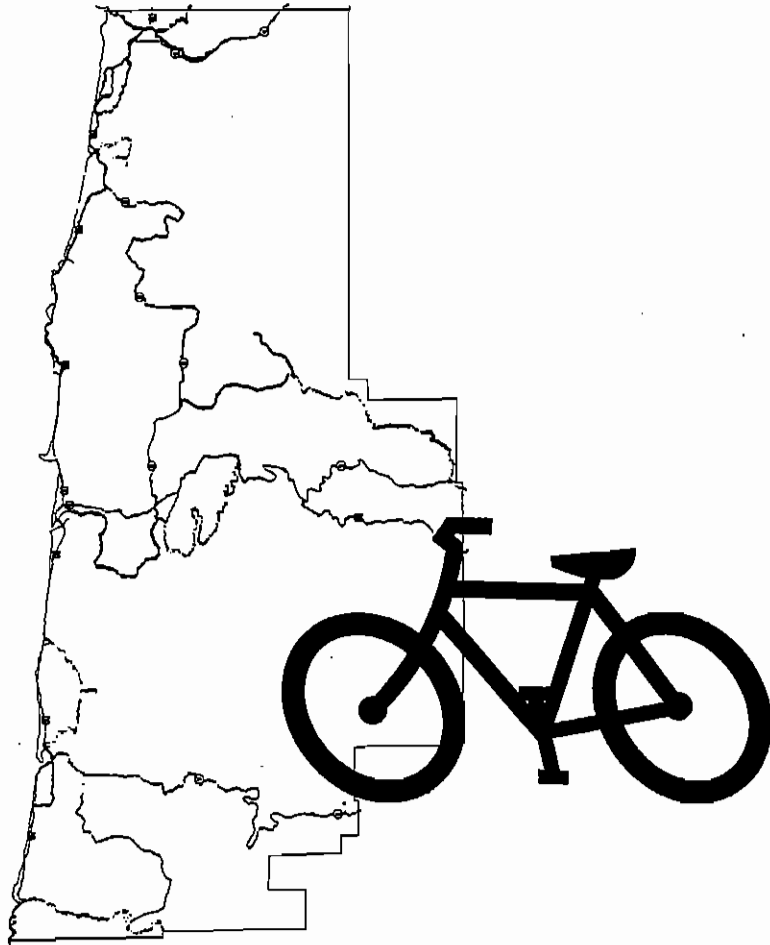


LINCOLN COUNTY BICYCLE PLAN



PREPARED BY:
-JAH- TRANSPORTATION ENGINEERING
1580 Valley River Drive Eugene, OR 97401 (503) 687-1081

LINCOLN COUNTY BICYCLE PLAN

Adopted by the Lincoln County Board of Commissioners on September 30, 1992.

Lincoln County Board of Commissioners

Don Lindly, Chair
Nancy E. Leonard, Commissioner
Andy Zedwick, Commissioner

Lincoln County Bicycle Advisory Committee

Chris Warncke, Chair
Jerry Shanks, Vice-Chair
Whit Patrick
Mike Wilkenson
Jim Kesselring

Lincoln County Road Department

James H. Buisman, P.E., Director of Public Works

Prepared by:

JRH Transportation Engineering
1580 Valley River Drive - Suite 160
Eugene, OR 97401-2152
(503) 687-1081

Preparation of the Lincoln County Bicycle Plan was financed in part by a grant from the Oregon Department of Transportation. For information about the Oregon Bikeway/Pedestrian Program, contact:

Bikeway/Pedestrian Program Manager
Oregon Department of Transportation
Room 200, Transportation Building
Salem, OR 97310
(503) 378-3432

LINCOLN COUNTY BICYCLE PLAN

TABLE OF CONTENTS

ADOPTION ORDER i

I. INTRODUCTION 1

 PURPOSE 1

 CONTENTS OF BICYCLE PLAN 1

II. BACKGROUND 2

 BICYCLING AS RECREATION 2

 BICYCLING AS TRANSPORTATION 3

 REQUIREMENTS FOR BICYCLE PLANNING 4

 REQUIREMENTS FOR ACCOMMODATION OF BICYCLISTS 4

 ROAD JURISDICTION RESPONSIBILITIES IN LINCOLN COUNTY 6

III. GOALS AND OBJECTIVES 12

IV. EDUCATION AND ENCOURAGEMENT ELEMENT 14

V. FACILITIES ELEMENT 18

 CLASSIFICATIONS OF BIKEWAYS 18

 DESIGN REFERENCES 19

 SIGNING GUIDELINES FOR BICYCLE ROUTES 19

 GENERAL IMPROVEMENT STANDARDS FOR BICYCLE FACILITIES 20

 DESIGN PRACTICES 21

 PROPOSED COUNTY ROAD STANDARD FOR BICYCLE ROUTES 21

 PROPOSED LINCOLN COUNTY BICYCLE ROUTES 26

VI. FACILITIES IMPLEMENTATION ELEMENT 51

 TIMING 51

 FUNDING 51

 IMPLEMENTATION PRIORITIES 54

BEFORE THE BOARD OF COMMISSIONERS
FOR THE COUNTY OF LINCOLN, OREGON

In the Matter of)
))
Adoption of Lincoln County Master Bicycle Plan) ORDER NO.9-92-256

COMES ON NOW FOR CONSIDERATION the matter of the Board of Commissioners adopting the Lincoln County Master Bicycle Plan. The Board having contracted JRH Transportation Engineering to develop a preliminary draft of the bicycle plan and the Board having determined that all requirements were met and the public had reviewed the draft document, granted approval on August 5, 1992. Now therefore it is hereby

ORDERED that the Lincoln County Master Bicycle Plan be adopted in its entirety; and

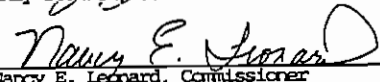
IT IS FURTHER ORDERED that the above-described sixty-three (63) page master bicycle plan document be incorporated as a permanent part of this order and be recorded in the Board of Commissioners' journal, and that a copy of this order be forwarded to the Road Department, and that Road Department Personnel forward a copy of this Order to JRH Transportation Engineering.

DATED this 30th day of Sept., 1992.

LINCOLN COUNTY BOARD OF COMMISSIONERS


Don Lindly, Chair


Andy Zedwick, Commissioner


Nancy E. Leonard, Commissioner

I. INTRODUCTION

PURPOSE

The purpose of the Lincoln County Bicycle Plan is to:

- promote bicycle use for transportation and recreational purposes in the County;
- provide for efficient expenditure of County funds for bicycle purposes, especially the funds required to be spent for bicycle and pedestrian purposes; and
- serve as the Bicycle Element of the Lincoln County Transportation System Plan as required under the provision of the Transportation Planning Rule (OAR Chapter 660, Division 12).

CONTENTS OF BICYCLE PLAN

The emphasis of the Lincoln County Bicycle Plan is on facilities under the jurisdiction of Lincoln County. However, other important components of the Plan are:

- goals & objectives;
- an education and encouragement element;
- a facilities element; and
- a facilities implementation element.

The Goals & Objectives Element provides overall guidance for the Bicycle Plan. It includes policies to guide development of Lincoln County's bicycle system and actions which will encourage bicycle use.

The education and encouragement element identifies opportunities to promote safe, responsible bicycle use.

The facilities element focuses on County roads and identifies the County roads on which improvements are proposed. A discussion of priorities and resources is also included.

II. BACKGROUND

Lincoln County is one of Oregon's seven coastal counties. Lincoln County's area is slightly under 1000 square miles, but its predominately "north-south" orientation gives it a longer coastline than several larger counties.

Lincoln County population is about 40,000 people and includes a mixture of urban and rural residents. Its cities include Newport (population 8540), Lincoln City (6025), Toledo (3220), Waldport (1610), Siletz (1025), Depoe Bay (895) and Yachats (580). Numerous smaller communities are scattered through the County.

Forestry, fishing and tourism are among Lincoln County's most important economic activities. The Siuslaw National Forest is a major source of timber for the lumber industry and an important land owner in Lincoln County. Both commercial and sport fishing are important all along the coast. Newport is home of Oregon State University's Marine Science Center and the Oregon Coast Aquarium. Lincoln County has numerous tourist-oriented attractions and resorts. It boasts twenty-five state parks or waysides, eight County parks and two waysides, three US Forest Service campgrounds and many Forest Service recreation areas, and several city parks.

BICYCLING AS RECREATION

Twenty years ago, the State of Oregon recognized the attractiveness of the state to touring cyclists. The two principal routes of interest to touring cyclists are the Oregon Coast Bike Route and Bikecentennial's Trans-America Bicycle Trail. The Oregon Coast Bike Route, which follows US 101 for most of its length, runs the length of Lincoln County. To enhance the safety and attractiveness of this route, widening of shoulders on US 101 was one of the highest priorities of the State's Advisory Committee on Bicycles when it was established in 1973.

The Oregon Coast Bike Route, including the section through Lincoln County, is an attractive and well-used route traversed by thousands of cyclists annually. Bicycle use is especially high during summer months with travelers from throughout the country and the world.

Three other major roads under state jurisdiction are included in Oregon's bicycle system: US 20, OR 18 and OR 34. Bicyclists' use of these roads is low in comparison to that of US 101, but each of these three provides important connections with population centers in the Willamette Valley.

Mountain bicycling has increased dramatically in popularity in recent years and Lincoln County provides numerous opportunities for it. Logging roads and trails such as those in the Siuslaw National Forest provide the type of challenging terrain and scenic attributes often sought by mountain bike enthusiasts.

The preferences of recreational cyclists are as varied as the cyclists themselves. Racers, whose on-road training emphasizes speed with their light-weight, skinny-tired bike, are more concerned with surface condition than the view. Some mountain bicycle enthusiasts care little about pavement condition. Many recreational cyclists favor routes which afford scenic vistas and recreational destinations. Low traffic volume roads, a variety of services, and loop routes are often desired by touring cyclists.

BICYCLING AS TRANSPORTATION

Bicycling offers an economical, energy-efficient, non-polluting alternative for many trips of the type taken by Lincoln County residents. The bicycle is particularly appropriate for short trips where its point-to-point travel speed is competitive with that of the automobile. For younger riders, the bicycle offers a significant increase in mobility in comparison to walking and degree of independence not available elsewhere. Trips to and from schools are among the most common of bicycle trips in Lincoln County.

Cyclists using their bicycles for transportation purposes generally desire direct routing with a minimum number of stops. Efficient routes are often high-volume motor vehicle routes, but provision of bicycle lanes on those streets can minimize conflicts with automobiles. Convenient, secure parking is essential for commuting cyclists and others using bicycles for transportation purposes.

REQUIREMENTS FOR BICYCLE PLANNING

In April 1991, the Land Conservation and Development Commission adopted rules designed to ensure compliance with Statewide Planning Goal 12 (Transportation). Oregon Administrative Rule Chapter 660 Division 12, abbreviated as OAR 660-12, is otherwise known as the Transportation Planning Rule. Among other requirements, the Transportation Planning Rule specifies that metropolitan planning organizations and counties prepare transportation system plans. According to OAR 660-12-020, the transportation system plan shall include "A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the improvement area. The network shall be consistent with the requirements of ORS 366.514."

The Lincoln County Bicycle plan is designed to serve as the bicycle element of Lincoln County's Transportation System Plan.

REQUIREMENTS FOR ACCOMMODATION OF BICYCLISTS

Provisions for bicyclists are required under state law and recently enacted administrative rules. Oregon's 1971 "Bicycle Bill" established requirements for bicycle facilities in connection with street and highway projects and a funding program. Further requirements are established by Oregon Administrative Rules which were developed to ensure compliance with Statewide Planning Goal 12 (Transportation). Key sections of the Oregon Revised Statutes (ORS) and the Oregon Administrative Rules (OAR) are cited below.

Oregon Revised Statutes 366.514 states, in part:

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.

LINCOLN COUNTY BICYCLE PLAN

That same section also provides exceptions to the requirement. Footpaths and trails are not required to be established:

- (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.

