

STATE OF OREGON
BICYCLE MASTER PLAN

Published By

Highway Division
Oregon Department of Transportation
Transportation Building
Salem, Oregon 97310

December 1984

ACKNOWLEDGEMENTS

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CHAPTER I
INTRODUCTION

Introduction

In January 1981, the Oregon Transportation Commission charged the Oregon Bicycle Advisory Committee with developing a statewide bicycle master plan. Drafts were prepared by the advisory committee and finalized by Highway Division staff.

The objective of the master plan is to guide the State Highway Division in the administration of the state bicycle program. The plan establishes guides for a comprehensive program, defines administrative procedures, and to ensure a useful and orderly expenditure of funds, determines priorities for development of bikeways.

Although some subjects contained in the plan are not eligible for funding from the State Bicycle Fund, their identification as elements of a comprehensive plan offers some direction to governmental jurisdictions and private groups who could initiate and fund such projects.

This is the first attempt to develop this type of plan for Oregon. It is subject to change as the need arises and will be updated on a periodic basis.

CHAPTER II
ADMINISTRATIVE STRUCTURE

Administrative Structure

Responsibility for administering the bicycle program is delegated to several groups and individuals which are listed and explained below.

Oregon Transportation Commission - The Transportation Commission is appointed by the Governor and has the authority to set policy and approve expenditure of funds for the Department of Transportation which includes the Highway Division. Policy and expenditures concerning bikeways are approved by the Transportation Commission.

Highway Division - The Highway Division has the direct responsibility for administering the bicycle fund, designing bikeways, and providing technical assistance and advice to local governments concerning bikeways.

Oregon Bicycle Advisory Committee - The Advisory Committee is appointed by the Governor and is charged with advising the Highway Division of the Department of Transportation regarding the regulation of bicycle traffic and the establishment of bicycle lanes and paths.

Bicycle Program Coordinator - The Bicycle Program Coordinator and staff have administrative responsibility for the Bicycle Program, and are responsible for recommending appropriate placement and design of bikeways. This position also advises local governments concerning bikeways.

CHAPTER III
FUNDING AND EXPENDITURES

The core of the Oregon Bicycle Program is the Bicycle Law, ORS 366.514 which mandates that no less than 1% of the State Highway Fund each year will be spent by the cities, counties, and state for bikeways and footpaths. Other funding is available, primarily from the Federal Highway Administration but also from local levies. This chapter explains the interrelationship of the funding sources and how expenditures are determined.

Funding Sources

State

The State Highway Fund is comprised of motor carrier fees, motor vehicle fuel taxes, licensing and registration fees, truck load violations and other miscellaneous sources. From this amount, counties are allocated 20% and cities 12% for roadway purposes. To the remaining 68%, other miscellaneous revenues are added and transfers deducted before the 1% determination is applied. These 1% monies will be referred to as the Bicycle Fund in the remainder of this document. See Table 1.

Local - Counties and Cities

Counties and cities are required by ORS 366.514 to spend 1% of their allocations from the State Highway Fund on bike trails and footpaths. Cities and counties are exempted from this requirement if 1% of a city's allocation is less than \$250 within any year or 1% of the county's allocation is less than \$1,500. Recognizing that 1% in any given year may be too low to be useful, cities and counties can accumulate this money in a special reserve fund for up to 10 years.

FIGURE 1

HIGHWAY FUND

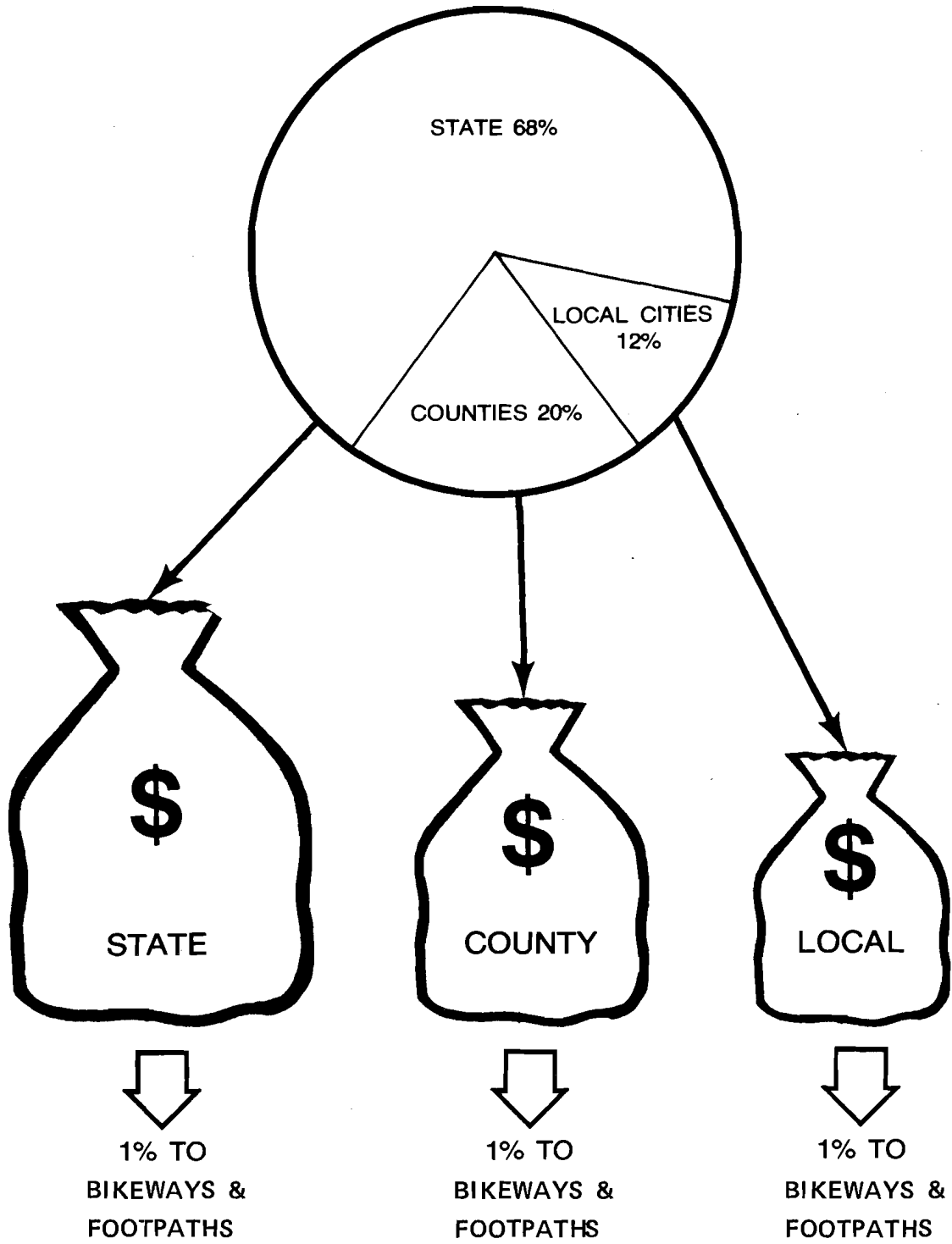


TABLE 1

Determination of 1% State Bicycle Fund

	<u>Actual FY '84</u>
Highway User Fees:	
Motor Carrier Fees	\$ 64,934,195
Motor Vehicle Fuel Taxes	104,625,120
Licenses, Registration & Miscellaneous	26,554,436
Truck Load Violations	<u>465,992</u>
	\$196,579,743
Less: County/City Allocations	(\$ 62,249,613)
Plus: Misc Revenues	\$ 1,125,077
Revenues from Property	3,015,936
Interest Income	8,462,114
Overwidth Permits	237,879
Less: ODOT Central Services Assessments	<u>(\$ 2,402,132)</u>
NET AMOUNT	<u>\$144,769,004</u>
1% to Bike Trails	<u>\$ 1,447,690</u>

Appendix A contains the total bikeways monies allocated to cities and counties for fiscal years 1973 through 1983. Local jurisdictions may also be eligible for grants from the state's bicycle fund on a matching basis (80% state/20% local) for selected projects. Although the 1% monies form the basic funding source for bikeways, local jurisdictions may provide revenues from their general funds or from special bond levies.

Federal

There are no federal statutes similar to Oregon's 1% law that require the construction of footpaths or bicycle trails. However, several federal statutes address bicycle concerns or make funds available. Federal policy in 23 CFR 652.5 states that; "The safe accommodation of pedestrians and bicyclists should be given full consideration during the development of federal-aid highway projects." In addition, 23 USC 109(n) prohibits "the severance or destruction of an existing major route for nonmotorized transportation traffic and light motorcycles unless such project provides a reasonable alternative route or such a route exists." Federal-aid money is available for bicycle facilities as part of a highway construction project at the same financial match as the highway work. Independent bicycle project can be funded with a 100% federal share as provided in 23 USC 217. Section 217 also states that bicycle projects will be principally for transportation, rather than recreation purposes.

Expenditures

Federal

When a bicycle facility is constructed in conjunction with a federally funded roadway project, federal participation is at the same rate as the highway facility to which it is attached: approximately 86% for FederalAid-Primary highways and 92% on interstate highway improvements.

State

As initially conceived, the 1% bicycle fund could be used for foot-paths and trails along highways, roads, and streets, as well as in parks and recreational areas. However, in May 1980, a constitutional amendment passed by the voters of Oregon restricted the use of all Highway Funds to highway purposes. This has been interpreted by the Attorney General to include only bikeways within highway rights-of-way. Consequently, the Bicycle Fund can no longer be spent on paths in parks or anywhere outside of highway, road or street right of way.

Bicycle monies can be expended for the following:

1. Administrative costs of the Bicycle Program Coordinator and staff including payroll.
2. Expenses incurred by the Bicycle Advisory Committee.
3. Preliminary engineering costs of bikeways.
4. Construction costs for bikeway/footpath facilities within the highway right of way.
5. Auxiliary facilities such as signs, curb cuts, ramps, and parking.
6. Maintenance of bicycle trails/pedestrian paths.
7. Development and printing of bicycle route maps and brochures.
8. Planning assistance to Councils of Governments (COGs).

Of these categories, administrative costs have totaled less than 10% of the fund. The bulk of the funds are expended on construction of bicycle facilities. To disburse a part of the fund, a recommendation is made by the administrative staff of the Highway Division for final approval by the Oregon Transportation Commission. These recommendations are guided by a priority policy adopted by the Commission in 1977 and discussed as follows.

Expenditure Priorities

Priority 1. First priority shall be given to the construction of bikeway projects wherever a highway is constructed, reconstructed, or relocated.

Discussion. During the course of construction or reconstruction or relocation of highways, qualifying shoulder improvements, bikeway signing, and other expenses are charged to the bikeway program. Usually these improvements are but a small part of larger projects receiving federal matching funds. In 1983, Priority 1 charges amount to 20% of the total Bikeways monies.

Priority 2. Second priority shall be given to adequate maintenance of those existing bikeways for which the state is responsible.

Discussion. Maintenance costs have been a relatively small cost to the fund. However, the maintenance cost of bikeways, such as sweeping, repair, and signing replacement, will gradually rise as new bikeways are established. Maintenance is a very important component of this program since bicyclists require smooth and clean riding surfaces. The 1983 expenditure for maintenance was roughly 10% of the total bikeway program.

Priority 3. Third priority shall be given to the construction of independent bikeway projects on state-owned right of way or when approved by the State Highway Engineer, upon paralleling routes that provide continuity to the state system.

Discussion. Unlike Priority 1 projects, these projects are unassociated with other highway construction or improvements.

Priority 3 projects have captured the bulk of the program costs in the past and was 43% for the 1984 fiscal year. These projects usually consist of shoulder widening in areas where major highway improvements are not expected in the near future. Most of these projects are submitted by Highway Division Region Engineers and reviewed by the Bicycle Program Coordinator and the Bicycle Advisory Committee.

Priority 4. Fourth priority shall be given to the financial assistance of other governmental agency bikeway projects.

Discussion. Money left after expenditures for administration, facilities construction, and maintenance (priorities 1 through 3) can be used to financially assist local bicycle projects at a match rate of 80% of the project cost. The local jurisdiction can use its 1% money or other sources for the remaining 20% share. Although these projects are the last on the state's funding priority list, results have shown this to be an important part of the state's program. Priority 4 projects generally assist the bicycle commuter. Project proposals are, by and large, from urban areas where commuting as an alternative to the automobile is most desirable. Ridership on urban bikeways is usually much higher than on touring routes so that these expenditures are usually the most cost effective.

