BIKEWAY MASTER PLAN

FOR

COOS BAY / NORTH BEND BAY AREA
AND
COOS COUNTY PARKS

PROJECT NO. 369

JUNE, 1991
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SECTION 1
INTRODUCTION

1.1 PURPOSE

Bicycling is the fastest growing physical fitness activity in the nation. It has also proven effective as an alternate mode of transportation in many of the larger communities throughout the State of Oregon. Planning at the state level, as well as local comprehensive planning, encourages the development of bicycle facilities. The recognized benefits of bicycling such as efficiency, mobility, and recreation can only be realized through a planning effort at the local level that considers site specific conditions and user's needs while promoting bicycling in general.

The primary purpose of the Bikeway Master Plan is as a planning tool. It is the first significant effort within Coos County to provide guidance for future bikeway improvements and to enable the County and Bay Area Cities to be eligible for funding of specific projects and programs.

1.2 ORGANIZATION AND PLANNING AREAS

The Plan consists of two plans within one document. An important facet of bikeway planning is continuity within and between systems, including the state designated routes. A cooperative planning effort assures that the State, Coos County Parks, North Bend and Coos Bay systems are integrated where common objectives dictate. Another reason for combining plans is to optimize efficiency. Many of the design parameters, traffic laws, safety information, and other criteria pertinent to bikeway planning is standardized on a statewide or national basis.
Bay Area - Comprehensive Master Plan

The Cities of Coos Bay and North Bend are considered together for a comprehensive Bay Area Plan. Primarily concerned with planning within the city limits, the recreational needs of city residents wishing to cycle beyond the limits is included within the scope of the plan. It is comprehensive in nature, whereas all areas and streets of the cities are considered for potential routes, and appropriate aspects of bicycle planning necessary for all types of users within an urban setting are evaluated.

Coos County Parks - Master Plan

The focus of County Parks bikeway planning is on recreational use, with limited consideration of other uses. This master parks plan is not intended to be comprehensive within the County, nor within the park system itself, but the question of the need for county wide planning is addressed.

The Parks plan concentrates on five areas identified by the County as likely candidates for bikeway improvements:

- Charleston - Bastendorff Beach County Park
- Lakeside - Tenmile Lake County Park
- Powers - Powers County Park
- Coquille - County Boat Ramp/Federal Assistance Housing Area.
- Bandon - South Jetty Park

Planning Area Maps

Coos County is shown on Figure 1.2.1 with the Bay Area and Parks Planning areas represented by detailed maps in appropriate sections.
1.3 REFERENCES AND DEFINITIONS

Several documents are integral to this plan and should be utilized whenever specific improvement projects enter the design phase or detailed information is needed. To maintain continuity, local bikeway planning efforts statewide generally accept these references as standard guidance: (State Plan and AASHTO are currently being updated)

- State of Oregon Bicycle Master Plan; Bicycle Program Office, Road Design Section, Highway Division, Oregon Department of Transportation; May, 1988. (Referred to as "State Plan")


- Manual on Uniform Traffic Control Devices (MUTCD); Federal Highway Administration; 1988

- Oregon Motor Vehicle Code (MVC)

To minimize repetition, only significant standards specifically applicable to the planning areas will be included in this plan. Emphasis is based on area conditions and needs, and it is assumed the above documents will be readily available to local bicycle program managers or committees and bikeway project designers.

Definitions

Terms commonly used in bikeway planning are defined in a glossary included in the Appendix. Important classification terms are also included in Section 2.3.

Acknowledgement

The Bay Area Chamber of Commerce has permitted the use of their map for county-wide figures.

1.4 GOALS AND OBJECTIVES

The overall goals of the plans and Bay Area and Parks objectives are summarized below.

Provide Guidelines to Develop Bikeway Systems

Certain guidelines need to be followed for a bikeway system to succeed. Short-term planning addresses the specific needs of each planning area. Long-term goals consider county and statewide trends and needs.
Bay Area. A primary objective is to integrate bikeways into the existing transportation system. Proper planning accommodates the various modes of transportation, while encouraging the use of more efficient methods such as bicycling.