OAR Chapter 660 Division 12 is designed to reduce reliance on the automobile and support the use of alternative modes of travel including bicycles. OAR 660-12-045 subpart 3 states:

Local governments shall adopt land use or subdivision regulations for urban areas and rural communities to require:

- (a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments and all transit transfer stations and park and ride lots.
- (b) Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks and shopping. This shall include:
 - (A) Sidewalks along arterials and collectors in urban areas;
 - (B) Bikeways along arterials and major collectors;
 - (C) Where appropriate, separate bike or pedestrian ways to minimize travel distances within and between the areas and developments listed above.

LINCOLN COUNTY BICYCLE PLAN

(c) For the purposes of subsection (b) "safe, convenient and adequate" means bicycle and pedestrian routes, facilities and improvements which:

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

ROAD JURISDICTION RESPONSIBILITIES IN LINCOLN COUNTY

Within Lincoln County, there are roads maintained by a number of jurisdictions: Lincoln County, the Oregon Department of Transportation, the US Forest Service, and several incorporated cities. In addition, there are numerous private roads or roads dedicated for public purposes for which no government agency has accepted maintenance responsibility.

Lincoln County

The Lincoln County Road Department maintains about 330 miles of roadway. A little over half (174 miles) are paved and less than half (156 miles) are unpaved. In many cases, a portion of the road's length is paved and a portion is unpaved.

The principal emphasis of this Bicycle plan is on the County roads. A detailed analysis and recommendations regarding County roads is contained in subsequent sections of this Plan.

LINCOLN COUNTY BICYCLE PLAN

Oregon Department of Transportation (ODOT)

ODOT has jurisdiction over six highways within Lincoln County:

- US 101 from Tillamook County Line to Lane County Line (62 miles)
- US 20 from Newport to Benton County Line (40 miles)
- State Highway 18 from US 101 near Lincoln City to Tillamook County Line (9 miles)
- State Highway 34 from US 101 at Waldport to Benton County Line (30 miles)
- State Highway 229 from US 101 at Kernville to US 20 at Toledo (31 miles)
- Eddyville-Blodgett Highway (Oregon Highway No. 180) from US 20 to Benton County near Nashville (12¼ miles)

These highways are important for all types of travel. They account for the majority of vehicle miles of travel in Lincoln County. US 101 carries the highest daily traffic of any road in the County. In addition to their importance to motor vehicle traffic, the state highways are among the most important for bicyclists.

LINCOLN COUNTY BICYCLE PLAN

Important attributes of State Highways in Lincoln County are summarized in Table 1. Bicycle route designations are taken from the Oregon Bicycle Plan. The suitability rankings are those identified on the "1991 Oregon Bicycling Guide" map. The suitability of a highway for bicycling is open to interpretation and some cyclists may rank highways lower than indicated on the "1991 Oregon Bicycling Guide" map.

Table 1
Summary of State Highways in Lincoln County

Highway	Included in State Bicycle Route System?	Suitability Ranking as per "1991 Oregon Bicycling Guide" Map
US 101	Yes	Most Suitable ¹
US 20	Yes	Varies by Section ²
OR 18	Yes	Moderately Suitable ³
OR 34	Yes	Moderately Suitable
OR 229	No	Less Suitable ⁴
Eddyville-Blodgett (OR Hwy. No. 180)	No	Moderately Suitable

¹South of Yachats, US 101 is listed as "Moderately Suitable."

²The section between Newport and Toledo is listed as "Moderately Suitable"; a six-mile section east of Toledo is listed as "Most Suitable"; for about 8 miles either direction from Eddyville, it is listed as "Less Suitable"; the extreme eastern portion from Burnt Woods to Benton County is listed as "Most Suitable."

³From US 101 to Rose Lodge (about 5 miles), Highway 18 is listed as "Moderately Suitable"; east of Rose Lodge, it is listed as "Most Suitable."

⁴The section between Siletz and Toledo is listed as "Most Suitable."

LINCOLN COUNTY BICYCLE PLAN

Newport

Newport, the largest of Lincoln County's incorporated cities, adopted its bicycle plan in 1984. Important bicycle routes used in Newport include sections of the following:

- Ocean View Drive, Spring St., Coast St., and Elizabeth St (a series of mostly-residential streets west of US 101 which comprise part of the Oregon Coast Bike Route);
- Big Creek Road;
- 18th Street;
- NE and NW 11th Street;
- NW Olive Street;
- SW 9th Street;
- Nye Street;
- SE 1st Street;
- Eads Street;
- Harney Road;
- NE 3rd Street;
- Bay Road;
- Oceanography Road;
- Ferry Slip Road; and
- One-block or two-block sections of several residential streets.

In all cases, the provisions for bicyclists consist of signed routes on which bicyclists share the roadway with motorists; no bicycle lanes are provided. Motor vehicle traffic volumes and vehicle operating speeds are low making the shared use of roadways appropriate.

The City of Newport Plan also proposed three routes outside the city limits:

- Idaho Point Road;
- Yaquina Bay Road; and
- Yaquina Heights Drive (Old Corvallis-Newport Highway).

These three routes are County roads and were viewed as opportunities for cooperative development. All three connect with in-city bicycle routes identified in the Newport Plan. Yaquina Bay Road was selected for inclusion in Lincoln County Bicycle Plan.

LINCOLN COUNTY BICYCLE PLAN

Lincoln City

Like Newport, Lincoln City has a bicycle plan. The Lincoln City Bikeway Master Plan was adopted in 1987. Important bicycle routes addressed in the Lincoln City Plan include:

- N. 39th St., Jetty Avenue, Harbor Avenue, and Inlet Avenue;
- Holmes Road, N. 22nd St., N. 14th St., and West Devil's Lake Road;
- S. 42nd St., High School Road, and S. 48th Place;
- Dune Avenue and S. 50th St.;
- S. 62nd St., Fleet Ave., S. 89th St., Inlet Ave., and S. 83rd St.; and
- West Devil's Lake Road.

Two important County roads included in the Lincoln City Plan are East Devil's Lake Road and West Devil's Lake Road.

Although the Lincoln City Bikeway Master Plan suggests some of the above listed routes be implemented as striped lanes, implementation has consisted of signing only. Exclusive lane designations for cyclists has not been implemented. With the low volumes and low speeds of traffic and limited bicycle use, the need for on-street lanes has not been demonstrated on these mostly-residential streets.

Siuslaw National Forest

The Siuslaw National Forest is a major land owner in Lincoln County. The Siuslaw National Forest includes substantial tracts in the northern part of the County east of Lincoln City. It is also the owner of a majority of the land south of the Yaquina River including the areas east of Waldport and Yachats.

The national forest roads are primarily for access to logging operations, but some serve recreational uses of the forest. Most of the national forest roads are gravel, but some are paved. The paved national forest roads are typically one lane wide (approximately 12 to 14 feet) with paved turnouts.

No specific information is available on bicycle use on national forest service roads or other forest service facilities. Various unpaved logging roads, particularly those close to

population centers, are used for mountain biking activities. No comprehensive bicycle plan or other recreational plan specifically addressing bicycle use in the Siuslaw National Forest has been prepared. The Forest Service is currently considering a proposal for a multi-use path between Corvallis and Waldport using Highway 34, some existing Forest Service Roads and some new construction.

The activities and functions of various areas of the Siuslaw National Forest are in a state of flux because of environmental and timber harvest considerations. Some portions of the Forest have been proposed for set-aside for Spotted Owl habitat protection. Such set-asides and changes in timber harvests are resulting in road closures or changes in maintenance practices on existing forest roads.

III. GOALS AND OBJECTIVES

- GOAL:** Provide and maintain a safe, convenient and pleasing County-wide bicycling system which is integrated with other transportation systems.
- Objective 1: Develop a bicycle facility plan which addresses the needs of bicyclists in all areas of the County.
- Objective 2: Balance the plan by including facilities which meet the demands of bicyclists with different needs (commuting, recreating, touring).
- Objective 3: Provide for coordination between County facilities and those of the State, cities and federal agencies.
- Objective 4: Ensure that the County's bicycle route signs, markings and design standards meet applicable state and national standards.
- Objective 5: Establish priorities for facility construction and maintenance based on needs and resource availability.
- Objective 6: Provide for regular evaluation of the facilities to determine how well they meet the Plan's goals and objectives.
- GOAL:** Encourage and promote bicycle use as a form of recreation and as a mode of transportation in the County.
- Objective 7: Develop a map of County bicycle routes which can be made available to the public describing bicycling opportunities in the area.

LINCOLN COUNTY BICYCLE PLAN

- Objective 8: Ensure that bicyclists' needs are met by the provision of adequate facilities when streets are constructed or reconstructed.
- Objective 9: Ensure that bicyclists' parking needs are met at likely destination points.
- Objective 10: Ensure that opportunities for direct access by bicyclists are provided with new land developments.

GOAL: Encourage and support bicyclist safety, education and enforcement programs.

- Objective 11: Encourage and support education and safety programs for appropriate ages to improve bicyclists' skills, observance of traffic laws, and overall safety.
- Objective 12: Monitor and analyze accident data involving bicyclists to identify and improve safety problem areas.
- Objective 13: Develop an enforcement program designed to heighten bicyclists' observance of traffic laws and motorists' observance of bicyclists' rights.

LINCOLN COUNTY BICYCLE PLAN

IV. EDUCATION AND ENCOURAGEMENT ELEMENT

LAWS AND REGULATIONS

The Oregon Revised Statutes (ORS) govern the use of bicycles in Lincoln County and elsewhere in the state. The most important aspect of the ORS is that bicycles are considered vehicles under the Oregon Motor Vehicle Code. Bicyclists have the same rights and responsibilities as drivers of motor vehicles. ORS 814.400 Application of vehicle laws to bicycles states:

- (1) Every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle concerning operating on highways, vehicle equipment and abandoned vehicles, except:
 - (a) Those provisions which by their very nature can have no application.
 - (b) When otherwise specifically provided under the vehicle code.
- (2) Subject to the provisions of subsection (1) of this section:
 - (a) A bicycle is a vehicle for the purposes of the vehicle code; and
 - (b) When the term "vehicle" is used the term shall be deemed applicable to bicycles.
- (3) The provisions of the vehicle code relating to the operation of bicycles do not relieve a bicyclist or motorist from the duty to exercise due care.

It is important to establish a working relationship with individuals in enforcement agencies and to gain their help in enforcement of the Motor Vehicle Code.

Equally important is the education of bicyclists and the motoring public with regard to their rights and responsibilities. Individuals in all age groups need to know the "Rules of the Road" and how to ride safely.

LINCOLN COUNTY BICYCLE PLAN

LINCOLN COUNTY BICYCLE COMMITTEE

The Lincoln County Bicycle Committee is one mechanism which can be used to promote and encourage bicycling. Its citizen members provide a source of enthusiasm and ideas for county staff who are more knowledgeable about funding constraints and various limitations the County faces.

Among other things, a bicycle committee can advise the County on bicycle program funds and serve as a point of contact for other citizens involved in bicycle issues. However, the committee should not be viewed as shield to insulate county staff or elected officials from bicycle issues.

The committee should also be considered an ally when the county seeks improvements to state highways. Bicyclists and motorists will often all benefit from maintenance, overlay or modernization projects.

Existence of a County committee often gives credibility to bicycle safety efforts or promotional activities undertaken by cyclist volunteers.

SAFETY EDUCATION

The majority of injury-producing accidents involve children. The accidents occur because the child either did not know or failed to observe basic traffic laws pertaining to cyclists. Experience in other communities has shown that up to half of the injuries to children can be prevented with a 10-to-15 hour bicycle and traffic safety course.

A cooperative effort involving school district personnel, teachers, law enforcement personnel and knowledgeable bicyclists will be necessary to implement a bicycle safety program in schools. In many communities, teachers and other school personnel are well-meaning but not knowledgeable with regard to teaching of safe bicycling techniques. Training for teaching of bicycle safety is available through the Oregon Bicycle Safety Education Program. Bicycle activists, teachers or members of service groups should be encouraged to participate in such programs to ensure that their teaching accurately reflects appropriate behavior and techniques to children who participate in such programs. Successful education programs elsewhere in the country are often aimed at children at the fourth to fifth grade level.