Applications for assistance far exceed the available money, however. In July, 1976, the Bicycle Advisory Committee adopted a rating system to prioritize each local proposal before a final recommendation is made to the Highway Division and the Transportation Commission. This process is as follows:

Process for Priority 4 Monies

Access to Priority 4 monies is by application which includes a project description as shown in Figure 2 and a cover letter requesting consideration as a grant recipient. Applications are rated by the Bicycle Program Coordinator and staff on the rating sheet shown in Figure 3. The Bicycle Advisory Committee reviews the projects and their ratings and can change the ratings by adding other considerations. If approved and if money is available for Priority 4 projects, the Highway Division prepares a project agreement with the local governmental entity on a match basis where the local match is 20% and the state match is 80%.

APPLICATION FOR FUNDING ASSISTANCE
 FROM THE OREGON DEPARTMENT OF TRANSPORTATION
 FOR BIKEWAY CONSTRUCTION

From _____ Date _____
 (City, County)

Contact Person _____ Title _____

Address _____ Telephone _____

1. Describe the project (include small scale map and photographs).

2. Length?

3. Estimate of cost?

4. Local funds available to match (80% State/20% Local)? Yes ___ No ___

5. Is project part of a locally adopted plan? Yes ___ No ___

If yes, provide a map of adopted plan.

6. Does project link or extend any existing bikeways? Yes ___ No ___

If yes, describe.

7. How many daily bike trips do you expect? Initially ___ After 1 yr ___

8. Does the proposed facility lie within or immediately adjacent to existing road or street rights-of-way? Yes ___ No ___

9. Is additional rights-of-way required? Yes ___ No ___

If yes, what are your plans?

Application for Funding Assistance
 For Bikeway Construction - O.D.O.T.
 Page 2

10. Are you prepared to hold all required hearings? Yes ___ No ___

11. What is the type of facility proposed?

shoulder bike lanes _____ separated path _____
 shared roadway _____ sidewalk _____

12. What are the proposed widths? _____ feet

13. What is the proposed surfacing design?

_____ inches of asphalt _____ inches of concrete
 _____ inches of base rock

14. Are any structures required? Yes ___ No ___

If yes, describe.

15. Describe the project further. List any problems or considerations.

Return Application(s) to John Grassman, Bicycle Program Coordinator, Oregon Department of Transportation, Room 200 Transportation Building, Salem, OR 97310.

FIGURE 3

BIKEWAY PROJECT RATING SHEET

Applicant _____ Date _____

Project _____

Contact _____ Title _____ Phone _____

Length _____ Cost: Local \$ _____ State \$ _____

					RATING
Cost/Mile \$ _____					_____
	0-50M 3	50-100M 2	100-150M 1	150+M 0	_____
Service Area Population (Within 1 Mile Radius)					_____
	1,000+ 3	100-1,000 2	0-100 1		_____
Previous State/Capita Expenditure in Area _____					_____
	0.00-0.50 3	0.50-2.00 2	2.00-5.00 1	5.00+ 0	_____
Part of Local Plan			Yes 3	No 0	_____
System Linkage	Complete 3	Partial 2	Extension 2	Other 1	_____
Increased Ridership	Large 3	Medium 2	Small 1		_____
Alleviates Hazards	Extreme 3	Moderate 2	Slight 1		_____
Other Considerations (weight as to importance)	School Use 3,2,1,0	Commuter Use 3,2,1,0	Recreation Use 3,2,1,0	Other (explain) 3,2,1,0	_____
				TOTAL	_____

Comments: _____

Planning Assistance

Cities and counties, by reason of more intimate knowledge of their area needs, are encouraged to plan and develop comprehensive bikeway systems that can be incorporated into an overall statewide bikeway network. The Oregon Transportation Commission has established a policy whereby limited state assistance is available on a match basis for planning purposes. This financial assistance is available to the Councils of Governments (COG) within the state. If government entities within the COG area will expend for planning 5% of the state bikeway funds available to them, the state will then equally match this sum. To qualify for this assistance, the COG must agree to prepare and submit to the state a comprehensive master plan of bike routes for the area under its jurisdiction within a specified time from the agreement date. Route proposals, anticipated usage, and priorities are to be included.

CHAPTER IV
BIKEWAYS ON THE STATE HIGHWAY SYSTEM

Introduction

Over the years Oregon has built a network of highways to carry cars, trucks, and buses wherever they want to go. Recently bicycles have been recognized, popularly and legally, as a small but important addition to the transportation scene. Use of existing highways and roadways is the most economically efficient way to accommodate bicycles and it is convenient for bicyclists, most of whom want to travel to the same places as motorists. While paved shoulders can easily and safely accommodate bicycles, many Oregon highways were built without paved shoulders. Also widening projects have claimed shoulder space for additional travel lanes. ?

One of the purposes of Oregon's Statewide Bicycle Master Plan is to create a network of routes statewide on which, over time, bicycles are welcomed and accommodated. Map 1 identifies main Oregon highways outside urban areas that should be preserved or improved for bicycling. Inside urban areas, adopted local and regional plans define the bikeway systems.

Route Selection Criteria

By law, footpaths and bicycle trails are to be provided wherever a highway, road or street is being constructed, reconstructed or relocated, except for certain exemptions. (See Law in Appendix E.) In the broadest sense all of Oregon's paved roadways are part of the bikeway system, but for this Master Plan, the Highway Division with the assistance of the Bicycle Advisory Committee has

selected the most significant state highways where our efforts at creating adequate, smooth shoulders will be concentrated. Bicycle access on state highways which are not on Map 1 will be maintained at least at existing levels.

Three main guidelines were used to identify which routes to include on the map. The three guidelines were not applied collectively in the selection of each route; in several instances, only one guideline was applicable. The guidelines are as follows:

- 1 Demand - The intent of the System is to serve the major portion of present day and projected bicycle use. The most used recreational routes were included, such as the Oregon Coast Route, Lower Columbia River Highway, and the TransAmerica Trail.
- 2 Continuity and Linking - Routes linking population centers to one another or to destination points were incorporated, since these can be expected to attract more bicyclist as bicycle use grows. Some routes were included because they connect to another bicycle route or create loop routes which are a particular advantage for recreational cyclists.
- 3 Riding Environment - Whenever possible, routes were chosen that offer offer certain advantages, such as:

- Scenic beauty
- Tourist attractions
- Safety (due to existing shoulders or lower traffic volumes)
- Rest, food, and overnight facilities
- Lesser gradient

System Maps

Map 1 shows the selected highways based on the previously mentioned criteria. Map 2 shows the generalized condition of shoulders.

Route Designation - Some shoulders are signed as bikeways. Guidelines for designating existing shoulders of roadways as bikeways and the rating form used for evaluation are contained in Appendix G. The basic policy governing signing states that: "The shoulders of existing roadways may be considered for signing as bikeways when need and demand can be shown, where physical conditions warrant the signing, and when increased safety and motorist awareness can result."

Goals for Bikeways on the State Highway System

A primary goal of the statewide bicycle plan is that over time, the state highway system will have smoothly paved shoulders at least 4 feet wide, free of loose gravel, broken glass and physical hazards, such as, parallel drainage grates and diagonal railroad tracks.

Accomplishment of this goal will require continued attention to the Summary of Recommendations for Needed Improvement, Oct. 1978 prepared by the Advisory Committee. Key features of the summary are:

1. Provision of paved shoulders at least four feet in width.
2. Care given to the smoothness of the shoulders during paving operations,
3. Providing paved aprons where gravel access roads join the highway.
4. Regular maintenance to remove gravel, rocks, and broken glass.

FIGURE 4

HAZARDOUS SHOULDER CONDITIONS



Loose gravel



Surface ruts and roughness

CHAPTER V

DESIGN

Introduction

Bicycles have become a significant mode of transportation. As such, bicycle facilities need to be considered at the inception of new transportation projects rather than as an "add on" or as frills. Planning for bicycles should center on providing as direct and fast a route as possible while presenting the fewest obstacles and hazards.

In 1972 Oregon published one of the first bikeway design manuals in the United States and it was widely used by other states. In 1978 the California Department of Transportation published a design manual which contributed substantially to modern bicycle facility design. Much of that manual was then incorporated into the AASHTO manual, "Guide for Development of New Bicycle Facilities 1981." The Oregon Transportation Commission has recently adopted the AASHTO guidelines as standard with some supplements and exceptions. (See Appendix B). The Highway Division encourages local agencies to use the AASHTO guidelines as supplemented. In addition, all traffic control devices used in conjunction with bicycle routes must conform to the Manual on Uniform Traffic Control Devices as supplemented and adopted by the Oregon Transportation Commission.

Design Practices

The Highway Division has experienced various design practices, some of which are beneficial and some of which are detrimental. Many of these have been added to or taken out of, as appropriate, the AASHTO guidelines. These are discussed here so that local agencies may have access to the Highway Division's collective statewide experience.

Beneficial Practices

Shoulder Width - The widths between 4 feet and 6 feet are appropriate for bike lanes on the shoulder (with or without curves). This provides ample, safe space for single file bike traffic while being narrow enough for vehicular traffic to blow the lane free of most debris. Lanes wider than six feet invite vehicular traffic and collect debris.

8-Inch Fog Lines - This width is adequate for visual division of motor traffic and bicycle traffic.

Paved Driveway Aprons - Unpaved driveway aprons allow gravel to be carried onto the bike lane creating a significant hazard. Providing paved aprons helps prevent this problem.

GM Barriers - Under circumstances where it is desirable to separate the bike lane from the travel lane, GM barriers are superior to other separators. They offer significant safety as well as help prevent litter from building up on the bike lane.

Sidewalk Ramps on Bridge Crossings - These are of great help to the cyclist if bridge sidewalks are of adequate width for safe bike use. They deserve consideration especially when the traffic lanes or shoulders on the bridge are narrow.

Practices to Be Avoided

✗ Sidewalk Bike Paths - Earliest bikepath efforts were aimed at multiple use of sidewalks as bikepaths. While in rare instances this type of path may be desirable, in most cases this combination is best avoided. They are generally unsafe because they put the cyclist in conflict with driveways, pedestrians, utility poles and sign posts. Also, the cyclist is not generally visible or noticed by

the motorist so that the cyclist may suddenly emerge at intersections into the traffic lane, surprising the motorist and creating a safety hazard.

Extruded Curbs - These low curbs, when used as a barrier between the motorist and the bicyclist create a hazard to both. Either may chance to hit the curb and lose control, with the motorist crossing into the bikelane or more often the cyclist falling into the traffic lane. This type of path is difficult to maintain and tends to collect debris. For these reasons, extruded curbs should not be used to delineate a bike lane. If a physical barrier is necessary, GM barrier is far superior as it offers a real safety advantage and minimum debris buildup.

Two Way Bike Lane (on one side of road) - While this may seem a practical alternative to the expense of two one way bike lanes, it creates a condition that is extremely dangerous to the bicyclist. The bicyclist has opposing motor traffic on one side of him and opposing bicycle traffic on the other, while riding one direction on the lane. The Highway Division does not generally sanction this configuration.

Construction Obstacles - When throughways for motor vehicles are designed, care must be taken so that pedestrian and bicycle crossing points are not compromised and do not create a barrier to existing bicycle movement.

Reflectors in Pavement - Reflectors are a hazard to the bicyclist because they can deflect the wheel causing the bicyclist to steer into the traffic lane. If needed for motorists, they should always be installed on the motorist's side of the fog line and have a beveled front edge.

CHAPTER VI
IMPROVING THE BICYCLING ENVIRONMENT

Bicycle use falls loosely into two categories, recreational and commuting. Bicycling's growing popularity rests principally in public enthusiasm for cycling as a recreational activity which includes short day trips, bike touring and bike racing. In some communities the bicycle has become a significant mode of transportation for school, work and shopping trips.

This chapter of the plan examines the special needs of the two groups of bicycle users and identifies recommended directions to be taken to build a supporting system for these activities.

Bicycling for Recreation

Touring

Bicycle touring, as used here, includes all bicycling for recreation, whether a one hour ride, an overnight trip, or a month long adventure. Touring combines the exhilaration of sport with the pragmatic need of getting from one place to another.

Oregon is one of the most popular states for bicycle touring. Oregon's popularity is due partially to its location on two bike routes which are popular nationally, the Transcontinental Bikecentennial Route, established in 1976 to celebrate the nation's 200th birthday and the Pacific Coast Route. Oregon also enjoys a positive reputation among bicyclists nationwide, both because of its scenic beauty and climate and its pioneering spirit in the development of bicycle facilities. Testifying to its popularity, Oregon tourist centers distributed 22,000 bike route maps during the past year.

