the interest of the citizens to limit the shoulder on these rural high speed facilities to bicycle use only.

Hopefully this letter clarifies our position regarding the striping of bicycle lanes and shoulders on Jackson County roads. Please know that we are committed to the safety of all users of our road system and we feel our current policy of striping rural high-speed facilities with a 4-inch stripe accomplishes that goal.

Please feel free to contact me at 541-774-6238 if you have questions.

Sincerely


John Vial