LINCOLN COUNTY BICYCLE PLAN

Selection or development of a bicycle safety curriculum and "selling" of this concept to the local school district officials is recommended as one of the highest priorities of the Lincoln County Bicycle Committee. School officials and teachers often have trouble accommodating all the mandated teaching activities, so the addition of new programs, such as one on bicycle safety, is not always enthusiastically embraced. Experienced bicyclists are often able to learn enough about teaching to be able to take a lead role in teaching bicycle safety. There have been instances of non-bicyclist teachers having communicated unsafe practices in their bicycle safety teaching. We recommend that the Lincoln County Bicycle Committee enlist a group of volunteers to assist in bicycle safety education in local grade schools.

LINCOLN COUNTY BICYCLE MAP

The bicycle maps included in this plan could be adapted for general distribution. The availability of a map with suggested routes could help both city residents and tourists learn about the better bike routes in and around the city. Maps have been found to be a more cost-effective way than extensive signing for helping cyclists find appropriate routes.

A variety of bicycle safety tips can be included with any mapping project undertaken by the County. Rules of the road and safety tips have been included in maps prepared by Portland, Eugene and Deschutes County, among others.

BICYCLE PROMOTION

Tourism is an important economic activity in Lincoln County and bicycling can benefit and contribute to it. Development of a bicycle map which can be distributed by tourist-oriented facilities such as motels, campgrounds and restaurants can help turn non-cycling visitors into cyclists. Distribution might be handled by city staff or volunteers from the bicycle committee or a tourism-related organization.

PARKING FACILITIES

Community residents should be encouraged to ride bikes and barriers to their use such as the lack of provisions for bicycle parking should be eliminated. Existing locations, such as government offices, businesses, schools and others which are potential

destinations for bicyclists should be encouraged or required to install bicycle racks. Some tourist-oriented facilities have discovered the value of making arrangements for bicyclists. Those tourist-oriented facilities which have not yet made provisions should install or improve their bicycle parking facilities.

The Transportation Planning Rule now requires that local governments adopt land use or subdivision regulations to require bicycle parking. Under this rule, bicycle parking must be provided as part of new multi-family residential developments, new retail, office and institutional developments. To comply with the Transportation Planning Rule, the County's zoning ordinance or building codes will need to be amended to require bicycle parking in the same manner that automobile parking is required. Newport, Lincoln City and the smaller cities will also need to make provisions for bicycle parking to comply with the Transportation Planning Rule.

It is important to provide safe and convenient bicycle facilities. Bicycle parking should be located close to building entrances for convenience and security. Racks should be designed for easy locking and minimum damage potential. A variety of techniques and tips are contained in the ODOT Bicycle Program's "Best Management Practices" paper.

V. FACILITIES ELEMENT

CLASSIFICATIONS OF BIKEWAYS

Bicycles are legally classified as vehicles and can be ridden on most public roadways in Oregon. Therefore, bicycle facilities must be designed to allow bicyclists to ride in a manner consistent with motor vehicle operation. There are four basic types of bicycle facilities:

- Shared Roadway - On a shared roadway facility, bicyclists and motorists share the same travel lanes. Shared roadway facilities are common on city street systems and on narrow rural roads and highways. Where bicycle travel is significant, these roadways may be signed as bicycle routes.
- Shoulder Bikeway - Smooth, paved roadway shoulders of sufficient width provide a suitable area for bicycling and minimize conflicts with faster-moving motor vehicle traffic. The majority of rural bicycle travel on the state highway system is accommodated on shoulder bikeways. Where bicycle travel is significant, these roads may be signed as bicycle routes.
- Bike Lanes - Where bicycle travel and demand is substantial, a portion of the roadway is designated for bicyclists' use. Bike lanes are becoming increasingly common in urban areas. Bike lanes must always be well marked and signed to call attention to their use by bicyclists.
- Bike Path - A bike path is a bikeway which is physically separated from motor vehicle traffic by an open space or barrier. It may be within the roadway right-of-way or in an independent right-of-way. Bike paths are normally two-way facilities. Bike paths may be appropriate in corridors not served by other bikeways. Bike paths function well only if there are relatively few intersecting roadways or driveways.

DESIGN REFERENCES

The three key references relating to the design, selection, and operation of bicycle facilities are:

- The Oregon Department of Transportation's Oregon Bicycle Plan, adopted in April, 1992 by the Oregon Transportation Commission;
- The American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities, published in August, 1991; and
- The Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways

These documents either prescribe or recommend most aspects of bicycle facility design. Because they address urban and rural conditions, not all aspects are relevant to Lincoln County. Topics of particular importance to Lincoln County are summarized below.

SIGNING GUIDELINES FOR BICYCLE ROUTES

The Oregon Bicycle Plan provides guidelines for signing of bicycle routes. It states:

Designated bicycle routes should be signed and marked using the following principles:

1. NO SIGNING: When bicycle use is less than 20 bikes per day.
2. BIKE ROUTE SIGNING (Shared Roadway & Shoulder Bikeway): When bicycle use is significant (20-50 bikes a day) install BIKE ROUTE SIGN (D11-1). Use normal 4-inch shoulder stripe.
3. BIKE LANE SIGNING: On all urban arterial and major collector streets, designate a portion of the roadway as a BIKE LANE. Bike lanes may also be designated on suburban or rural roadways where bicycle use exceeds 50 bikes a day.

NOTE: Bicycle use should be representative of average daily use during the three months of highest use.

GENERAL IMPROVEMENT STANDARDS FOR BICYCLE FACILITIES

The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities includes the following recommendation about shoulders:

Shoulder width should be a minimum of 4 feet (1.2 m) when intended to accommodate bicycle travel. Roads with shoulders less than 4 feet (1.2 m) wide normally should not be signed as bikeways. If motor vehicle speeds exceed 35 mph (55 km/h), if the percentage of trucks, buses, and recreational vehicles is high, or if static obstructions exist at the right side, then additional width is desirable.

Adding or improving shoulders can often be the best way to accommodate bicyclists in rural areas, and they are also a benefit to motor vehicle traffic. Where funding is limited, adding or improving shoulders on uphill sections first will give slow moving bicyclists needed maneuvering space and decrease conflicts with faster moving motor vehicle traffic.

Oregon's Plan includes the following in Chapter 5: Goals and Objectives:

GOAL 1 Provide a statewide bikeway system that is integrated with other transportation systems, which has desirable 6-foot wide (min. 4-foot) paved shoulders in rural areas to accommodate residential and visiting bicyclists.

Oregon's Plan also includes the following reference under the discussion of improvement standards for shared roadways:

Where it is not feasible to provide bike lanes on urban and suburban bicycle routes because of physical constraints (eg, close buildings, environmentally sensitive areas), wide outside lanes can provide for bicycle travel. The standard for a wide outside lane is 14 feet. Bike lanes should be built where constraints end.

DESIGN PRACTICES

The Oregon Bicycle Plan also lists a series of beneficial practices and practices to be avoided. Some of these are repeated below because of their likely application to Lincoln County.

Beneficial Practices:

Paved Driveways - Paved driveways prevent gravel from being carried onto the bikeway, averting a significant hazard. They should be paved at least fifteen feet back from the edge of the paved roadway to be effective.

Paved Shoulder Construction - When it is necessary to add paved shoulders to roadways for bicycle use, "feathering" the new asphalt onto the existing pavement is preferred. This eliminates a joint at the edge of the existing pavement. If this method is not practical because of drainage concerns, a saw-cut, one foot inside the existing edge-of-pavement, provides the opportunity to construct a good tight joint.

Practices to be Avoided:

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 very dangerous for bicyclists. The bicyclist closest to the motor vehicle travel lane has opposing motor vehicle traffic on one side and opposing bicycle traffic on the other. It also promotes illegal wrong-way riding and creates awkward and dangerous movements in transitions back to standard bikeways. If constraints allow widening on only one side of the roadway, consideration should be given to shifting the centerline stripe to allow for adequate travel lanes and bike lanes.

PROPOSED COUNTY ROAD STANDARD FOR BICYCLE ROUTES

Based upon the two references cited above, a six-foot shoulder is the preferred standard for Lincoln County roads. A four-foot wide shoulder is recommended as the minimum standard for Lincoln County roads. In some cases, such as extreme right-of-way

limitations caused by wetlands or steep terrain, two-to-three foot shoulders may be all that can be attained. Using shoulders narrower than the preferred standard may be justified for Lincoln County roads for two reasons: cost and low volumes of both motor vehicle traffic and bicycle traffic.

Cost Considerations

The existing configuration of county roads would make the addition of four-foot wide shoulders on Lincoln County road especially costly.

As described previously, the typical paved county road has a 22-foot pavement with unpaved, gravel shoulders. Drainage ditches, which provide for removal of surface water, lie just outside the shoulders. Widening shoulders to a four-foot width would involve filling the existing ditches and recutting new ones further from the centerline of the road. In some locations, this widening would also require recutting side slopes, relocating guard rails and relocating utility poles for proper clearance.

A "compromise" shoulder improvement for Lincoln County roads would involve paving of existing shoulders, but would not include widening. Although not as good as a four-foot wide shoulder, a paved shoulder of 2 to 3 feet is clearly preferred to an unpaved shoulder of the same width.

Figure 1 illustrates three typical road cross-sections. The upper cross-section represents an existing county road. The second cross-section illustrated in Figure 1 overlays the existing road cross-section with a "preferred" cross-section with four-foot paved shoulders and relocated ditches and side slopes. The third cross-section shows a "compromise" version with a paved shoulder of 2 to 3-foot width. Notice that the "compromise" cross-section retains the drainage ditches and side slopes in their original locations.

The cost of shoulder widening is highly variable. Grading and drainage has been found to exceed the cost of shoulder stabilization and shoulder surfacing. A Kentucky study indicates that for shoulders in the two-to-four-foot range, grading and drainage accounts for 65 to 70 percent of the cost; shoulder stabilization for 20 to 25 percent; and