Just as motor travelers require services along the way, bicycle tourists require services, some of which are well supplied by the established tourist industry such as motels and restaurants and some of which are unique to cyclists. These unique needs include development of routes for bicyclists, mapping designed to biking needs, camping facilities, and repair service. These are explored further in the following discussions.

Bicycle Route Development

A significant focus of the bicycle program is upgrading shoulders and related facilities to develop routes for bicycle riding. The two best known of these are the Coast Route and the TransAmerica Trail. They have received priority treatment in the past and present because of their importance. In the near future, the focus of route development will be on improvement of shoulders on highways between the Willamette Valley and the Oregon Coast and then developing loops in the Willamette Valley, Central Oregon, Roseburg and Medford areas. Routes that form loops are advantageous to cyclists who often must carry their bikes into an area by car.

Hiker/biker Camps

Hiker/biker camps are low cost, primitive camp sites, usually located in established campgrounds. At a minimum, they provide tent sites, water, toilets and fire pits, though some are located in such a way to provide access to more developed facilities. The current user fee is \$1.00 per person per night.

Hiker-biker camps were first opened in 1977 and have enjoyed rapidly increasing usage. The camps along the coast, together counted 2,486 total visitors in 1978 and grew to 7,272 visitors in 1981. The camps are part of the state park program built and maintained with funds from the State Parks and Recreation Division. Eighteen camps are located on the Coast Route and three are inland.

In April, 1981, the Oregon State Parks and Recreation Division adopted a policy statement "Hiker/Biker Camping in State Parks" establishing development guidelines and fee structure for the camps. See Appendix C. State highway funds can not be used in development of these camps. However, in view of the interdependence involved in camp and route development, coordination between the two departments will continue. It is also recommended that the need to secure bicycles and personal effects be considered in future camp development. Other governmental agencies which provide camping sites are encouraged to adopt the State Parks guidelines as an aid in their development.

Maps and Route Descriptions

The mapping needs of bicyclists extend beyond route location and the information usually provided by highway maps. Information needs include shoulder widths, terrain descriptions, traffic description, and location of bicycle repair shops and hiker/biker campgrounds. To meet this specialized need for bicycle mapping, the bicycle program has produced Oregon Bike Routes, Oregon Coast Bike Route, and Willamette River Cycle Touring Guide. These maps and brochures are updated periodically and distributed through the Travel Information Section of the Oregon Department of Transportation.

In Oregon, currently there are some bicycle route maps at the county or city level. Since many citizens buy bicycle maps to plan recreational outings in addition to commute trips, and since most recreational bicyclists prefer riding on paths or rural roads, away from traffic, providing bicycle maps showing scenic, safe routes for day rides meets a definite need.

Promotion

With completion of several major route improvement projects, availability of the maps and brochures, and steady growth in the numbers of touring bicyclists, Oregon's bicycle routes are beginning to merit more widespread publicity and promotion. A campaign with a theme like "Come Bike in Oregon" could be presented as one of the summertime counterparts to "Ski-Oregon" campaigns. The Travel Information Section of the Oregon Department of Transportation could undertake this project.

Elements of the campaign could include a range of publicity opportunities beyond the usual advertising avenues such as:

- Calendar of bicycling events
- Festivals
- Organized tours
- Booths at state and county fairs
- Bike races
- Improved maps and brochures about touring routes

Bicycling for Transportation

Developed originally as a transportation vehicle, the bicycle gained prominence 100 years ago as a sporty alternative to the mundane and cumbersome horse-drawn carriage. Later the automobile came into prominence and pretty much relegated the bicycle to the category of childrens' toy. However, bicycles enjoyed rapid growth in sales and use in the late 60's and early 70's, as the public concern about gasoline shortages and prices, traffic congestion and air pollution, and the advantages of aerobic exercise caught the public interest. Bicycling has again become a mode of transport as well as a recreation vehicle.

Utility bicycling is most frequent in towns and urban areas where distances are reasonably short. Trips within the 1/2 mile to 5 mile range are the most likely to be taken on a bike. Currently about 4,000 people bicycle to work every day in Portland, one for every nine bus commuters. On a percentage basis, the rate of bicycle commuting in Portland is double the national average. In Corvallis and Eugene it is much higher, 5-10% of all trips (not just work trips) are taken by bike. Many more people express interest in commuting by bicycle. A recent survey in the Portland metropolitan area found that 16% of the population believes bicycling to work is a possibility for them.

Bike paths and lanes in urban areas typically have much higher ridership than touring routes or facilities which are strictly recreational. For example, the most frequently used path in Oregon with a permanent recorder is on the Rogue Valley Highway in downtown Ashland which recorded 93,000 trips in 1981 while a recorder in Tryon Creek State Park near Lake Oswego recorded only 5,900.

Facilitating bicycle use as an alternative mode of transportation in the urban setting requires establishment of a safe bicycling network, parking facilities and adequate mapping. Discussion of these elements follows.

Urban Bicycle Network

Responding to the renewed interest in bicycling, a number of Oregon communities have invested in facilities to improve bicycling access and safety. Eugene is the premier example and one of the leading bicycling communities in the nation. With federal and state financial assistance, by 1982 the city had built 21 miles of separate bicycle paths along the Willamette River and through several parks. This system is supplemented with 36 miles of on-street bike lanes and 18 miles of low traffic volume streets designated for bicycle use.

Corvallis, another university town, also has made an extensive investment in bicycling facilities. A path along the Willamette River connects to an 8-mile path to the neighboring town of Philomath. Fifteen miles of onstreet bicycle lanes were striped in 1981, and more are planned.

Several jurisdictions in the Portland metropolitan area have established some 70 miles of bicycle paths and routes. Included are a path from downtown Portland 12 miles to the suburban community of Lake Oswego, and an extensive network of bicycle paths in Beaverton, another suburb.

Most of the bicycle routes in the larger urban areas follow city or county roads. Because state highways usually carry heavier traffic loads at higher speeds, the local roads often are more suitable for bicycling. Funding for the facilities has therefore come from a combination of sources, including both the state highway fund and the local jurisdictions' general funds. Over half of state bicycle funds have been directed to city and county bikeway projects as these projects serve the bulk of the bicycling population.

In order to continue serving the majority of the state's bicyclists, it is appropriate for the state program to continue offering matching grants (See Priority 4 monies Chapter II). The Highway Division recognizes that in certain corridors served by state highways, bicycles may be accommodated more efficiently on a road off the state system; if so, the off-system improvement can be funded in lieu of an on-system improvement.

Parking

People who use bicycles for transportation need a safe place to leave their bikes while engaging in their business. Individuals who enjoy bicycling for recreation often cite absence of good bicycle parking as the determining factor in deciding not to bicycle for transportation.

The problem can be approached in several ways. At the local level, bicycle parking requirements can be added to the zoning code. This can assure that new development includes adequate provisions for bicycle parking. For example, the City of Portland has amended its zoning code to require bicycle parking, and the City of Eugene is considering a similar step. See Appendix D.

To serve existing development, however, it is usually necessary for a governmental agency to install bicycle parking on a public right-of-way or other public property. Eugene, Portland, Beaverton, and Corvallis all have installed bicycle racks or lockers.

While Oregon's bicycle program has never directly invested in bicycle parking, cities such as Portland and Beaverton have used state gas tax funds to install bicycle parking in the public right-of-way.

The guiding principles in developing bicycle parking are as follows:

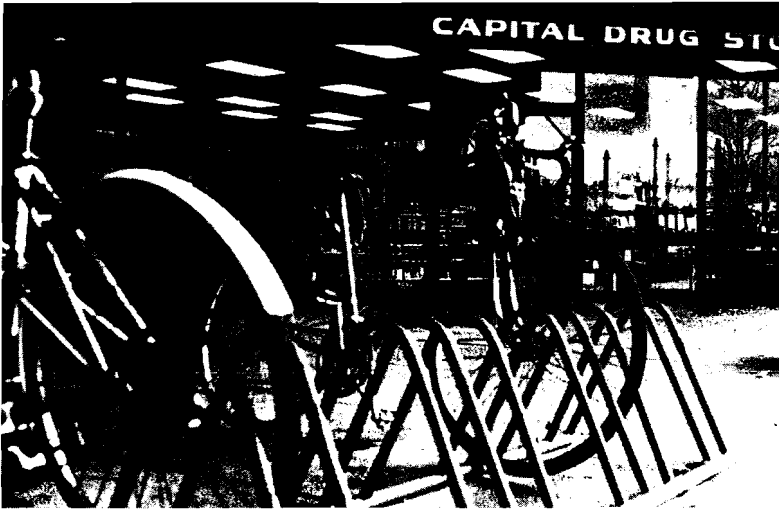
1. Parking needs to be convenient to the user's destination.
2. Security needs to be assured by placing the parking area where it receives surveillance, either direct, as from a parking attendant or casual as from employees who incidentally view the parking area from their work stations or from passing pedestrians.
3. Operation of the parking facility needs to be immediately apparent to the user.
4. The facility should avoid causing damage to the bike.
5. Facilities needed for regular commuters differ from facilities needed by shoppers. Reduction of weather exposure is more important to commuters while convenience to stores is more significant to cyclists who are shopping.

There are three broad classifications of bike racks. The first supports the bike and the cyclist carries a cable or chain and a lock to secure the bike. The second fastens around the bike and the cyclist provides the lock. The third provides a locked, weatherproof enclosure. There are a large number of styles of bike racks which fall within these classifications and a variety of parking situations each requiring a different solution. The following resources offer guidance to the bicycle planner in selecting appropriate parking devices:

- 1) Ann Arbor Parking Study - (\$3.00)
Comparative Study of Racks and User Attitudes
c/o Tom Pendleton
Bicycle Coordinator
P.O. Box 8647
Ann Arbor, MI 48107
(313) 994-2814
- 2) Parking, Vol. VIII Bicycles in Cities: The Eugene Experience - (\$1.50)
P. O. Box 3914
Eugene, OR 97403
- 3) Bicycle Parking - (\$4.95)
c/o Ellen Fletcher
777 - 108 San Antonio Rd.
Palo Alto, Calif. 94303
- 4) Evaluating Bicycle Parking Racks; A Review of Criteria
Bikeways Products
1125 16th St.
Bellingham, Washington 98225
- 5) The Denver Bicycle Parking Study and Parking for Bicycles - A Guide to Selection and Installation
Mountain Bicyclists Association, Inc.
1290 Williams Street
Denver, Colorado 80218

FIGURE 5

EXAMPLES OF BICYCLE PARKING FACILITIES



Commercial bicycle parking



Covered public bicycle parking, (Lane County Public Service Building)



Bike-Bus connection, covered racks in Eugene

Mixed Mode Travel

Many people, who would not want to pedal the entire distance to work, might consider bicycling to the bus stop. The main requirement for such mixed mode trips is secure bicycle parking at the transit station or a method of transporting the bike to the destination.

Portland, Beaverton and Eugene have begun programs to encourage bicycling to the bus. Eugene and Beaverton have installed covered bicycle racks at central transit stations, and Portland has placed rental bicycle lockers at the Barbur Boulevard Transit Station at the southern edge of the city. Racks for parking are also being planned for many of the stations in Portland's future light rail transit system.

Another way to encourage mixed mode use in urban areas is to allow bikes on buses. Some cities -- San Diego and Seattle are two -- have equipped buses with bike racks on a few long-distance runs over facilities without bike access (freeways and bridges). An alternative to investing in the racks is to permit bikes to be taken onto buses during off-peak hours or other times of low passenger use.

Mapping

Bicycle maps help encourage utilitarian as well as recreational cycling by providing information on where suitable bicycle routes are located. For Eugene and Portland, the two Oregon cities with bicycle program offices, requests for bicycle maps are the most frequent type of citizen inquiry. In response, these cities, plus Corvallis and Beaverton, each have published bicycle maps, and Salem is developing a map. Whereas the smaller cities' maps highlight designated bike-ways, the Portland Bicycle Map shows every city street color-coded according to ease or difficulty for bicycling.

Some of these maps were developed with federal funding assistance. Use of bikeway funds for this purpose is appropriate and should be encouraged.

CHAPTER VII

SAFETY AND EDUCATION

Introduction

The concern for safety is a common thread running through many aspects of bicycle planning. Improving safety, therefore, involves changes in several areas including bicycle design, safety equipment, bicycle facility design, appropriate regulations, riding technique, education of bicyclists and motorists, and enforcement of the laws. Facility design has already been discussed and bicycle and equipment design are substantially outside the focus of this plan. This chapter will discuss safety aspects which are within the jurisdiction of the various governmental agencies likely to use the plan as a guide.

The most definitive work on bicycle safety and education to date was prepared by Dr. Kenneth Cross. A compilation of his findings are in Bicycle-Safety Education, Facts and Issues.^{*} Cross has developed an accident typing system that identifies operating errors in classifications meaningful to bicycle planners. Cross also identifies generalized countermeasures for specific age groups. The Cross study has been the principle source in developing the following discussions and recommendations.

Accident Data

Accident data are a primary source in identifying safety issues such as poorly designed facilities, age groups at which various education efforts should be directed, and violations requiring enforcement efforts. The format in which the data are reported significantly affects their usefulness to bicycle planners.

^{*}Kenneth D. Cross, Ph.D., Bicycle-Safety Education, Facts and Issues (Falls Church, Virginia, AAA Foundation for Traffic Safety, 1978).

The Highway Division compiles statewide bicycle accident data that involve motor vehicles. While most bicycle accidents are unreported and do not involve a motor vehicle, the more serious accidents usually do and are of the most concern. The Highway Division accident base is therefore the most significant data base for statewide and city planning purposes.

An examination of the reporting format for bicycles reveals that adequate information is available but that the reporting format could be made more useful. The data collected concerning cause of accident is currently stated in motor vehicle terms. The summary of operator error when used for bicyclists does not reflect the travel patterns and habits unique to bicyclists and the reported age groupings are not useful for the bicycle planner.

An initial feasibility investigation of the present Oregon system indicated that a computer translation program could be added to the existing program which would create the ability to report out existing data in a format similar to the Cross accident typing system. The Highway Division will adapt the system where practical to do so.

Education

The bicycle rider is the most important element in the bicycle safety equation. By selecting the appropriate equipment and route, following good riding practices which anticipate problem areas, and by developing good reaction skills, most bicyclists can avoid accidents. Education of the bicyclist as well as motorists, parents, and law enforcement personnel can work to create these skills.

The greatest number of bicyclists are between 6 and 20 years of age and this group is also the most frequently involved in accidents. The type of accidents that occur tend to be identified with specific age groups. For instance, youngsters are more frequently involved with accidents that are characterized by suddenly riding out from the sidewalk or driveway whereas adults are more frequently involved with accidents occurring after dark. The conclusion drawn from the Cross study is that a comprehensive bicycle safety education requires a program designed for each age group with emphasis on errors commonly committed by that group. On-bike training is also an important element of such a program.

At present, no Oregon communities have a comprehensive bicycle education program, although some have elements of one. Limited funds, lack of personnel expert in cycling, and lack of a person or agency directly responsible for bicycle education are the primary reasons. In some communities, volunteer service groups or police departments do some education but support materials are often not well developed and, usually, only elementary school age children are selected as the target group.

A position within a state agency, with the responsibility of developing a Comprehensive Bicycle Education Program and coordinating its development would be very useful to local communities. The major emphasis of such a program should focus on school age children, however, adult education is also warranted as well as education of parents and enforcement personnel.

Legislative action would be required to establish a position with this intent. State bicycle funds can not be expended for bicycle safety education, and therefore, the Highway Division can not assume the responsibility of including it in the bicycle program.

Resource documents currently available for those wanting to develop safety education programs are listed as follows:

- 1) Bicycle School Resource Packet - (\$3.00)
 Bicycle Federation
 1101 15th St. N.W., Suite 309
 Washington, D.C. 20005
- 2) Guide on Effective Bicycle Education Programs - (Free)
 Peter Lagerwey
 SEMCOG
 800 Book Building
 Detroit, MI 48226
- 3) Montana Bicyclist Training Program
 c/o Montana Bicyclist Training Center
 Roger and Sharon DiBrito
 11150 Napton Way
 Lolo, Montana 59847
 (406)273-6088
- 4) Middle School Bicycle Education Program
 c/o Diana Lewiston
 1849 Newell
 Palo Alto, CA 94303
 (415) 326-3704
- 5) Bicycle Safety Program
 Traffic Safety Education for Oregon Schools K-9
 Oregon Department of Education

Regulations

The Bicycle Advisory Committee has identified several areas of concern in the rules of the road as stated in the Oregon Motor Vehicles Code. The Oregon Bicycle Council and the League of American Wheelmen are supporting legislation introduced in the legislature regarding these concerns. They are:

- 1) Defining the bicycle as a vehicle for the purpose of chapter 487 of the Motor Vehicle code.
- 2) Clarification of the ride right rule.
- 3) Modification of continuous signaling requirements.
- 4) Permitting two kinds of left turning movements.
- 5) Inclusion of bicyclists in the due care clause.
- 6) Yield of right of way by motorists to bicyclists on sidewalks and in crosswalks.
- 7) Modification of the rule regarding the opening and closing of vehicle doors.

The Division of Motor Vehicles and the State Highway Division will advise the legislature regarding the proposed changes in the regulations.

Enforcement

Enforcement is a necessary component of bicycle safety. As with any law, lack of enforcement leads to disregard. Some communities have had difficulty in getting the police to enforce the motor vehicle code with bicyclists. Discussions with bicycle coordinators have led to the conclusion that lack of enforcement is partly a function of insufficient police forces, which is a funding problem, lack of awareness of the importance of citing bicyclists, and practical problems in citing bicyclists, such as lack of positive identification (for example - drivers license).

Some elements have contributed positively to enforcement. Frequent contact between the local bicycle advisory committee and police can highlight the need for enforcement, promote understanding, and identify problem areas. Use of motorcycles rather than squad cars by traffic patrols makes apprehension of bicycle offenders easier. Community education and support of enforcement efforts builds respect between the bicyclists and motorists.

Significant violation problems identified by the bicycling community include: running stop signs and traffic signals, riding the wrong way on a street and riding at night without lights.

APPENDIX A

BICYCLE/FOOTPATH FUNDS TO CITIES & COUNTIES

BICYCLE/FOOTPATH FUNDS TO CITIES
(Based on One Percent of Total Amount Received from the State Highway Fund)

CITY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	TOTAL FY 73-83
Albany	\$ 2,413	\$ 2,631	\$ 3,441	\$ 3,032	\$ 3,000	\$ 3,038	\$ 3,644	\$ 3,713	\$ 3,745	\$ 3,616	\$ 4,129	36,402
Ashland	1,658	1,784	2,295	1,993	1,938	1,932	2,212	2,169	2,157	1,994	2,247	22,379
Astoria	1,260	1,325	1,692	1,477	1,430	1,393	1,557	1,438	1,396	1,314	1,466	15,748
Baker	1,144	1,194	1,505	1,306	1,270	1,244	1,432	1,370	1,339	1,258	1,423	14,485
Bandon	*	*	318	285	282	283	337	350	346	314	354	2,869
Beaverton	2,402	2,621	3,451	3,051	3,041	3,082	3,626	3,809	4,190	4,135	4,824	38,232
Bend	1,729	1,892	2,536	2,216	2,128	2,112	2,431	2,446	2,477	2,302	2,609	24,878
Brookings	341	370	483	428	427	429	496	458	466	456	511	4,865
Burns	397	425	551	482	477	473	509	494	503	466	472	5,249
Canby	513	586	814	765	766	779	962	987	1,040	1,023	1,138	9,373
Central Point	519	594	817	752	747	750	892	884	888	842	939	8,624
Coos Bay	1,601	1,705	2,218	1,940	1,880	1,849	2,138	2,077	2,047	1,911	2,069	21,435
Coquille	518	562	723	623	610	603	681	635	625	593	655	6,828
Cornelius	272	296	390	359	363	399	470	541	608	586	714	4,998
Corvallis	4,434	4,813	6,280	5,398	5,311	5,137	5,706	5,726	5,863	5,551	6,274	60,493
Cottage Grove	760	810	1,039	916	910	915	1,054	1,002	994	958	1,073	10,431
Creswell	*	*	*	*	*	*	250	251	*	*	277	778
Dallas	826	901	1,172	1,042	1,025	1,028	1,232	1,207	1,191	1,146	1,295	12,065
Eagle Point	*	*	304	311	334	341	402	381	382	370	414	3,239
Elgin	*	*	251	*	*	*	*	*	*	*	251	502
Enterprise	*	*	281	*	250	*	282	273	276	264	295	1,921
Estacada	*	*	*	*	*	*	257	*	251	*	257	765
Eugene	10,062	11,057	14,664	12,995	12,797	12,789	14,724	14,711	14,934	14,035	15,525	148,293
Fairview	*	*	*	*	*	*	258	255	251	*	257	1,021
Florence	292	379	501	426	406	405	509	546	589	590	654	5,297
Forest Grove	1,050	1,252	1,565	1,397	1,385	1,385	1,592	1,590	1,629	1,553	1,761	16,159
Gladstone	812	923	1,250	1,116	1,099	1,118	1,324	1,268	1,291	1,301	1,440	12,942
Gold Beach	*	*	*	*	*	*	281	251	*	*	*	532
Grants Pass	1,529	1,639	2,114	1,852	1,805	1,790	2,090	2,046	2,069	2,030	2,272	21,236
Gresham	1,601	1,907	3,088	2,870	2,962	3,159	4,043	4,316	4,572	4,458	5,043	38,019
Harrisburg	*	*	*	*	*	*	251	*	255	*	268	774
Subtotal	\$ 36,133	\$ 39,666	\$ 53,743	\$ 47,032	\$ 46,643	\$ 46,433	\$ 55,642	\$ 55,194	\$ 56,374	\$ 53,066	\$ 60,906	\$ 550,832

NOTE: Bicycle/Footpath legislation does not apply to a city in which one percent of State Highway Fund receipts in any year equals \$250 or less.

* One percent of State Highway Fund receipts equals less than \$250.

BICYCLE/FOOTPATH FUNDS TO CITIES - Page 2

CITY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	TOTAL FY 73-83
Subtotal Forwarded	\$ 36,133	\$ 39,666	\$ 53,743	\$ 47,032	\$ 46,643	\$ 46,433	\$ 55,642	\$ 55,194	\$ 56,374	\$ 53,066	\$ 60,906	\$550,832
Hermiston	615	674	896	813	842	966	1,136	1,174	1,273	1,270	1,428	11,087
Hillsboro	1,967	2,160	2,887	2,617	2,630	2,730	3,437	3,526	3,821	3,747	4,284	33,806
Hood River	500	544	707	625	610	596	682	655	629	573	640	6,761
Hubbard	*	*	*	*	*	*	*	*	*	*	259	259
Independence	374	411	547	496	505	511	603	591	578	534	589	5,739
Jacksonville	*	*	319	284	280	279	314	291	284	266	293	2,610
Jefferson	*	*	*	*	*	*	*	*	*	*	256	256
John Day	*	*	280	256	255	251	293	282	280	266	294	2,457
Junction City	299	322	416	370	370	376	434	403	429	435	475	4,329
King City	*	*	315	273	265	258	286	276	270	*	275	2,218
Klamath Falls	1,916	2,011	2,565	2,241	2,201	2,206	2,566	2,509	2,425	2,262	2,551	25,453
La Grande	1,227	1,300	1,652	1,436	1,403	1,393	1,662	1,604	1,592	1,525	1,755	16,549
Lake Oswego	1,981	2,217	2,940	2,626	2,606	2,658	3,114	3,125	3,238	3,069	3,407	30,981
Lakeview	327	344	438	384	381	374	424	407	396	372	418	4,265
Lebanon	915	970	1,262	1,120	1,113	1,131	1,332	1,300	1,382	1,399	1,548	13,472
Lincoln City	539	575	735	629	605	596	691	684	740	732	839	7,365
Madras	*	*	306	270	269	269	308	286	304	304	347	2,663
McMinnville	1,423	1,524	1,963	1,724	1,082	1,678	1,994	1,953	1,799	1,889	2,145	19,174
Medford	3,696	4,033	5,300	4,684	4,612	4,666	5,539	5,444	5,513	5,294	5,937	54,718
Milton-Frwtr	500	528	678	603	607	618	758	754	744	689	793	7,272
Milwaukie	2,090	2,222	2,865	2,507	2,299	2,276	2,619	2,557	2,543	2,373	2,634	26,985
Molalla	270	298	399	370	373	373	433	415	416	404	456	4,207
Monmouth	682	726	934	821	810	805	934	883	819	739	810	8,963
Mt. Angel	253	271	367	341	335	333	386	381	399	384	428	3,878
Myrtle Creek	328	351	460	416	421	423	482	470	459	444	486	4,740
Myrtle Point	312	331	427	379	377	374	426	391	396	387	437	4,237
Newberg	901	987	1,289	1,129	1,106	1,114	1,359	1,401	1,450	1,411	1,622	13,769
Newport	649	696	916	825	818	822	987	1,052	1,058	1,008	1,114	9,945
North Bend	1,045	1,095	1,405	1,240	1,224	1,232	1,442	1,393	1,373	1,287	1,404	14,140
Nyssa	321	338	432	380	372	374	428	406	400	376	412	4,239
Oakridge	423	457	601	534	524	520	605	579	547	490	535	5,815
Ontario	850	917	1,199	1,071	1,051	1,052	1,242	1,216	1,220	1,176	1,336	12,330
Oregon City	1,202	1,351	1,823	1,676	1,722	1,775	2,078	2,000	2,025	1,964	2,187	19,803
Subtotal	\$ 61,738	\$ 67,319	\$ 91,066	\$ 80,172	\$ 78,711	\$ 79,462	\$ 94,636	\$ 93,602	\$ 95,176	\$ 95,135	\$103,300	\$935,317

NOTE: Bicycle/Footpath legislation does not apply to a city in which one percent of State Highway Fund receipts in any year equals \$250 or less.