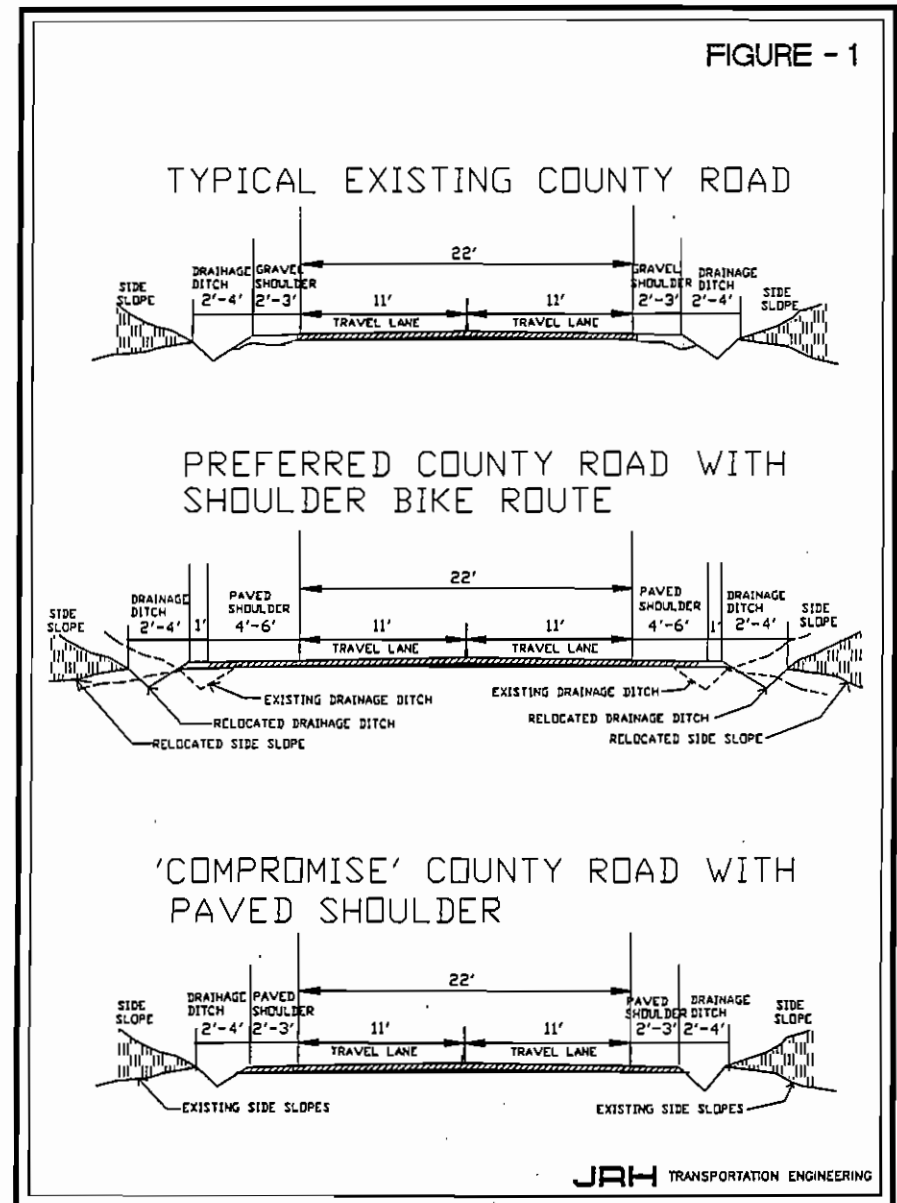
LINCOLN COUNTY BICYCLE PLAN

shoulder surfacing for 10 to 11 percent of the cost of the widening project.³ By accepting narrower shoulders, grading and drainage work can be minimized. This substantially reduces the cost and allows more miles of shoulder to be paved with the same limited amount of money. Another option is to do all or most of the widening on one side of the road to minimize cost and environmental impacts. After construction, the centerline is shifted in this direction, leaving standard travel lanes and wide shoulders on both sides. ODOT has done this successfully on several projects.

The timing of a shoulder widening project is critical to the cost of the improvement. The least costly time for a shoulder paving project is during reconstruction or overlaying of the road. Some surface preparation would be required as part of any shoulder paving project. However, the extra cost of paving of the shoulder during an overlay of the existing 11-foot motor vehicle travel lanes is estimated to be much less costly than independently paving the shoulder.

³Transportation Research Record 806 (1981) "Effect of Lane and Shoulder Widths on Accident Reduction on Rural, Two-Lane Roads" by C. V. Zegeer, R. C. Deen and J. G. Mayes

FIGURE - 1



Traffic Considerations

A willingness to compromise on the shoulder width is also a reflection of relatively low motor vehicle traffic volumes and low bicycle use on Lincoln County roads. The State's standard of a 4-to-6-foot shoulder is entirely appropriate on state highways such as US 101. US 101 carries an average of about 10,000 vehicles per day in Lincoln County and has a posted speed limit of more than 50 miles per hour over most of its length. In contrast, the traffic volumes on County roads seldom exceed 3,000 vehicles per day. In many locations, these higher volumes occur on sections with lower speed limits because of their proximity to cities.

To a certain extent, low volumes of bicycle traffic may reflect the present inadequacy or absence of bicycle facilities. Certainly, less-experienced, adult cyclists are discouraged from riding on roads which have only narrow shoulders or none at all. Thus, preference is given to shoulder improvements where both motor traffic volumes and bicycle use are higher or are judged to have greater potential.

Recommended County Road Standard

A six-foot shoulder is the recommended standard for County roads. This should be used where new roads are built or where extensive reconstruction is undertaken. A four-foot paved shoulder is recommended as the minimum standard for County roads. This standard is appropriately applied where right-of-way or environmental constraints limit the County's ability to construct a six-foot shoulder. The minimum 2-to-3-foot shoulder is recommended when a paved shoulder is added to a roadway overlay project.

Paving of driveway aprons is recommended for access points for all paved county roads as recommended by the Oregon Bicycle Plan.

The width standard to be applied as well as the priorities for shoulder widening depend upon location. A further discussion of priorities is contained in the Implementation section of this Plan.

PROPOSED LINCOLN COUNTY BICYCLE ROUTES

Description of Typical County Road

The Lincoln County Road Department maintains about 330 miles of roadway. A little over half (174 miles) is paved and less than half (156 miles) is unpaved. In many cases, a portion of the road's length is paved and a portion is unpaved.

For its paved roads, the typical Lincoln County road is approximately 22 feet wide with a narrow, gravel shoulder unsuitable for bicycling. Bicyclists share the paved travel lane with cars and trucks.

In most places sight distance is good, allowing faster-moving motorists reasonable warning of the presence of bicyclists. However, in several places sight distance is limited and motorists could abruptly come upon cyclists. These sight-distance limitations are caused by vertical alignment (hills) and horizontal alignment (curves).

Emphasis on County Roads

As indicated previously, this Plan is principally designed to deal with bicycle issues related to the County road system. This emphasis is based upon the following:

- The existing County road system generally provides the most efficient and safest route for bicycle commuters and others using bicycles for purposes of transportation between their homes, work, schools and shopping;
- State gas tax revenues, including those shared with Lincoln County, are restricted by Oregon's Constitution to expenditure on public road rights-of-way;
- Maintenance of bicycle facilities adjoining existing County roads is more easily and economically accomplished than the maintenance of separate bicycle facilities; and
- It takes more effort, time and money to obtain rights-of-way, build, and maintain bicycle facilities outside public road rights-of-way.

Route Selection Criteria

A series of factors was used to evaluate routes proposed for inclusion in the Lincoln County Bicycle plan. No system was developed involving assignment of scores or points related to these factors. A system of this type is thought to be more appropriate to compare alternatives than for evaluation of a series of projects all of which could potentially be included in a long-range plan.

Factors used to evaluate candidate routes for the Lincoln County Bicycle plan were:

- origin and destination value for bicyclists;
- existing and potential usage by bicyclists;
- proximity to population centers;
- volume and nature of motor vehicle traffic;
- safety considerations;
- existing, planned, and potential roadway width;
- topography (grade and curves);
- scenic value or other attractions;
- potential for a "loop route"; and
- consistency with other agencies' plans.

Several of these factors are clearly interrelated. Origin and destination value, usage and proximity to population centers are fairly obvious relationships. Motor vehicle traffic, road width and topography are related to safety, which, in turn, influences usage.

Description of Individual County Roads

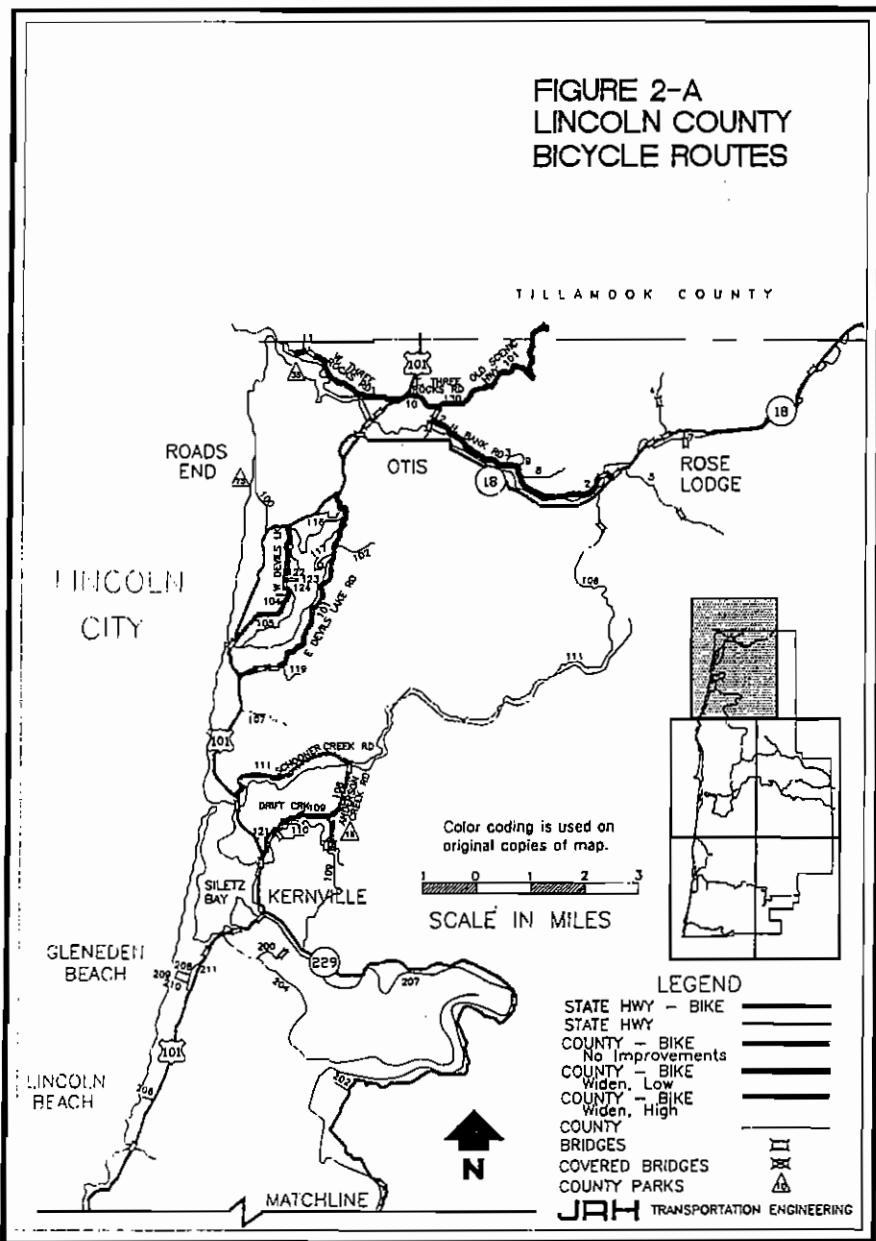
The following section describes the attributes of roads included in the Lincoln County Bicycle plan.

A summary of County roads described in this section is contained in Table 2. Figure 2, which consists of five sections (2A, 2B, 2C, 2D and 2E) illustrates these on maps. Each map is followed by a written description of routes in that portion of the County.

Table 2
SUMMARY OF PROPOSED LINCOLN COUNTY BICYCLE ROUTES

Map No.	Road Name	Road No.	Begin	End	Length (mi.)	Pavement	Maximum ADT	Recommended Improvement	Widening Priority	Paving Priority
2-A	W. Three Rocks Rd	1	US 101	Knight Park	2.3	22' paved	300	Widening	Low	
2-A	E. Three Rocks & Old Scenic 101	10	US 101	Tillamook Co.	4	22' paved	1000	Widening	High	
2-A	North Bank Road	2	Orla	Hwy 18	4	22' paved	1600	Widening	Low	
2-A	East Devils Lake	101	US 101	US 101	4	22' paved	900	Widening	High	
2-A	West Devils Lake	101	US 101	US 101	2.5	22' paved	2000	Widening	High	
2-A	Schooner Creek/ Anderson Creek/ Drift Creek roads	111/ 108/ 109	US 101	US 101	4.5	22' paved	700	None		
2-B	Yachats Bay Rd	615	Newport	Toledo	12	22' paved	2100	Widening	High	
2-B&C	Logsdan Rd (west)	410	Seitz	Logsdan	8	22' paved	1200	Widening	Moderate	
2-B&C	Elk City Road (west)	533	Toledo	Elk City	8.5	22' paved	600	None		
2B	Elk City Road (east)	533	Elk City	US 20	5	gravel	100	None		Low
2C	Logsdan Rd (west)	410	Logsdan	Nashville	14	22' paved/ much gravel	100	Paving gravel section		
2C	Moonshine Park Rd	307	Logsdan	Moonshine Park	4	22' paved	600	Widening	Low	
2D	North Beaver Ck/ South Beaver Ck/ Bayview Roads	602/ 603/ 702	US 101	US 101	8.5	22' paved/ some gravel	500	Paving gravel section		Moderate
2D	Little Slough/ Chertline Dr/ Victoria Beach Rd	710/ 802/ 801	US 101	US 101	4	22' paved	500	Widening	Low	
2D	Yachats River Rd	804	US 101	Lane Co.	10.5	22' paved	400	None		
2D	Eckman Creek Rd	712	OR 34	Forest Hwy 53	1.4	22' paved	700	None		
2D	Forest Highway 53	NA	Eckman Creek Rd	Yachats River Road	15	12' paved/ gravel	low	Paving gravel section		Low

FIGURE 2-A
LINCOLN COUNTY
BICYCLE ROUTES



LINCOLN COUNTY BICYCLE PLAN

West Three Rocks Road (County Road 1)

Termini and Length: US 101 to Knight Park; 2½ miles.