* One percent of State Highway Fund receipts equals less than \$250.

BICYCLE/FOOTPATH FUNDS TO CITIES - Page 3

CITY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	TOTAL FY 73-83
Subtotal Forwarded	\$ 61,738	\$ 67,319	\$ 91,066	\$ 80,172	\$ 78,711	\$ 79,462	\$ 94,636	\$ 93,602	\$ 95,176	\$ 95,135	\$103,300	\$935,317
Pendleton	1,635	1,738	2,226	1,953	1,912	1,880	2,141	2,027	2,041	1,929	2,153	21,635
Philomath	*	*	310	274	278	294	347	347	379	356	394	2,979
Phoenix	*	*	*	*	*	*	270	275	305	310	347	1,507
Pilot Rock	*	*	260	*	*	*	254	*	*	*	*	514
Portland	46,344	48,413	60,619	51,843	51,057	49,929	54,474	51,309	51,883	48,549	54,349	568,769
Prineville	536	572	786	705	738	745	857	836	816	698	775	8,064
Rainier	*	*	289	253	*	*	285	273	*	*	*	1,100
Redmond	468	510	708	623	608	792	917	904	875	869	979	8,253
Reedsport	515	546	708	631	620	615	728	719	708	657	725	7,172
Roseburg	1,788	1,914	2,518	2,298	2,254	2,221	2,560	2,500	2,410	2,178	2,374	25,015
St. Helens	781	836	1,075	950	933	950	1,136	1,102	1,058	934	1,052	10,807
Salem	8,917	9,533	12,103	10,639	10,483	10,600	12,504	12,532	12,712	12,148	13,633	125,804
Sandy	*	*	301	271	284	302	367	376	404	410	494	3,209
Scappoose	264	291	396	355	364	390	455	431	442	455	465	4,308
Seaside	538	569	729	638	624	615	700	670	697	689	772	7,241
Sheridan	*	252	326	289	285	285	333	317	314	297	328	3,026
Sherwood	*	*	275	*	258	281	312	309	328	318	368	2,449
Silverton	540	585	753	666	652	678	784	762	751	694	780	7,645
Springfield	3,461	3,922	5,347	4,793	4,716	4,738	5,742	5,784	5,836	5,528	6,095	55,962
Stayton	399	430	553	493	498	511	619	604	608	596	675	5,986
Sutherlin	403	455	617	560	577	590	668	622	629	605	660	6,386
Sweet Home	483	522	680	605	598	918	1,035	1,039	957	930	1,035	8,802
Talent	*	265	357	325	330	333	382	359	357	341	379	3,428
The Dalles	1,321	1,380	1,733	1,501	1,493	1,444	1,628	1,539	1,534	1,484	1,669	16,726
Tigard	872	1,013	1,546	1,399	1,422	1,490	1,836	1,982	1,993	2,003	2,601	18,157
Tillamook	489	519	662	575	558	550	623	574	556	524	593	6,223
Toledo	356	377	487	434	429	422	485	449	435	420	473	4,767
Troutdale	*	*	331	335	365	370	468	566	737	809	943	4,924
Tualatin	*	312	444	447	472	536	768	901	1,050	1,146	1,337	7,413
Umatilla	*	*	*	*	270	334	408	417	445	416	445	2,735
Union	*	*	289	261	259	256	300	289	287	276	308	2,525
Subtotal	\$131,848	\$142,273	\$188,494	\$164,288	\$162,048	\$162,531	\$189,022	\$184,416	\$186,723	\$176,704	\$200,501	\$1,888,848

NOTE: Bicycle/Footpath legislation does not apply to a city in which one percent of State Highway Fund receipts in any year equals \$250 or less.

* One percent of State Highway Fund receipts equals less than \$250.

BICYCLE/FOOTPATHS TO CITIES - Page 4

CITY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 73-83
Subtotal												
Forwarded	\$131,848	\$142,273	\$188,494	\$164,288	\$162,048	\$162,531	\$189,022	\$184,416	\$186,723	\$176,704	\$200,501	\$1,888,848
Vale	*	*	271	*	*	*	271	258	*	*	*	800
Veneta	*	*	285	267	270	276	348	346	339	321	352	2,804
Vernonia	*	*	262	*	*	*	264	260	256	*	260	1,302
Warrenton	*	*	304	272	278	288	346	361	366	330	366	2,911
West Linn	904	983	1,323	1,201	1,210	1,268	1,580	1,635	1,750	1,746	1,904	15,504
Willamina	*	*	*	*	*	*	*	*	*	*	263	263
Wilsonville	*	*	*	*	*	*	317	352	396	419	500	1,984
Winston	313	340	450	401	390	389	459	431	443	441	482	4,539
Woodburn	970	1,090	1,472	1,319	1,321	1,344	1,543	1,485	1,539	1,499	1,671	15,253
Wood Village	*	256	339	328	324	292	338	331	324	308	362	3,202
TOTAL	\$134,035	\$144,942	\$193,200	\$168,076	\$165,841	\$166,388	\$194,488	\$189,875	\$192,136	\$181,768	\$206,661	\$1,937,410

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NOTE: Bicycle/Footpath legislation does not apply to a city in which one percent of State Highway Fund receipts in any year equals \$250 or less.

* One percent of State Highway Fund receipts equals less than \$250.

BICYCLE/FOOTPATH FUNDS TO COUNTIES
(Based on One Percent of Total Amount Received from the State Highway Fund)

COUNTY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 73-83
Baker	2,146	2,205	2,279	2,453	2,523	2,283	2,672	2,599	2,653	2,537	2,836	27,186
Benton	5,400	5,515	5,990	6,420	6,474	6,688	7,665	7,442	7,621	7,272	8,144	74,631
Clackamas	19,400	21,763	23,749	25,448	24,468	27,686	30,958	30,129	30,797	29,406	33,149	296,953
Clatsop	3,133	3,259	3,474	3,639	3,478	4,030	4,414	4,237	4,294	4,132	4,678	42,768
Columbia	3,513	3,883	4,178	4,575	4,721	4,664	5,413	5,202	5,240	4,963	5,614	51,966
Coos	7,133	7,278	7,797	8,185	7,983	8,398	9,363	9,007	9,002	8,321	9,145	91,612
Crook	1,540	1,587	1,723	1,914	2,041	1,779	2,116	2,073	2,097	2,011	2,277	21,158
Curry	1,871	1,916	2,084	2,316	2,397	2,248	2,756	2,701	2,776	2,695	3,057	26,817
Deschutes	4,759	5,233	5,793	6,460	6,667	7,150	8,521	8,759	9,273	9,081	10,416	82,112
Douglas	9,796	10,238	11,077	12,025	12,145	12,115	13,799	13,221	13,298	12,637	14,096	134,447
Gilliam	*	*	*	*	*	*	*	*	*	*	*	*
Grant	*	*	*	*	*	*	*	*	*	*	*	*
Harney	*	*	*	*	*	*	*	*	*	*	*	*
Hood River	1,894	1,924	2,079	2,304	2,394	2,302	2,652	2,524	2,562	2,461	2,773	25,869
Jackson	13,127	13,954	15,154	16,525	16,953	16,465	19,428	18,812	19,128	18,367	20,672	188,585
Jefferson	*	*	*	1,666	1,861	*	1,768	1,685	1,749	1,742	2,026	12,497
Josephine	5,481	5,828	6,400	7,113	7,522	7,046	8,595	8,362	8,547	8,223	9,285	82,402
Klamath	6,925	7,149	7,589	8,399	8,808	7,800	9,405	9,046	9,081	8,596	9,603	92,401
Lake	*	*	*	*	*	*	*	*	*	*	*	*
Lane	26,751	27,802	29,715	31,274	30,520	32,991	37,032	35,847	36,059	33,980	37,816	359,787
Lincoln	3,189	3,373	3,601	3,811	3,661	4,357	4,871	4,817	4,975	4,788	5,423	46,866
Linn	9,109	9,758	10,316	11,215	11,303	11,242	12,879	12,447	12,437	11,739	13,159	125,604
Malheur	3,289	3,492	3,672	4,447	5,397	3,388	4,548	4,252	4,281	4,114	4,686	45,566
Marion	17,771	18,603	20,041	21,233	10,326	23,695	25,787	25,193	25,712	24,618	27,794	250,773
Morrow	*	*	*	*	*	*	*	*	*	*	*	*
Subtotal	\$146,227	\$154,760	\$166,711	\$181,422	\$181,642	\$186,327	\$214,642	\$208,355	\$211,582	\$201,683	\$226,649	\$2,080,000

NOTE: Bicycle/Footpath legislation does not apply to a county in which one percent of State Highway Fund receipts in any year equals \$1,500 or less.

* One percent of State Highway Fund receipts equals less than \$1,500.

BICYCLE/FOOTPATH FUNDS TO COUNTIES - Page 2

COUNTY	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 73-83
Subtotal Forwarded	\$146,227	\$154,760	\$166,711	\$181,422	\$181,642	\$186,327	\$214,642	\$208,355	\$211,582	\$201,683	\$226,649	\$2,080,000
Multnomah	62,823	64,661	67,161	67,757	64,470	59,172	68,395	65,837	65,513	61,109	67,401	714,299
Polk	3,875	4,241	4,503	4,778	4,655	5,022	5,563	5,427	5,576	5,356	6,056	55,052
Sherman	*	*	*	*	*	*	*	*	*	*	*	*
Tillamook	2,252	2,300	2,449	2,549	2,448	2,859	3,111	3,025	3,101	3,007	3,453	30,554
Umatilla	6,208	6,483	6,929	8,191	9,290	7,590	9,474	9,115	9,248	8,874	10,030	91,432
Union	2,601	2,840	3,021	3,326	3,460	3,203	3,706	3,530	3,568	3,427	3,880	36,562
Wallowa	*	*	*	*	*	*	*	*	*	*	*	*
Wasco	2,683	2,773	2,906	3,207	3,347	3,138	3,560	3,349	3,377	3,262	3,726	35,328
Washington	18,910	19,953	21,765	23,161	21,974	24,322	27,529	27,427	28,446	27,307	30,914	271,753
Wheeler	*	*	*	*	*	*	*	*	*	*	*	*
Umatilla	5,089	5,353	5,786	6,192	6,205	6,644	7,531	7,366	7,550	7,309	8,357	73,382
TOTAL	\$250,668	\$263,364	\$281,231	\$300,583	\$297,491	\$298,277	\$343,511	\$333,476	\$337,961	\$320,334	\$360,466	\$3,388,362

NOTE: Bicycle/Footpath legislation does not apply to a county in which one percent of State Highway Fund receipts in any year equals \$1,500 or less.

* One percent of State Highway Fund receipts equals less than \$1,500.

APPENDIX B

SUPPLEMENTS AND EXCEPTIONS TO AASHTO GUIDELINES

734-20-060. The Department of Transportation adopts by reference [the manual Bikeway Design", dated January, 1974] The American Association of State Highway and Transportation Officials Guide for Development of New Bicycle Facilities, dated October 3, 1981, to establish design and construction standards, and classify bikepaths for such purposes, establish guidelines for traffic control devices on bikepaths including location and type of traffic warning signs, and to recommend illumination standards, all in accordance and pursuant to ORS 366.514.

(2) The following constitute supplements and exceptions to the October 3, 1981 edition of the "Guide for Development of New Bicycle Facilities.

(a) Signing and Marking

(1) All bicycle signing and markings on the State Highway System or installed on local City Streets or County Roads under State contract shall be in conformance with the signing and markings as shown in Exhibits 1 and 7 attached here to and made a part hereof. Any signing or markings not shown on these drawings, but which is deemed necessary and required for the bicycle facility shall conform to the Manual on Uniform Traffic Control Devices as adopted by the Oregon Transportation Commission.