Pavement: West Three Rocks Road from US 101 to Knight Park is fully paved with a width of approximately 22 feet with narrow, gravel shoulders unusable for bicyclists.

Terrain: Mostly gentle with a few moderate hills.

Sight Distance and Curves: Some curves which limit sight distance.

Average Daily Traffic (ADT): Volumes vary from less than 100 to about 300 per day.

Attractions: West Three Rocks Road leads to Knight Park and the Salmon Creek estuary.

Recommendations: Because of lower traffic volumes, the provision of shoulders is not as important on this road as many others. No improvements are recommended.

East Three Rocks Road (County Road 10) and Old Scenic Highway 101 (County Road 130 and Forest Highway 12)

Termini and Length: Tillamook County/Lincoln County line to US 101; 4 miles (within Lincoln County).

Pavement: Three Rocks Road and Old Scenic Hwy 101 are fully paved with a width of approximately 22 feet with narrow, gravel shoulders unusable for bicyclists.

Terrain: Steep hill with a summit of about 700 feet near the Tillamook/Lincoln County line. This is one of the highest points on the Oregon Coast Bike Route.

Sight Distance and Curves: Some curves which limit sight distance.

LINCOLN COUNTY BICYCLE PLAN

Average Daily Traffic (ADT): Volumes vary from about 100 to 1700 per day. The highest volumes are near Oregon Highway 18.

Attractions: East Three Rocks Road and Old Scenic Highway 101 are part of the official route for the Oregon Coast Bike Route. Many long-distance cyclists follow this route, but some stay on US 101. Old Scenic Highway 101 is somewhat longer, more scenic, and much less trafficked than US 101. Grades are less steep on Old Scenic 101, but it lacks useable shoulders. Old Scenic 101 has a US Forest Service Campground (Neskowin Creek) in Tillamook County about two miles north of Lincoln County. The campground is temporarily closed and is not expected to reopen before the summer of 1993.

Recommendations: Shoulder widening of this route is recommended as a high priority. As part of the Oregon Coast Bike Route, this is likely the most used bicycle route of all county roads. The pavement is only 22 feet wide and shoulders are not useable by bicyclists. Several agencies would need to be involved in improvement because East Three Rocks Road and a portion of Old Scenic 101 are county roads, but most of Old Scenic 101 is under the jurisdiction of the National Forest.

North Bank Road (County Road 2)

Termini and Length: Old Scenic Highway 101 near Otis to Highway 18 (mile post 5.2) near Rose Lodge; 4 miles.

Pavement: North Bank Road is fully paved with a width of approximately 22 feet with narrow, gravel shoulders unusable for bicyclists.

Terrain: Relatively level with a few slight hills.

Sight Distance and Curves: Some curves which limit sight distance.

Average Daily Traffic (ADT): Volumes vary from about 600 to 1800 per day. The highest volumes are near Otis.

LINCOLN COUNTY BICYCLE PLAN

Attractions: North Bank Road provides an alternate route to State Highway 18 or a loop route of about 9 miles when combined with Highway 18.

Recommendations: Because of lower traffic volumes, good sight distance, and gentle terrain, the provision of shoulder is not as important on this road as many others. However, whenever pavement overlays are proposed, consideration should be given to increasing pavement width to at least 28 feet.

East Devils Lake Road (County Road 101)

Termini and Length: US 101 one mile north of Lincoln City (mile post 111) to US 101 at SE 12th Street in Lincoln City (mile post 115.7); 4.0 miles.

Pavement: East Devils Lake Road is fully paved with a width of approximately 22 feet with narrow, gravel shoulders unusable for bicyclists.

Terrain: Mostly gentle terrain with a few moderately steep, short hilly sections.

Sight Distance and Curves: Somewhat restricted because of hills and curves.

Average Daily Traffic (ADT): Traffic volumes are in the range of 800 to 900 vehicles per day.

Attractions: East Devils Lake Road serves a suburban residential area east of Lincoln City and two parks, Sand Point Park and Devils Lake State Park. It is a particularly attractive bicycle route due to the existence of these two parks, its proximity to Lincoln City, and the ability to utilize it as part of a recreational, loop ride. The suburban residential nature of the road leads to lower motor vehicle operating speeds than many other county roads. The lesser speed differential between motor vehicles and bicyclists leads to a greater feeling of security on the part of bicyclists.

Recommendations: Because of its proximity to Lincoln City, the presence of many homes and two parks, and its attractiveness as a recreational loop, East Devils Lake Road is a good candidate for substantial increases in bicycle use. At present, relatively low traffic volumes and lower motor vehicle speeds than those

LINCOLN COUNTY BICYCLE PLAN

in more rural sections make the provision of wider paved shoulders less important on this road than on some others. However, with increases in both bicycle and motor vehicle traffic, the desirability of useable shoulders will increase. Because of the anticipated need to overlay or reconstruct the roadway following the expected placement of a new water line, consideration should be given to increasing pavement width to at least 28 feet. This is one of the County roads with greatest potential bicycle use and if major reconstruction is needed, the widest practical shoulders are recommended.

West Devils Lake Road (County Road 105)

Termini and Length: US 101 at the north end of Lincoln City (mile post 112.3) to US 101 at 14th Street NE (mile post 114.5); 2 1/4 miles.

Pavement: West Devils Lake Road is fully paved with a width of approximately 22 feet with narrow, gravel shoulders unusable for bicyclists.

Terrain: Mixed terrain with several hilly sections.

Sight Distance and Curves: Somewhat restricted because of hills and curves.

Average Daily Traffic (ADT): Due to its urban nature, traffic volumes are substantially higher than many other county roads; ADT's range from 600 to 2000 vehicles per day.

Attractions: West Devils Lake Road serves a residential area of Lincoln City, the area's hospital and two parks, Holmes Road Park and Regatta Park. It is a particularly attractive bicycle route due to the existence of these two parks and the ability to utilize it as part of a recreational, loop ride. The urban nature of the road leads to lower motor vehicle operating speeds than many other county roads. The lesser speed differential between motor vehicles and bicyclists leads to a greater feeling of security on the part of bicyclists.

Recommendations: Because of the presence of many homes and two parks, its attractiveness as a recreational loop and because it is within Lincoln City for much of its length, West Devils Lake Road is a good candidate for substantial

LINCOLN COUNTY BICYCLE PLAN

increases in bicycle use. At present, relatively low traffic volumes and motor vehicle speeds make the provision of wider paved shoulders less important on this road than on some others. However, with increases in both bicyclist and motor vehicle traffic, the desirability of useable shoulders will increase. Special efforts should be made to increasing pavement width to at least 28 feet. Because of its location and use potential, this road is one for which the widest possible shoulders would be desirable.

Schooner Creek Road (County Road 111), Anderson Creek Road (County Road 108) and Drift Creek Road (County Road 109)

Termini and Length: US 101 at 51st Street in Lincoln City (mile post 118) to US 101 south of Lincoln City (mile post 119.1); 4 1/4 miles.

Pavement: The loop formed by these three roads are fully paved. Paved width is approximately 22 feet. Shoulders are unusable for bicyclists.

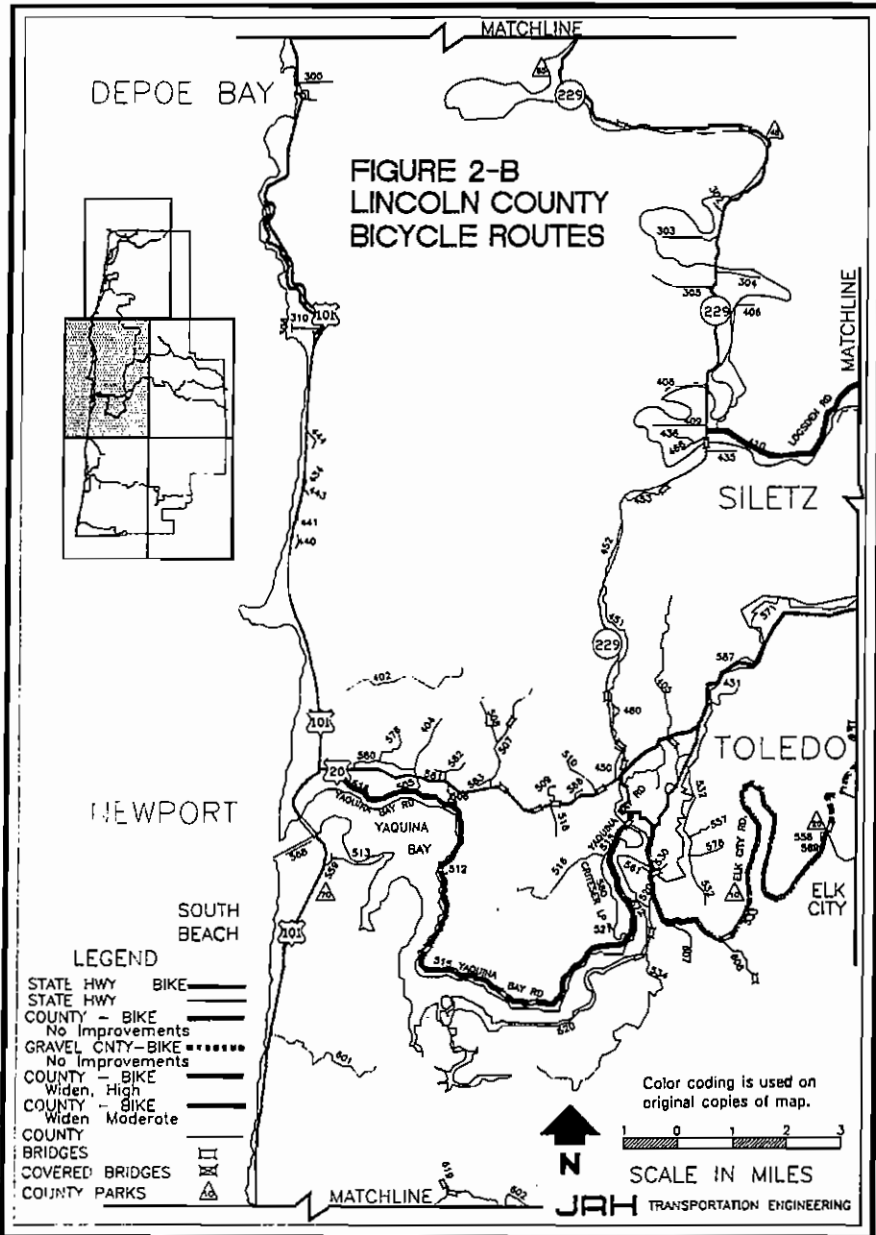
Terrain: Predominately level with one hill on Anderson Creek Road.

Sight Distance and Curves: Generally good.

Average Daily Traffic (ADT): Volumes vary from about 100 to 700 vehicles per day.

Attractions: The presence of the Drift Creek Covered Bridge near the intersection of Drift Creek Road and Anderson Creek Road provides an attractive destination for recreational cyclists. The mostly-level terrain, low traffic volumes, and close proximity to Lincoln City make this an attractive loop route when combined with a short section of US 101.