(2) The standard width longitudinal painted solid line separating the vehicle travel way and a shoulder bike lane shall be as required by OAR 734-20-055.

(3) The desirable width for a one-way bike lane on the State Highway System or installed on local City Streets or County Roads under State contract is 6 feet. Where 6 feet is not practical to achieve because of physical or economic constraints, a minimum width of 4 feet may be designated as a bicycle lane.

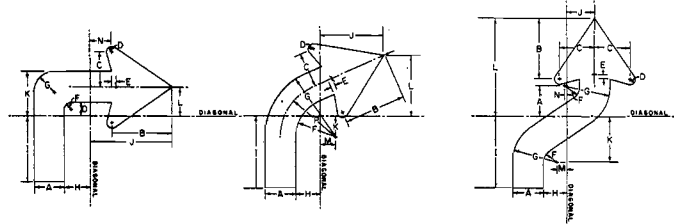
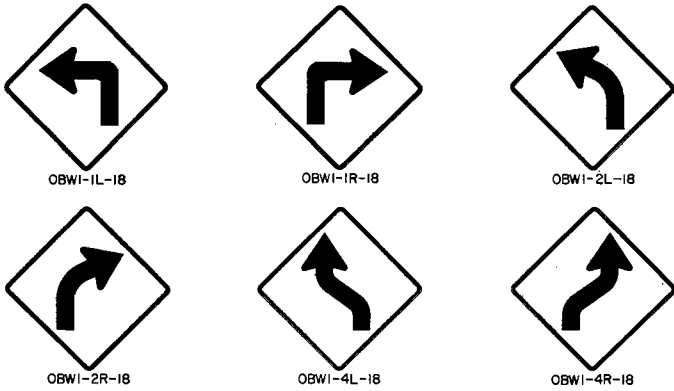
(b) Definitions

For purposes of this rule and the Guide, the definitions on page two of the Guide shall control, rather than any conflicting statutory or rule definitions. Terms not defined in the Guide shall be given their ordinary every day interpretation, even if defined otherwise for use in specific chapters in the Oregon Revised Statutes.

(c) Applicable Oregon Law

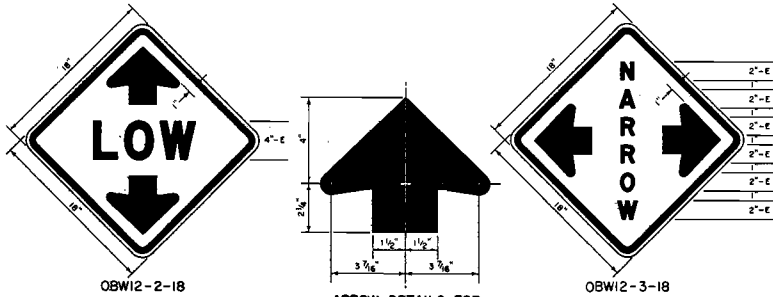
Oregon statutes pertaining to bicycles are:

<u>292.495</u>	<u>Compensation - Advisory Committee on Bicycles</u>
<u>366.112</u>	<u>Advisory Committee</u>
<u>366.460</u>	<u>Construction of Sidewalks, Bicycle Paths, Footpaths or Horse Trails</u>
<u>366.514</u>	<u>Bicycle Fund</u>
<u>447.310</u>	<u>Standards for Curbing - Curb Cuts</u>
<u>481.004</u>	<u>Bicycle and Moped Defined</u>
<u>483.002</u>	<u>Definitions - Bicycle, Bicycle Lane, Bicycle Path, Bicycle Trail</u>
<u>483.547</u>	<u>Parents Responsibility</u>
<u>483.549</u>	<u>Required Equipment</u>
<u>483.552</u>	<u>Definitions - Public Way, Street Drain</u>
<u>483.554</u>	<u>Bicycle Safe Drains</u>
<u>483.556</u>	<u>Construction Guidelines</u>
<u>487.750</u>	<u>Motor Vehicle Rules</u>
<u>487.760</u>	<u>Unlawful Bicycle Operation</u>
<u>487.765</u>	<u>Riding on Roadways, Bicycle Paths and Lanes</u>
<u>487.770</u>	<u>Use of Bicycle Lane by Motor Vehicles Restricted</u>
<u>487.775</u>	<u>Use of Bicycle Path by Motor Vehicles Prohibited</u>
<u>487.785</u>	<u>Bicyclists on Sidewalks</u>
<u>487.790</u>	<u>Bicycle Racing</u>
<u>487.795</u>	<u>Clinging to a Vehicle</u>
<u>487.870</u>	<u>Regulating Use of Freeways</u>



SIGN NO.	BOARD SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
OBWI-1L-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	5/8	1 13/16	2 1/4	5 13/16	7 3/16	3 3/8	2 7/16	—	1 7/8	1 1/8	—
OBWI-1R-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	5/8	1 13/16	2 1/4	5 13/16	7 3/16	3 3/8	2 7/16	—	1 7/8	1 1/8	—
OBWI-2L-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	3 3/8	6	2 1/16	6 3/16	5 7/16	1 3/4	5 5/16	1 5/16	—	—	4 1/16
OBWI-2R-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	3 3/8	6	2 1/16	6 3/16	5 7/16	1 3/4	5 5/16	1 5/16	—	—	4 1/16
OBWI-4L-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	1 1/8	3 3/4	1 3/32	6 3/16	2 23/64	3 1/16	8 7/16	2 7/32	1 5/16	—	—
OBWI-4R-18	18"x18"	2 5/8	5 5/16	3	1 7/32	1 3/32	1 1/8	3 3/4	1 3/32	6 3/16	2 23/64	3 1/16	8 7/16	2 7/32	1 5/16	—	—

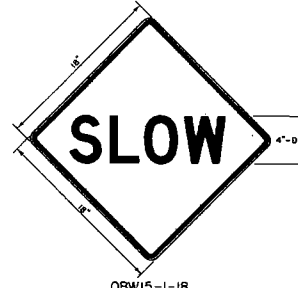
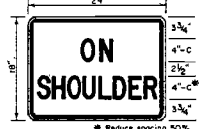
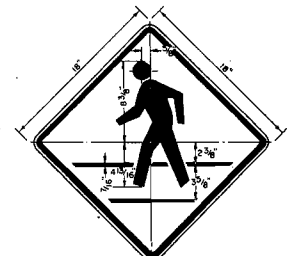
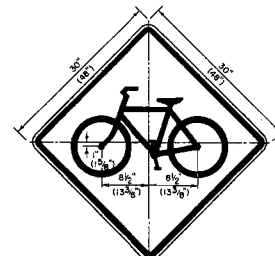
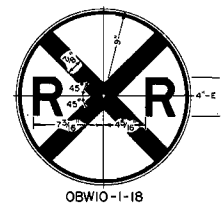
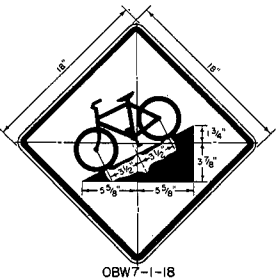
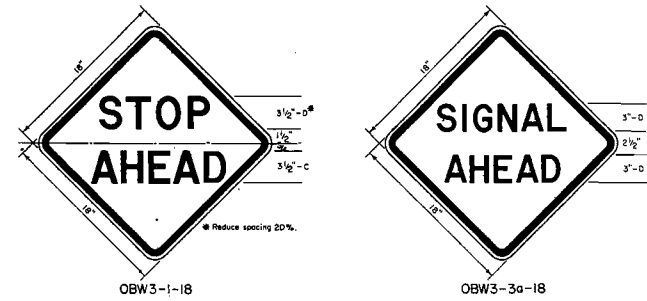
ARROW DETAILS FOR OBWI SERIES SIGNS



ARROW DETAILS FOR OBW12 SERIES SIGNS

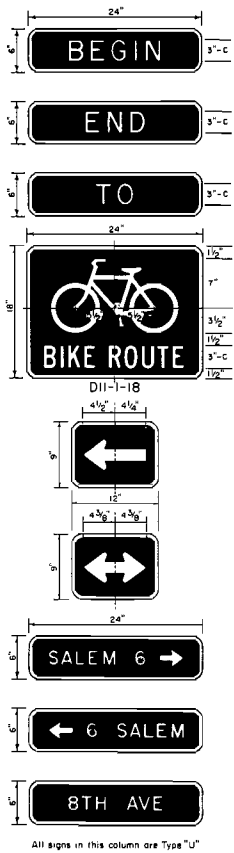
All signs on this sheet shall be Type "D", unless noted otherwise.
 Warning signs shall have non-reflectORIZED black letters, symbols and borders on a yellow background, unless noted otherwise. All backgrounds shall be reflectORIZED. The Federal Highway Administration's standard rounded capital letter alphabets and letter spacing shall be used unless noted otherwise. For detailed sign drawings and dimensions, see the publication "Standard Highway Signs" by the Federal Highway Administration, 1971. The border, margin, and corner radii shall be as follows unless noted otherwise.

BOARD DIMENSIONS	BORDER	MARGIN	CORNER RADIUS
Either or both less than 30"	5/8"	3/8"	1 1/2"
Both 30"	3/4"	1/2"	1 1/2"
Both more than 30" B either less than 48"	7/8"	5/8"	2 1/4"
Both 48" or larger	1 1/4"	3/4"	3"

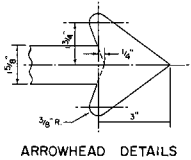


DATE	INITIAL	REVISION
1/78		Added OBW5-1-18.
4/78		Removed OBW11-7.
4/78		Removed Plaque.

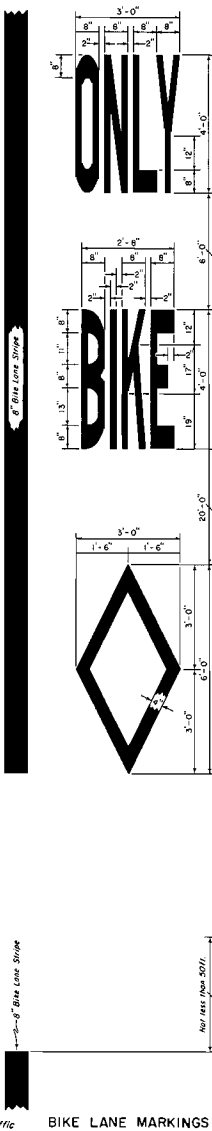
OREGON STATE HIGHWAY DIVISION
 TRAFFIC ENGINEERING SECTION
STANDARD BICYCLE SIGNING DETAILS
WARNING SIGNS
 DATE MAILED 1974
 T.E.S. DWG. NO. **S-15**



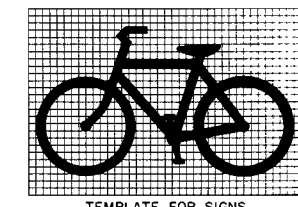
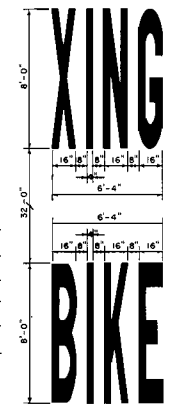
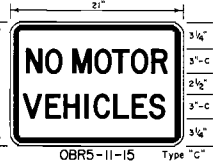
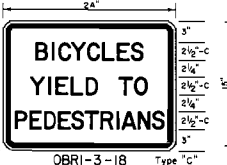
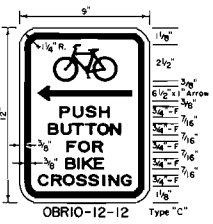
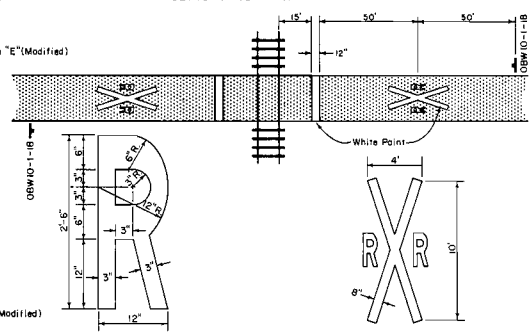
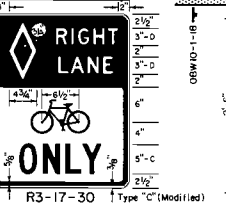
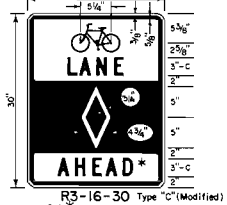
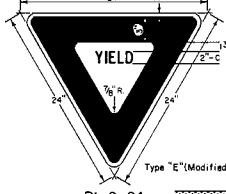
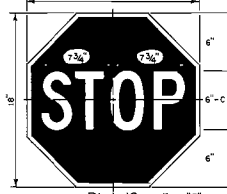
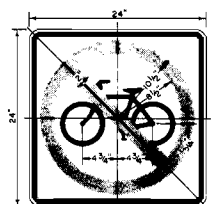
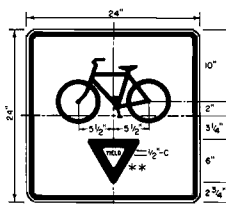
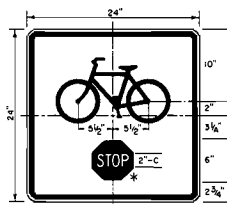
All signs in this column are Type "U"



Note: An 8" solid white reflectorized painted traffic stripe shall be used to separate a Class III bikeway from the vehicle traffic flow.