Recommendations: Because of lower traffic volumes, good sight distance, and gentle terrain, the provision of shoulder is not as important on this road as many others. However, whenever pavement overlays are proposed, consideration should be given to increasing pavement width to at least 28 feet. This is one route where directional signing might prove most useful. Key locations for signing are the Schooner Creek/Anderson and Drift Creek/Anderson intersections.



Yaquina Bay Road (County Road 515)

Termini and Length: Newport to Toledo; 12 miles.

Pavement: The Yaquina Bay Road is paved for its entire length. Width of the pavement is 22 feet with narrow, gravel shoulders unsuitable for cycling. Three bridges are in place along this length. Although the bridge decks measure 24 feet, only 22 feet of pavement is useable. Replacement of all three bridges is scheduled in Lincoln County's Capital Improvement Program. Bridge deck width will be 30 feet.

Terrain: Mostly-level; one steep hill within a mile of Toledo (mile post 11.3 to 12.3).

Sight Distance and Curves: Mostly good sight distance; some sharp corners with limited sight distance. Most prominent of these locations is the hilly area near Toledo.

Average Daily Traffic (ADT): Volumes vary from over 2100 near Newport to over 1000 near Toledo with as few as 600 approximately mid-way between them.

Attractions: The attractiveness of Yaquina Bay Road comes from its scenic qualities along the Bay, generally good pavement condition, mostly-level terrain, tolerable traffic volumes and close proximity to Newport and Toledo, two of Lincoln County's major population centers. Yaquina Bay Road also serves as an alternate to US 20 between Newport and Toledo. The existence of US 20 allows for a loop route of a little less than 20 miles distance.

Recommendations: Whenever pavement overlays or bridge reconstruction is undertaken, special efforts should be made to increase pavement width to at least 28 feet. This is one of the County roads with greatest potential for bicycle use. Because of environmental constraints due to its proximity to wetlands adjacent to Yaquina Bay, a narrower (3-foot) shoulder standard is probably the most appropriate. Spot widening in areas where sight distance is limited, such as the hilly area west of Toledo, would also enhance bicyclist safety.

LINCOLN COUNTY BICYCLE PLAN

Logsdon Road (County Road 410) - west portion

Termini and Length: Siletz to Logsdon; 8 miles.

Pavement: Logsdon Road is fully paved with a 22 foot wide pavement. In most places, the road features narrow, gravel shoulders unusable for cyclists. However, between mile posts 2 and 3 a paved shoulder is provided for eastbound traffic on a hilly portion of the road. This shoulder treatment could serve as a model for other county roads.

Terrain: Mostly level with moderate hills between mile posts 2 and 3.

Sight Distance and Curves: Generally good sight distance, some sharp curves.

Average Daily Traffic (ADT): Traffic volumes near Siletz are approximately 1200; no counts are available near Logsdon.

Attractions: In combination with Moonshine Park Road (County Road 307), the western portion of Logsdon Road provides access to Lincoln County's Moonshine Park. The availability of the Park as a destination is one of the principal attractions of Logsdon Road. Terrain is generally not too difficult on the western portion of the road.

Recommendations: Whenever pavement overlays are proposed between Siletz and Logsdon, special efforts should be made to increase pavement width to at least 26 feet. Spot widening in areas where sight distance is limited would also enhance bicyclist safety.

Elk City Road (County Road 533) - west portion

Termini and Length: US 20 Business in Toledo to Elk City; 8 1/4 miles.

Pavement: Between Toledo and Elk City, Elk City Road is fully paved with a width of approximately 22 feet.

LINCOLN COUNTY BICYCLE PLAN

Terrain: In the first 2 miles south of Toledo, Elk City Road is hilly with the maximum elevation of approximately 200 feet near Sunnyridge Road about 1 mile south of Toledo. Most of the rest of the road is relatively gentle, following the river to Elk City.

Sight Distance and Curves: There are some sharp curves and several moderate ones which limit sight distance in a few places.

Average Daily Traffic (ADT): Traffic volumes on the west portion of Elk City Road are low, ranging from 600 per day near Toledo to less than 100 vehicles per day at Elk City.

Attractions: Used in combination with the unpaved east section of Elk City Road and US 20, Elk City Road can be part of a loop route with a total distance of a little over 20 miles. Unfortunately, only this west portion of Elk City Road is suitable for most cyclists.

Recommendations: Because of low demand as a bicycle route, a low priority is suggested for improvements to Elk City Road. Paved shoulders in the hilly section for two miles south of Toledo would contribute to cyclist safety. Along the river to Elk City, no improvements to the western portion of Elk City Road are recommended.

Elk City Road (County Road 533) - east portion

Termini and Length: Elk City to US 20 about 8 miles east of Toledo (mile post 17); 5 miles.

Pavement: The east portion of Elk City Road is unpaved with a width of about 12 to 20 feet.

Terrain: The east portion of Elk City Road follows the river with relatively gentle terrain.

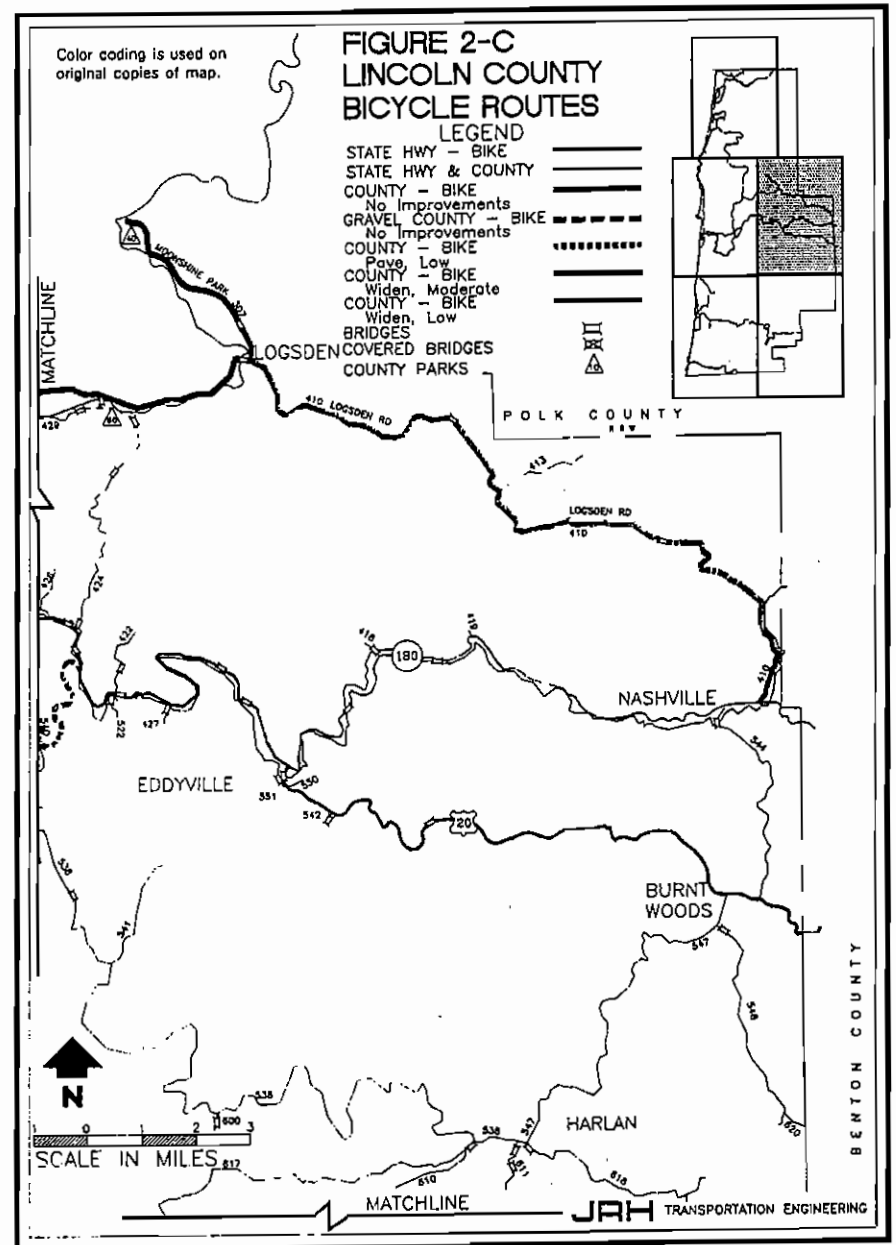
Sight Distance and Curves: There are some sharp curves and several moderate ones which limit sight distance in a few places.

LINCOLN COUNTY BICYCLE PLAN

Average Daily Traffic (ADT): This section of Elk City Road averages less than 100 vehicles per day.

Attractions: Used in combination with the paved, west portion of Elk City Road and US 20, the east section of Elk City Road can be part of a loop route with a total distance of a little over 20 miles. Unfortunately, this unpaved section is suitable only for mountain bicycles.

Recommendations: Because of low demand for bicycle use and the expense of paving, improvement of this section is a very low priority.



LINCOLN COUNTY BICYCLE PLAN

Logsdon Road (County Road 410) - east portion

Termini and Length: Logsdon to Nashville; 14 miles.

Pavement: About 12 miles of this portion of Logsdon Road is fully paved with a 22 foot wide pavement. A two-mile section around Nash Mountain is unpaved. Where the road is paved, it features narrow, gravel shoulders unusable for cyclists.

Terrain: Mostly level near Logsdon; an extended (one-mile) climb on the gravel section is required to attain the Nashville Summit on the very steep hills in the vicinity of Nash Mountain.

Sight Distance and Curves: Generally good sight distance; very poor in vicinity of Nash Mountain because of sharp curves and dust.

Average Daily Traffic (ADT): Traffic volumes near Nashville are only about 100 vehicles per day.

Attractions: In combination with the Eddyville-Blodgett Highway (State Route 180), Logsdon Road provides an alternate bicycle route to the more heavily-trafficked US 20. It would allow bicyclists to avoid higher traffic sections of US 20 including the very narrow sections with no useable shoulder in the vicinity of Eddyville. However, the extremely steep, graveled sections of Logsdon Road in the vicinity of Nash Mountain make it an option only for extremely strong, capable cyclists. Modernization of US 20 from Corvallis to Newport is planned by the end of the decade and will include 6-foot to 8-foot shoulder. According to ODOT's Six-Year Transportation Improvement Program, the 4½ mile section between Eddyville and Cline Hill is scheduled for reconstruction in FY 1995.

Recommendations: The eastern section of Logsdon Road is unsuitable as a bicycle route, though mountain biking enthusiasts might find it useable. If the portion at Nash Mountain were paved, its low traffic volumes might make it a suitable bicycle route. Even with improvements, bicycle usage would be minimal and paving specifically for the benefit of bicyclists cannot be recommended because of its expense.

LINCOLN COUNTY BICYCLE PLAN

Moonshine Park Road (County Road 307)

Termini and Length: Logsdon to Lincoln County's Moonshine Park; 4 miles.

Pavement: Moonshine Park Road is fully paved with a 22 foot width; narrow, gravel shoulders are unusable for bicyclists.