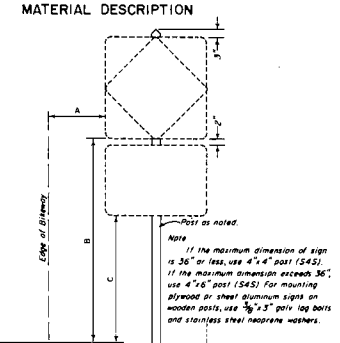
SIDE ROAD



All signs on this sheet shall be the Type noted, and have reflectorized background.
The Federal Highway Administration's standard rounded capital letter alphabets and letter spacing shall be used unless noted otherwise. For detailed sign drawings and dimensions, see the publication "Standard Highway Signs" by the Federal Highway Administration, 1971. The border, margin, and corner radii shall be as follows unless noted otherwise.

BOARD DIMENSIONS	BORDER	MARGIN	CORNER RADIUS
Either or both less than 30"	5/8"	3/8"	1 1/2"
Both 48" or larger	1 1/4"	3/4"	3"
All Type "U" signs	-	1/2"	1 1/2"

TYPE	SIGN	BACKGROUND	LEGEND
C	Sheet Aluminum or Plywood	White reflectorized sheening	Non-reflectorized Black screened
D	Sheet Aluminum or Plywood	Yellow reflectorized sheening	Non-reflectorized Black screened
E	Sheet Aluminum or Plywood	White reflectorized sheening overlaid with Red transparent paste	Reflectorized white screened
H	Sheet Aluminum or Plywood	White reflectorized sheening	Screened non-reflectorized Black with a reflectorized circle and contents of sign cut out overlaid with Red transparent paste
U	Sheet Aluminum or Plywood	White reflectorized sheening overlaid with Green transparent paste	Reflectorized White cut out or with Green transparent paste



TYPICAL SIGN INSTALLATIONS

STANDARD SIGN CLEARANCES			
CLASS OF BIKEWAY	A	B	C
I	2'-0"	5'-0"	4'-0"
II	2'-0"	7'-0"	6'-0"
III	2'-0"	7'-0"	6'-0"

§ See T.E.S. Ordg. No S-1 for roadway criteria

OREGON STATE HIGHWAY DIVISION
TRAFFIC ENGINEERING SECTION

STANDARD BICYCLE SIGNING DETAILS
REGULATORY SIGNS, GUIDE SIGNS, & PAVEMENT MARKERS

DATE	INITIAL	REVISION
4/75		Revised pavement markings details.
8/75		Removed OBRI-2-60.
11/76		Added OBRIO-12-12.
1/78		Revised pavement markings.
3/78		Revised OBRS-6.
6/78		Added Class III stripe note.
9/80		Revised pavement markings & arrow boards.
5/84		General revisions & additions.

APPROVED: [Signature]
TRAFFIC ENGINEER

DATE: MARCH 1975

T.E.S. ORG. NO. S-16

APPENDIX C

PARK POLICY



POLICY STATEMENT

NUMBER	PAR 14	PAGE 1 OF 2
EFFECTIVE DATE	April 6, 1981	
AUTHORITY		
APPROVED	<i>David A. Tallent</i>	
SUBJECT	Hiker/Biker Camping in State Parks	
DISTRIBUTION	Regional Parks Supervisors Park Managers Larry Jacobson Jack Remington Steve Johansen	

PURPOSE:

To establish a policy for the use of State Park facilities by hikers, backpackers, and bicycle riders.

INTRODUCTION:

In recent years, the increased popularity of hiking, backpacking, and bike riding nationwide and in Oregon has resulted in increased use of Oregon's State Parks for these activities. The need for camping facilities to accommodate these activities as an alternative to the regular family campground in State Parks has been recognized, and hiker/biker camps have been developed in appropriate areas as funds permit.

BASIC POLICY:

That the State Parks and Recreation Division recognizes the need for facilities to accommodate the increasing number of hikers, backpackers, and bike riders, and that these needs be met by constructing camping facilities in appropriate State Parks as personnel and funds permit.

GUIDELINES:

The following guidelines are intended to direct the State Parks and Recreation Division in the establishment of hiker/biker facilities in State Parks.

- Campsites, signing, and other trail-related facilities should be given full consideration in master planning for State Parks.
- Provide safe, inexpensive, relatively primitive places to camp in state parks along trails/highways utilized by hikers, backpackers, and bike riders (e.g., along Oregon Coast Trail, Coast and Trans-America bike routes, etc.)
- Provide minimum camping facilities at low cost for hikers and bikers including a level space for a tent and/or sleeping bags. A fire ring or campstove may be provided if firewood is available nearby. Water and toilets should be available within reasonable distance and a garbage can and picnic table provided at designated hiker/biker camps in developed areas of the park.

- Keep the fee for such facilities as low as possible (currently \$1.00 per person per night) commensurate with costs to operate and maintain. A variable fee schedule may be adopted based on facilities and services provided.
- With signing and brochures, emphasize the importance of low impact camping, litter pickup, fires in designated places only, and other techniques to help preserve and protect the natural appearance of state parks.
- Permit people camping in hiker/biker camps to utilize nearby shower facilities as part of the camping fee.
- Permit hikers/bikers to occupy a regular campsite by paying the full fee for that type of site. No more than four hikers/bikers will be allowed to occupy a regular campsite at the regular camp unit fee. The Park Manager shall determine maximum occupancy of the individual campsite.
- Provide adequate information by means of signing, brochures, and maps regarding locations of hiker/biker camps, trails, restrooms, etc.
- Maintain close coordination with other agencies (U.S. Forest Service, BLM, etc.) in providing facilities for the needs of hikers/bikers in key areas.

RESPONSIBILITIES:

State Parks - Develop and maintain attractive, clean, safe, low cost campsites for hikers, backpackers, and bicycle riders in state parks along popular hiking/riding routes.

Hikers/Bikers - Help maintain trails and camping facilities in good condition by picking up and packing out litter, building fires in designated areas only, and respecting the rights of other users.

APPENDIX D

PARKING CODE

THE CITY OF
PORTLAND



March 10, 1981

MEMORANDUM

OREGON

DEPARTMENT OF
PUBLIC WORKS

MIKE LINDBERG
COMMISSIONER

OFFICE OF
PUBLIC WORKS
ADMINISTRATOR

621 S.W. ALDER
PORTLAND, OR 97205

TO: Interested Persons

FROM: City of Portland Bicycle and Pedestrian Program

SUBJECT: Changes to Zoning Code to Require Bicycle Parking

Starting January 1, 1981, new construction in most Portland commercial, light industrial, and high density residential zones has been required to include bicycle parking. This memorandum summarizes the bicycle parking options and requirements for uses in the following zones:

Definitions

R2 Multi-Family Residential
R1 Multi-Family Residential
RH High Density Multi-Family Residential
C4 Neighborhood Commercial
C3 Local Commercial
C2 General Commercial
MU Light Manufacturing
M2 General Manufacturing
M1 Heavy Manufacturing
Z Downtown Development
Elderly and Handicapped High Density
Design Standards for Bicycle Parking

Definitions

Specifies minimum area of 125 feet for each adult tricycle parking space and 25 feet for each bicycle parking space. (33.12.590)

R2 Multi-Family Residential Zone, and
R1 Multi-Family Residential Zone

Offers bicycle parking option for developments with minimum of 5 automobile parking units. A developer may substitute bicycle parking for required motor vehicle parking at a ratio of 4 bicycle parking spaces for every automobile parking space not provided, up to a maximum 20% reduction in motor vehicle parking. Reductions in automobile parking must be approved by the Bureau of Traffic Engineering. Bicycle parking must be covered if the development includes a basement or provides covered motor vehicle parking. (33.30.030 and 33.32.030)

RH High Density Multi-Family Residential Zone

Requires provision of bicycle parking according to the following schedule:

<u>Project Size</u>	<u>Number of Bicycle Parking Spaces</u>
Less than 10 units	2
10-19 Units	3
20-39 Units	5
40-80 Units	8
Over 80 Units	1 space for every 10 dwelling units

Covered bicycle parking is required where the development includes a basement or provides covered motor vehicle parking.

Required automobile spaces may be reduced at the rate of 1 space for every 4 covered bicycle spaces provided, up to a minimum 20% reduction in motor vehicle parking. Reductions must be approved by the Bureau of Traffic Engineering. (33.34.030)

C4 Neighborhood Commercial Zone

Requires 2 bicycle parking spaces for every 4,000 square feet of floor area. (33.40.040)

C3 Local Commercial Zone

Requires bicycle parking in the following amounts for uses in groups of 1-6*:

Group 1, 2: For retail stores, general offices, and all other uses in group 1 and 2, 5 bicycle parking spaces or 1 space for each 20 motor vehicle spaces provided, whichever is greater.

Group 3: For gymnasiums and indoor arenas, 10 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater. For all other group 3 uses, such as wholesale businesses, 5 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater.

Group 4: For parking garages, bicycle shops, and all other group 4 uses, 2 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater.

* Complete listing of uses by group may be found under Principle Uses, 33.41.020, Portland City Code.

Group 5: For auditoriums, exhibition halls, libraries, museums and theaters, 10 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater. Billboards and cemeteries are not required to provide bicycle parking spaces. For all other group 5 uses, such as hotels, restaurants, and medical offices, 5 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater.

Group 6: For elementary and high schools, 1 bicycle parking space for every 10 students. For colleges, 1 bicycle parking space for every 10 motor vehicle parking spaces provided. For all other group 6 uses, such as churches and hospitals, 5 bicycle parking spaces or 1 space for every 20 motor vehicle parking spaces provided, whichever is greater.

For all the above uses, except schools and colleges, wherever 10 or more bicycle parking spaces are provided, 50% of all the required spaces must be covered. All bicycle parking required for schools and colleges must be covered. (33.41.030, 33.41.045)

C2 General Commercial Zone

Bicycle parking is required for groups 1-6 in the same amounts specified for C3 - Local Commercial Zone. Required automobile spaces may be reduced at the rate of 1 space for every 2 bicycle parking spaces provided, up to a maximum 20% reduction in motor vehicle parking. Reductions in automobile parking must be approved by the Bureau of Traffic Engineering. (33.42.040 and 33.42.045)

M3 Light Manufacturing Zone

Bicycle parking is required in the same amounts specified for groups 1-6 in C3 - Local Commercial Zone and C2 - General Commercial Zone. For all manufacturing and other uses in group 7, 2 covered bicycle parking spaces or 1 covered space for every 20 motor vehicle spaces. (33.50.045)

M2 General Manufacturing Zone, and M1 Heavy Manufacturing Zone

Offers option to reduce required motor vehicle parking spaces by 1 space for every 2 covered bicycle parking spaces provided, up to a maximum 10% reduction in motor vehicle parking. Reductions in automobile parking must be approved by the Bureau of Traffic Engineering. (33.52.040, 33.54.030)

Z Downtown Development Zone

Requires bicycle parking in both new construction and building remodelings, based on the following schedule:

<u>Category of Use</u>	<u>Bicycle Parking Required</u>
Residential	One space for every 4 dwelling units.
Hotel or Motel	One space for every 20 employees.
All Other Uses	Ten spaces, or 1 space for every 20,000 gross square feet of building area, or 1 space for every 20 passenger automobile spaces allowed, whichever is greater.

Remodeling buildings must include bicycle parking if the renovation exceeds 50% of the building's assessed value before the renovation and if the building has a loading dock, motor vehicle access, or service entrance.

All required bicycle parking in residential projects must be covered. Fifty percent of required bicycle parking in all other projects with 10 or more bicycle parking spaces must be covered.