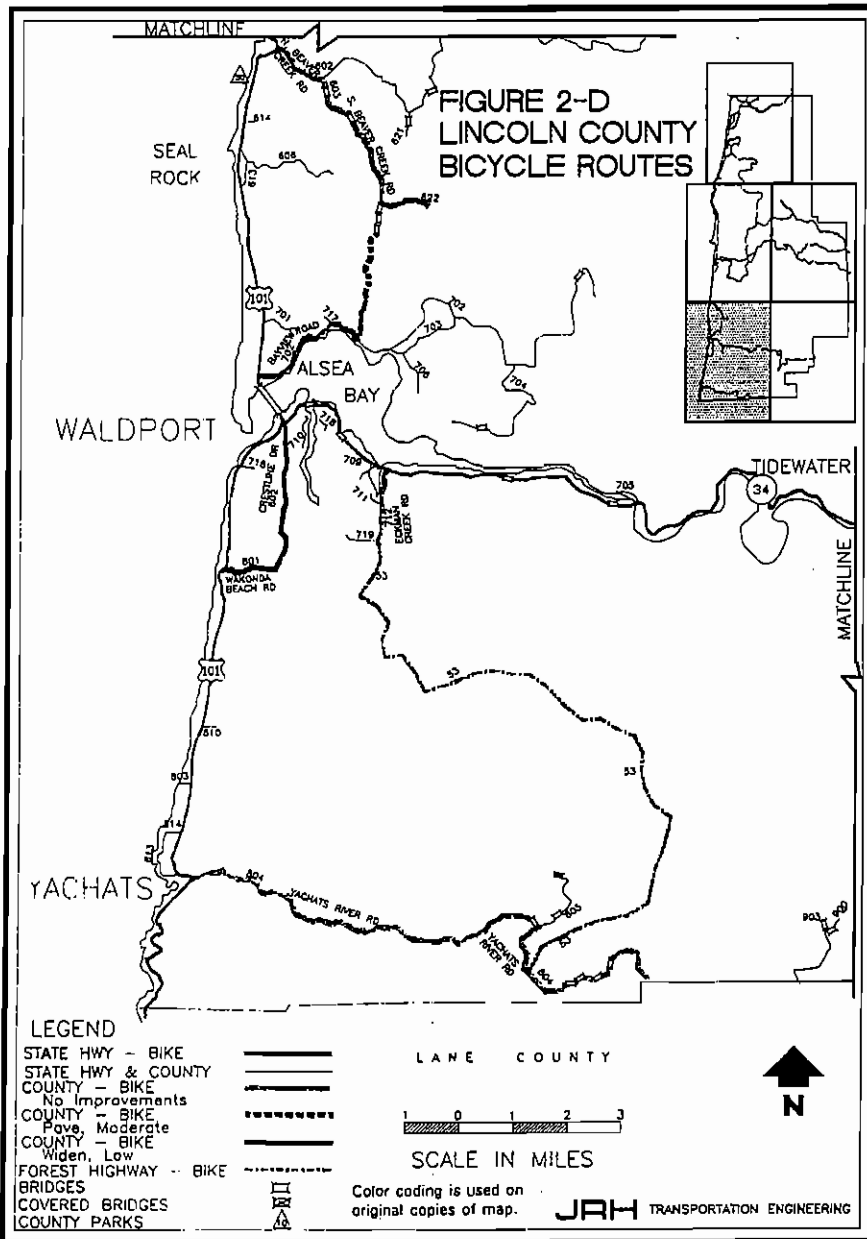
Terrain: Generally flat.

Sight Distance and Curves: Generally good sight distances; few curves.

Average Daily Traffic (ADT): Traffic volumes are low; ADT's of approximately 600 vehicles per day have been recorded near Logsdon with ADT's of less than 100 near the Park. Higher volumes on weekends can be expected near the Park.

Attractions: In combination with Logsdon Road (County Road 410), Moonshine Park Road provides access to Lincoln County's Moonshine Park. The availability of the Park as a destination is one of the principal attractions of Moonshine Park Road.

Recommendations: Because of lower traffic volumes, good sight distance, and gentle terrain, the provision of shoulder is not as important on this road as many others. However, whenever pavement overlays are proposed, consideration should be given to increasing pavement width to at least 26 feet.



LINCOLN COUNTY BICYCLE PLAN

North Beaver Creek Road (County Road 602), South Beaver Creek Road (County Road 603), and Bayview Road (County Road 702)

Termini and Length: US 101 about 8 miles south of Newport (mile post 146) to US 101 at the north end of the Alsea Bay Bridge (mile post 154.8); 8 1/4 miles.

Pavement: This section consists of both paved and unpaved roads. The portion of North Beaver Creek Road used in this loop is a newly paved 22 foot road. Bayview Road is also paved. South Beaver Creek Road includes a little more than three miles of paved road and two miles of crushed rock surface. The paved sections of South Beaver Creek Road are about 22 feet in width; the unpaved section is somewhat narrower.

Terrain: North Beaver Creek Road is mostly level. Both South Beaver Creek Road and Bayview Road are hilly with some short steep sections.

Sight Distance and Curves: North Beaver Creek Road is mostly straight. South Beaver Creek Road has some moderate curves. Bayview Road is winding with curves.

Average Daily Traffic (ADT): Traffic volumes are low, ranging from about 100 to 500 per day.

Attractions: The principal attraction of these roads is that in combination with an 8-mile section of US 101, they form a loop route of intermediate length (about 16 miles). Bayview Road also provides a few views of Alsea Bay. Unfortunately, the two-mile unpaved section is a significant detraction. Seal Rock Wayside or the City of Waldport, just across the bridge from the intersection of US 101 and Bayview Road provide logical termini for using this loop.

Recommendations: Because of the low traffic volumes, widening for bicyclists is not justified. Paving of the unpaved section of South Beaver Creek Road would be beneficial to cyclists, but the County's intent to pave it must be justified on the basis of motor vehicle use rather than small amount of bicycle use which could be anticipated.

LINCOLN COUNTY BICYCLE PLAN

Lint Slough (County Road 710), Crestline Drive (County Road 802) and Wakonda Beach Road (County Road 801)

Termini and Length: From State Highway 34 in Waldport to US 101 3 miles south of Waldport (mile post 159.0); 4 miles.

Pavement: All three are paved roads between 20 and 22 feet in width. Shoulders are unusable for cyclists.

Terrain: Crestline Drive is quite steep especially between Waldport High School and Bay Street. The other sections have moderate terrain.

Sight Distance and Curves: A few sharp curves and hilly sections limit sight distance in a few places.

Average Daily Traffic (ADT): Traffic volumes are low with daily counts varying from 100 to 500 per day.

Attractions: In combination with a three-mile section of US 101, these three roads form a loop route with some recreational potential. Waldport High School is located on Lint Slough so there is some potential for school trips.

Recommendations: Because of low traffic volumes and limited potential for bicycle traffic, wider shoulders would be a relatively low priority. Crestline Drive between the high school and Bay Street would have the greatest benefit. Bay Street and Cedar Drive, an alternate connection between Crestline Drive and the main part of town is so steep as to be unusable for cyclists.

Yachats River Road (County Road 804)

Termini and Length: US 101 at Yachats (mile post 163) to Lincoln County/Lane County Line near Keller Creek Picnicking Site at Forest Highway 5590; 10½ miles.

Pavement: Yachats River Road is fully paved with a width of approximately 22 feet.

LINCOLN COUNTY BICYCLE PLAN

Terrain: Since Yachats River Road follows the river, it is relatively gentle terrain with some short, moderately-hilly sections.

Sight Distance and Curves: There are some sharp curves and several moderate ones which limit sight distance in a few places.

Attractions: Used in combination with US 101 and US Forest Service roads, Yachats River Road can be part of a loop route. The most obvious of the Forest Service roads are Forest Route 53 which connects to State Highway 34 just east of Waldport and Forest Route 55 which is mostly in Lane County and connects with US 101 at Cape Perpetua (mile post 167.5). Both forest highways feature steep, long, hilly sections, sharp corners and limited sight distance. Forest Route 53 has an unpaved section of less than one mile in length. Forest Route 55 is paved. On both Forest Route 53 and 55, pavement width is only about 12 feet, much less than County standards. However, traffic volumes are extremely low on these forest highways. Because of the terrain and isolation, loops using the forest routes are appropriate only for experienced, capable cyclists. Because of the unpaved sections, Forest Route 53 is suitable only for mountain bicycles.

Average Daily Traffic (ADT): Traffic volumes on Yachats River Road are low, ranging from 100 to 400 vehicles per day.

Recommendations: Because of low traffic volumes, the generally good conditions for cyclists and low demand, no improvements to Yachats River Road are recommended. Destination or guide signing to help cyclists find their way to and along the most appropriate Forest Service Routes would be helpful at such time as the Forest Service completes its recreation planning efforts and can participate in a signing program of its own.

Eckman Creek Road (County Road 712)

Termini and Length: OR 34 east of Waldport to 1.4 miles south; 1.4 miles.

Pavement: Eckman Creek Road is fully paved with a width of approximately 22 feet.

LINCOLN COUNTY BICYCLE PLAN

Terrain: Eckman Creek Road has some short, moderately-hilly sections.

Sight Distance and Curves: There are few curves which limit sight distance.

Average Daily Traffic (ADT): Eckman Creek Road varies from about 700 vehicles per day on OR 34 to less than 200 where it joins Forest Highway 53.

Attractions: Used in combination with US 101, Yachats River Road and Forest Highway 53, Eckman Creek Road can be part of a loop route.

Recommendations: Because of low demand for bicycle use there is little need for improvement. Signing might be appropriate in combination with Forest Highway 53 if use increases significantly.

Description of Forest Service Roads

Forest Highway 53

Termini and Length: Eckman Creek Road near Waldport to Yachats River Road near Keller Creek Picnicking Site at Forest Highway 5590; 15 miles.

Pavement: Most of Forest Highway 53 is paved with a width of approximately 12 feet. A section of approximately one mile is gravel.

Terrain: Many moderate to steep hill sections.

Sight Distance and Curves: There are several sharp curves. The very narrow road further limits sight distance in a few places.

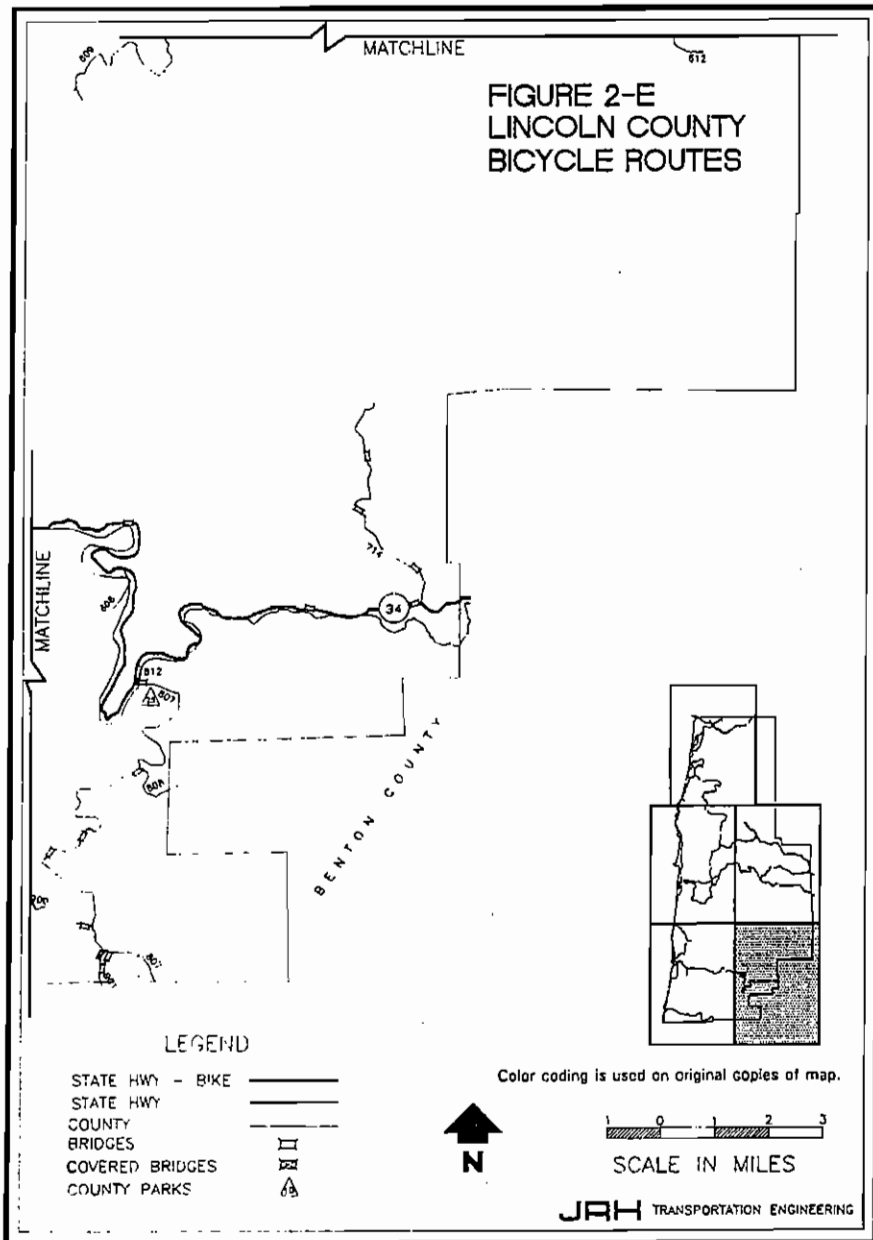
Average Daily Traffic (ADT): Traffic volumes on Forest Road 53 are thought to be extremely low.

Attractions: Used in combination with US 101 and Yachats River Road, Forest Road 53 and Eckman Creek Road, can be part of a loop route. Because of the terrain and isolation, this and other forest routes are appropriate only for

LINCOLN COUNTY BICYCLE PLAN

experienced, capable cyclists. Because a section is unpaved, Forest Road 53 is suitable only for mountain bicycles.

Recommendations: Because of the terrain, its isolated location, and the presence of a gravel section, use by cyclists is expected to remain very low. Paving of the existing gravel section might encourage additional bicycle use. Within the National Forest, new roads are built in response to logging operations resulting in a particularly complex and sometimes confusing network of roads. Mapping and signing might be especially beneficial to cyclists for this route.



LINCOLN COUNTY BICYCLE PLAN

No county roads in the southeast portion of the Lincoln County are proposed as bicycle routes.

VI. FACILITIES IMPLEMENTATION ELEMENT

TIMING

It is important to view this as a long-range plan. The State has been working actively for twenty years on its plan for improving its highways for the benefit of bicyclists. Lincoln County's Bicycle plan needs to be thought of in this same way.

Like the Oregon Bicycle Plan, implementation of Lincoln County's Bicycle plan will be driven by the schedule for road improvements. It will be much more economical to provide bicycle improvements in conjunction with planned roadway improvements than it would be to undertake such improvements individually. It is discouraging to think that many of the improvements identified here will not be in place for five-to-ten-to-twenty years. Nevertheless, it is important to begin implementing the Plan because of the long lifespan of roadway improvements.

FUNDING

A variety of funding sources are available for bicycle improvements identified in this Plan. Since the focus of this plan is on shoulder improvements, most of the available funding sources are those available for road improvements.

The potential sources of funding for bikeway improvements identified in this Plan are discussed below.

State Highway Fund

The State Highway Fund consists of funds collected by the state primarily from fuel taxes and vehicle license fees. A large portion of the funds are shared with Oregon's cities and counties. This fund transfer makes up a major portion of Lincoln County's funds for road maintenance and construction.

In 1971, the Oregon Legislature enacted legislation now described as Oregon Revised Statute (ORS) 366.514. The law requires that bikeways or footpaths be established as part of all highway projects, except where such facilities would be contrary to public safety, excessively disproportionate in cost to the need or probable use, where there is a sparsity of population, other available ways exist, or other factors indicate the absence of any need or probable use.

ORS 366.514 mandates that no less than 1 percent of the State Highway Fund each year be spent by cities, counties and the state for such bikeways and footpaths. Recognizing that 1 percent in any given year may be too low to be useful, cities and counties may accumulate annual allocations for up to ten years.

Table 3 indicates the minimum amount of funding required to be expended for bicycle and pedestrian facilities by Lincoln County and by each of its cities during the last ten years. Because of expected increases in gas taxes, each agency should expect continued increases in these funds for the foreseeable future.

Table 3
Bikeway/Footpath Fund Allocations to Lincoln County and Cities (dollars)

Year	Lincoln County	Depoe Bay	Lincoln City	Newport	Siletz	Toledo	Waldport
1982	4788	*	732	1008	*	420	*
1983	5423	*	839	1114	*	473	*
1984	5769	*	892	1213	*	494	*
1985	6560	*	1029	1436	*	568	272
1986	7168	*	1131	1580	*	619	299
1987	8527	*	1350	1860	*	725	353
1988	9784	*	1535	2111	259	810	400
1989	12265	264	1943	2697	330	1010	508
1990	13935	297	2247	3092	371	1148	572
1991	16022	335	2520	3482	420	1299	647
Total	90241	896	14218	19593	1380	7566	3051

* indicates less than \$250, which makes the city exempt from the requirement for expenditure of the funds for bikeway/footpaths for that year. Yachats' allocation has not yet exceeded \$250 in any year.

LINCOLN COUNTY BICYCLE PLAN

State Highway Division Local Assistance Bicycle Funds

The Oregon Department of Transportation Highway Division provides limited funding specifically for bicycle projects under its "Local Assistance Bikeway Projects" program. The Department's budget goal is to expend ten percent of its annual bicycle funds to assist local governments with their bikeway projects and programs.

The "Local Assistance" Program provides for funding of the following types of projects:

- 80% state grants of up to \$50,000 for construction of bikeway projects.
- 50% state grants of up to \$20,000 for developing local bicycle plans.
- 50% state grants of up to \$10,000 for developing and publishing local bike maps.

Local governments can use their State Highway Funds or other sources for their local matching amounts.

Annually, the Highway Division notifies cities and counties of the availability of funding. Priorities are established by the Bicycle Advisory Committee. Only about half of the projects for which funding is sought receive funding.

Federal Aid Highway Funds

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 restructures federal transportation funding programs. The Act reduces the number of federal-aid highway systems but gives state and local governments more flexibility in determining transportation solutions. A wider range of activities, including bicycle and pedestrian projects, are eligible. The total amount of federal funding is somewhat more than previous programs.

The Act does not provide specific funds for bicycle projects, but provision of facilities for bicyclists on roadway projects should be improved by passage of this legislation.

Federal Lands Highway Program

The Federal Lands Highway Program is one of the programs established by the ISTEA. Its main emphasis is to improve access to the National Forests for commercial and

LINCOLN COUNTY BICYCLE PLAN

recreational purposes. ISTEA states that program funds can be used for "Parking areas, interpretative signage, acquisition of scenic easements and scenic or historic sites, provisions for pedestrians and bicycles, construction and reconstruction of roadside rest areas, and other facilities as determined by FHWA."

The amount of funding available to Oregon is almost double that of previous years. One Lincoln County road, Bear Creek Road, is included in Oregon's Forest Highway Program list.

County General Funds

Bicycle projects are clearly eligible for funding from the County General Fund. However, the competition for funding is considerable. Funding for bicycle projects is highly unlikely.

IMPLEMENTATION PRIORITIES

General Recommendations

Shoulder Standards. As discussed in the section on shoulder improvements, two different shoulder standards are proposed: a preferred version with 6-foot shoulders (or 4-foot shoulders where environmental or right-of-way constraints prevent wider ones); and a compromise version with 2-to-3 foot shoulders. The narrower shoulder is estimated to cost less than half as much as the wider version. Because resources are limited, we believe bicyclists in Lincoln County would be better served by more miles of narrower shoulder than by fewer miles of wide shoulder.

Shoulder Widening Priorities. We recommend priority be given to shoulder paving being done in combination with overlay projects because of much lower estimated cost. However, it may be appropriate to experiment with a shoulder-only paving project to gain local experience with its effectiveness and cost.

Spot Widening. For roads with a "low" widening priority, the most cost-effective improvement may be widening on the inside of curves, on up-hill sections, and other areas of limited visibility.

LINCOLN COUNTY BICYCLE PLAN

Paving Driveway Aprons. As indicated in the Oregon Bicycle Plan, paving of driveway aprons reduces track-out from gravel driveways. Paving of driveway aprons is recommended on all paving projects.

Signing. Signing has proven to be very expensive to install and maintain. Sign vandalism has been particularly costly in rural areas throughout the state. Destination or guide signing for bicyclists might be useful for cyclists following a loop route, such as the Schooner Creek/Anderson Creek/Drift Creek loop. If proposed signs are not included in the Manual on Uniform Traffic Control Devices, approval will need to be obtained from the Oregon Highway Division.

Mapping. Lincoln County is a good candidate for a bicycle map project. Several of the routes identified in this plan have attractive destinations or form loop routes. Maps with route information and safety tips may provide information and encourage more bicycle ridership than signing and do so at lower cost. The Oregon Highway Division has recently established bicycle mapping as an eligible category for Local Assistance Grants.

Other Funding Programs. Lincoln County may choose to pursue funding for bicycle improvements indicated in this plan. Oregon's Local Assistance Program might prove a good source of funding for high priority shoulder-widening projects, such as West Devil's Lake Road. This project might be pursued as a joint project with Lincoln City. Lincoln County, which is already planning for funding for Beaver Creek Road under the Federal Lands Highway Program, might work with the US Forest Service to try to obtain funding under the same program for improvements to Forest Highway 53 and Old Scenic 101 (Forest Highway 12).

Widening and Paving at Specific Locations

Four County roads are identified as high priority for widening. These are the County roads with greatest potential for bicycle use and the most need for improvements. They are:

- West Devil's Lake Road
- East Devil's Lake Road
- Yaquina Bay Road
- East Three Rocks Road and Old Scenic Highway 101

LINCOLN COUNTY BICYCLE PLAN

Whenever overlays are proposed for any sections of these roads, widening to a minimum of 28 feet should be done. If major reconstruction proves necessary for these roads, a 30-foot or even 32-foot pavement width would be preferable. Because of their potential for high bicycle use, these roads are also the most likely candidates for shoulder paving done independently of an overlay project.

The cost of widening shoulders varies considerably. Local experience will be necessary to accurately predict costs for future projects. Some studies suggest that where an existing gravel shoulder provides an adequate base and shoulder paving can be done as part of an overlay project, costs may be as little as \$15,000 per mile for a 2-to-3 foot shoulder. Four-to-5 foot wide shoulder widening projects funded under Oregon's Local Funding Assistance Program range from \$50,000 to over \$400,000 per mile. Excluding the most expensive projects where severe soil and drainage problems were encountered results in an average cost of about \$100,000 per mile. The actual cost of projects will depend on the standard which is applied to shoulder widening projects, the timing of projects, and the County's experience working with local contractors.

West Devil's Lake Road, East Devil's Lake Road and Yaquina Bay Road total almost 19 miles. The total cost of providing shoulders which are useful for bicyclists would probably range from \$400,000 to \$2,000,000 depending on the standard applied to each project. Since motorists also receive considerable benefit due to lower accident rates with paved shoulders, paving of shoulders on these roads seems to meet the definition of "reasonable" as used in the ORS. It is also important to recognize the amount of funding which will be available to the County from the State Highway Fund over the next ten to twenty years. Over the next 10 years, ORS 366.514 will require that Lincoln County expend a minimum of perhaps \$200,000 to \$250,000, depending upon the amount of fuel taxes collected. Over 20 years, the minimum expenditure required by law will likely exceed \$500,000.

One county road is identified as a moderate priority for widening:

- Logsdon Road

LINCOLN COUNTY BICYCLE PLAN

Some additional county roads are identified as low priority for widening. They are:

- Moonshine Park Road
- North Bank Road
- E. Three Rocks Road and Old Scenic 101
- Lint Slough, Crestline Drive and Wakonda Beach Road

When overlays are done on these roads, it is recommended that spot widening be done on curves, hilly areas and places with restricted visibility. Once widening has been completed on the four high priority routes, the same "compromise" shoulder standard should be applied to these routes when overlays are done.

Two County roads and one US Forest Highway are identified as paving priorities. These roads are:

- South Beaver Creek
- Logsdan Road (east section)
- Forest Highway 53

Paving of the unpaved gaps in these three roads cannot be justified on the basis of bicycle use alone. However, bicyclists would be well served by paving of the unpaved sections. It is recommended that the potential for use by bicyclists be considered when paving priorities for County roads are established. If two roads are considered otherwise equal in priority, we recommend paving of the road identified as a bicycle route in this Plan.