An off-street parking structure providing 300 or more motor vehicle parking spaces for public use must include 1 bicycle parking space for every 20 motor vehicle parking spaces. Bicycle parking must be available for general public use. (33.56.090)

Elderly and Handicapped High Density

Offers the option of reducing required motor vehicle parking by 1 space for every 4 bicycle or adult tricycle parking spaces provided, so long as at least 1 automobile space is maintained for every 12 dwelling units for elderly or handicapped persons. The Bureau of Traffic Engineering must approve the substitution. (33.81.030)

Bicycle Parking Design Standards

For bicycle parking in all zones:

1. Bicycle parking requirements can be met in any of the following ways:
 - (a) Providing storage space inside the building in view of the bicycle owner.
 - (b) Providing a bicycle storage room, bicycle lockers, or racks inside the building.
 - (c) Providing bicycle lockers or racks in an accessory parking structure or outside the main building.
 - (d) Providing bicycle racks on the public right-of-way. Must be approved by the City of Portland Bureau of Street and Structural Engineering.

Changes to Zoning Code to Require Bicycle Parking

March 10, 1981

Page Five

2. Bicycle parking spaces located outside a structure must be placed no farther from the structure's main entrance than the closest off-street motor vehicle parking space.
3. Bicycle parking spaces located outside a structure must be visible from the sidewalk adjacent to the building's main entrance.
4. Bicycle parking racks or lockers must be anchored securely.
5. Bicycle racks must support the bicycle in the center of the frame and allow the frame and both wheels to be secured with a single cable or chain and padlock.
6. An aisle for bicycle maneuvering must be provided and maintained beside or between each row of bicycle parking. This aisle must be at least five feet wide.
7. Each required bicycle parking space must be accessible without moving another bicycle.
8. Bicycle spaces required by this chapter may not be rented or leased except where required motor vehicle parking is rented or leased.
9. Areas set aside for required bicycle parking shall be clearly marked and reserved for bicycle parking only. (33.82.030)

These bicycle parking requirements will stay in effect until December 31, 1982. The City Planning Commission and Portland City Council will decide at that time whether to retain the requirements.

JS:mmc

APPENDIX E

LIST OF ROUTE INFORMATION AVAILABLE

"Oregon Bike Routes", Bicycle Program Coordinator, Oregon Department of Transportation, Highway Division, Salem, OR 97310, free.

"Oregon Coast Bike Route", Bicycle Program Coordinator, Oregon Transportation, Highway Division, Salem, OR 97310, free.

"Oregon Loop Bicycle Route", Bikecentennial, P.O. Box 8308, Missoula, MT 59807, \$4.95.

"Seattle to Portland Route Guide", Seattle to Portland, P.O. Box 12744, Seattle, WA 98111, \$3.00.

"Willamette River Cycle Touring Guide", Bicycle Program Coordinator, Oregon Department of Transportation, Highway Division, Salem, OR 97310, free.

"Eugene Bicycle Map", Bicycle Coordinators, Public Works Department, 858 Pearl Street, Eugene, OR 97401, \$1.50.

"Portland Bicycle Map", Bicycle and Pedestrian Program, 621 S.W. Alder, Portland, OR 97205, free.

"Portland Bicycle", Bicycle Commuter Service, 1914 S.E. Ankeny, Portland, OR 97214.

"55 Oregon Bicycle Trips", Touchston Press, P.O. Box 81, Beaverton, OR 97005.

"Bicycling the Pacific Coast", The Mountaineers, 715 Pike Street, Seattle, WA 98101, \$8.95.

"Bicycling the Backroads of Northwest Oregon", The Mountaineers, 715 Pike Street, Seattle, WA 98101, \$8.95.

APPENDIX F

LAW ESTABLISHING THE BICYCLE FUND

366.460 Construction of sidewalks within highway right of way. The department may construct and maintain within the right of way of any state highway or section thereof sidewalks, footpaths, bicycle paths or trails for horseback riding or to facilitate the driving of livestock. Before the construction of any such facilities the department must find and declare that the construction thereof is necessary in the public interest and will contribute to the safety of pedestrian, the motoring public or persons using the highway. Such facilities shall be constructed to permit reasonable ingress and egress to abutting property lawfully entitled to such rights.

366.514 Use of highway fund for footpaths and bicycle trails. (1) Out of the funds received by the department or by any county or city from the State Highway Fund reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project. Footpaths and bicycle trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated. Funds received from the State Highway Fund may also be expended to maintain footpaths and trails and to provide footpaths and trails along other highways, roads and streets and in parks and recreation areas.

(2) Footpaths and trails are not required to be established under subsection:(1) of this section:

(a) Where the establishment of such paths and trails would be contrary to public safety;

(b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use; or

(c) Where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails.

(3) The amount expended by the department or by a city or county as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund. However:

(a) This subsection does not apply to a city in any year in which the one percent equals \$250 or less, or to a county in any year in which the one percent equals \$1,500 or less.

(b) A city or county in lieu of expending the funds each year may credit the funds to a financial reserve or special fund in accordance with ORS 280.100, to be held for not more than 10 years, and to be expended for the purposes required or permitted by this section.

(4) For the purposes of this chapter, the establishment of paths, trails and curb cuts or ramps and the expenditure of funds as authorized by this section are for highway, road and street purposes. The department shall, when requested, provide technical assistance and advice to cities and counties in carrying out the purpose of this section. The division shall recommend construction standards for footpaths and bicycle trails. Curb cuts or ramps shall comply with the requirements of ORS 447.310. The division shall, in the manner prescribed for marking highways under ORS 487.850, provide a uniform system of signing footpaths and bicycle trails which shall apply to paths and trails under the jurisdiction of the department and cities and counties. The department and cities and counties may restrict the use of footpaths and bicycle trails under their respective jurisdictions to pedestrians and nonmotorized vehicles.

(5) As used in this section, "bicycle trail" means a publicly owned and maintained lane or way designated and signed for use as a bicycle route.

APPENDIX G

GUIDELINES FOR DESIGNATING EXISTING SHOULDERS AS BIKEWAYS

GUIDELINES FOR
DESIGNATING EXISTING SHOULDERS OF ROADWAYS AS BIKEWAYS

A. POLICY.

The shoulders of existing roadways may be considered for signing as bikeways when need and demand can be shown, where physical conditions warrant the signing, and when increased safety and motorist awareness can result.

B. REQUIREMENTS.

Physical Conditions. ALL of the following conditions shall be present:

1. Existing shoulders are five feet or more in width and are substantially continuous over the distance of the proposed bikeway. (A four-foot shoulder may be acceptable when traffic safety or demand is demonstrated), AND,
2. Shoulder surface is generally as smooth as roadway surface, AND,
3. There are no plans for the improvement or alteration of the roadway by the state or local jurisdiction within the next biennium.

Demand. One of the following criteria must be proven:

1. The proposed bikeway is part of a locally adopted bicycle plan, OR,
2. The proposed bikeway is a commonly-used recreational route, OR,
3. The proposed bikeway connects areas of concentrated population and encourages bicycle commuting, OR,
4. The proposed bikeway extends or links existing bikeways.

Advantages. The demand and physical condition should be supported by some of the following criteria which demonstrate a need for safety measures.

1. Bicycle usage would increase.
2. Motor vehicle volume (ADT) is of a sufficient amount that signing would increase safety.
3. Sight distance for the motorist is limited.
4. Other special circumstances.

C. SIGNING.

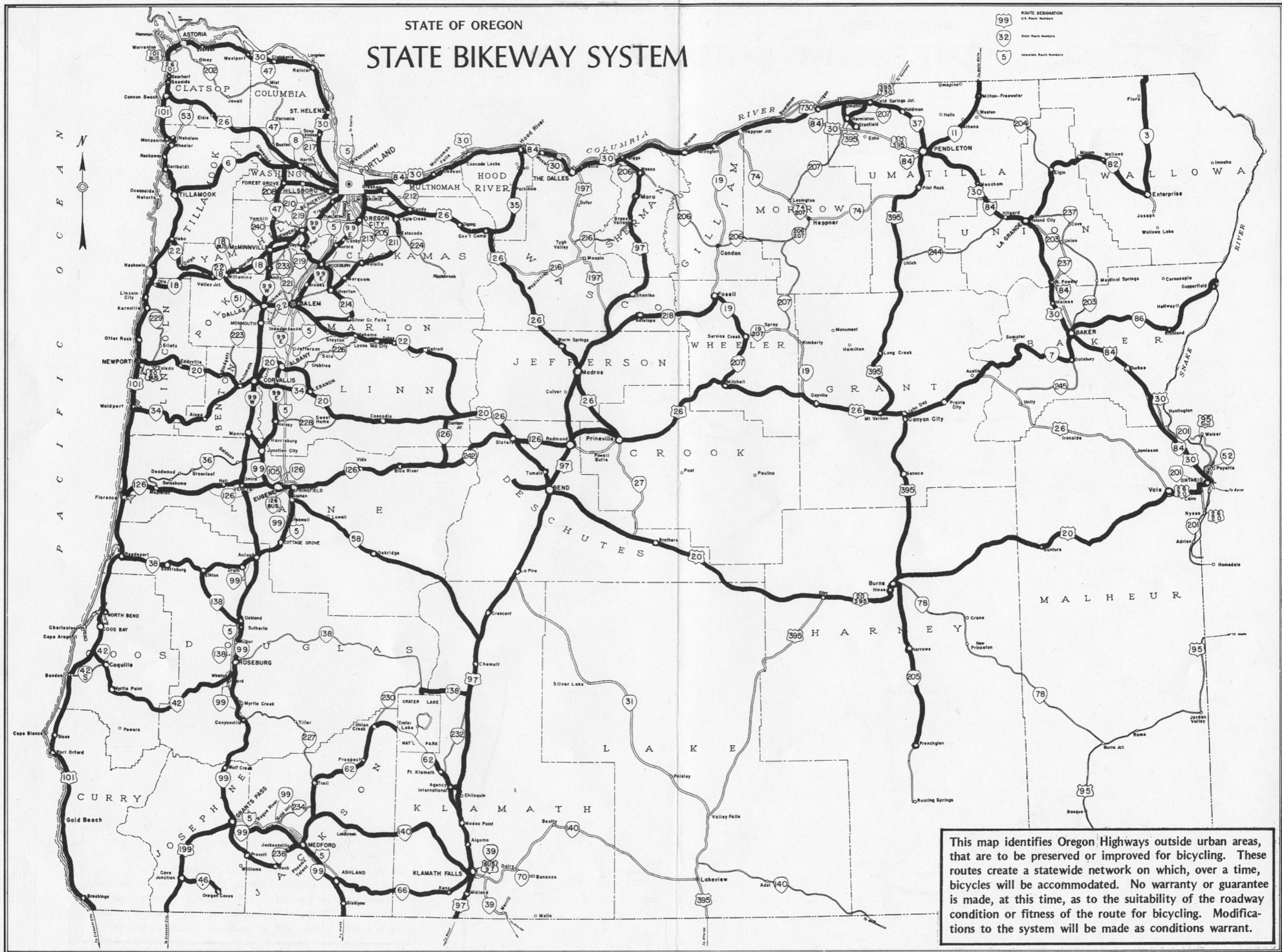
Shoulders of existing roadways which have been designated as bikeways shall be signed in the following manner:

1. The fog line shall be widened to eight inches.
2. Directional arrows and the bicycle symbol shall be stenciled on the shoulder surface after all major intersections.
3. Narrow shoulders (less than four feet) may be signed with warning signs, "BICYCLE ON SHOULDERS" or "NARROW SHOULDER, RIDE SINGLE FILE."
4. "BICYCLES ON ROADWAY" warning signs may be used when adequate shoulders temporarily end, such as on bridges.

STATE OF OREGON
STATE BIKEWAY SYSTEM

ROUTE DESIGNATION
U.S. Route Numbers
State Route Numbers
Inland Route Numbers

P
A
C
I
F
I
C
O
C
E
A
N



This map identifies Oregon Highways outside urban areas, that are to be preserved or improved for bicycling. These routes create a statewide network on which, over a time, bicycles will be accommodated. No warranty or guarantee is made, at this time, as to the suitability of the roadway condition or fitness of the route for bicycling. Modifications to the system will be made as conditions warrant.

MAP 2
 STATE OF OREGON
 PAVED SHOULDERS ON THE STATE HIGHWAY SYSTEM
 1982

LEGEND

- NO PAVED SHOULDERS
- LESS THAN 4 FEET
- 4 TO 6 FEET
- GREATER THAN 6 FEET
- SIGNED BIKE LANES