County Parks. A well-rounded parks system provides a variety of recreational activities. A primary objective is to focus on the recreational aspects of bicycling at selected County Parks.

Establish Criteria for a Safe and Convenient Bicycling Environment

Uniform standards for signs, pavement markings and driver/bicyclist etiquette must be utilized and maintained so that all users can understand the local system.

Bay Area. A primary objective is to balance the needs of the wide variety of users within the cities during the entire planning process.

County Parks. Improving cycling opportunities that encourage use of the parks system and the bicycle as a recreational activity.

Encourage and Support Education and Safety Programs for All Ages

Increasing user awareness and reducing bicycle accidents are two objectives that can benefit from education and safety programs. Improving skills and teaching rules of the road are especially important to young bicyclists. Implementing such programs in conjunction with system and route improvements will aid in the effectiveness of the plans.

Establish Priorities

A primary objective in both plans is to recommend facility improvements and prioritize them based on the guidelines and criteria developed. Maintenance and available funding are also considered when establishing priorities.
SECTION 2
BACKGROUND

2.1 COMPREHENSIVE PLANS

Past planning efforts were limited in scope in regards to specific bikeway planning, yet contain general policies and references encouraging bicycling.

Coos County Parks Department

The Recreation Element of the Coos County Comprehensive Plan emphasizes coordination in recreation planning efforts as represented by this cooperative effort in bikeway planning. The Statewide Comprehensive Outdoor Recreation Plan is cited frequently. The following information is from the Recreation Element.

Popularity. Cycling is less popular in the Coos-Curry District of the State Park system than statewide. This is likely due to a lack of adequate facilities.

Priorities. It would be best to accord high priorities to activities like bicycling which require less investment in park equipment and is not as resource based (such as fishing, hunting, or camping).

Special Interest Groups. "More work needs to be done to see how the needs of certain special interest groups should be met." Cyclists are mentioned with the example of completing the existing path between Empire and Charleston.

Citizen Involvement. The need for more bicycle paths was rated as the sixth most important item during county wide meetings.

Recreation Facilities. The County should consider bicycle trails as a priority, and encourage the individual cities to take an active role.

General Policy. "To a great extent, the County should give priority to non-motorized forms of recreation over motorized forms, in recognition of the need to conserve energy."
Coos Bay

The City of Coos Bay also developed a park plan which appears to be outdated for the coming decade. A brief 1975 Bikeway Plan resulted in improvements to Empire Lakes and Mingus Parks trails. Ocean Boulevard was identified as a candidate for bike route improvements, but no work was ever accomplished. The following information is from the Coos Bay Comprehensive Plan:

Transportation Problems. There is an overdependence on the automobile. "What can the City do to help provide alternative transportation choices or minimize the impact of this single use?"

Needs. Improvement and expansion of the bikeway system including waterfront paths, city streets, and state highways.

Citizen Input. Relating to the transportation problem, input indicated that the bikeway system is insufficient and inferior to enhance the bicycle as a daily means of transportation rather than for purely recreational purposes. "What can the City do to improve the bikeway system?"

Policy. "Coos Bay shall seek to improve and expand its 1975 Bikeway Plan, recognizing that the bike is an alternative energy conserving and health mode of transportation".

North Bend

Planning in North Bend emphasizes the need to cooperate with Coos Bay and the Highway Division regarding street improvements. The Comprehensive Plan identifies the lack of "formally recognized ped or bike paths separate from existing sidewalks."

The 1981 Major Street Traffic Safety Program is often referenced in the North Bend Comprehensive Plan. No specific bikeway improvements are discussed within the Program. However, the recommendation to "develop bikeways throughout the city and bicycle storage facilities" was proposed to assist in reducing traffic demand.
2.2 OREGON MASTER PLAN

A Bicycle Master Plan of Oregon was developed by the Department of Transportation Highway Division in 1988. The document serves to provide uniform guidance for local government bicycle programs such as this plan.

Bicycle Program Office

Policies of the state plan are formulated within an office of the Highway Division. The Bicycle Program Office implements the statewide plan and assists with local bicycle programs. The Bicycle Program Manager and staff provide valuable assistance in the planning, design, and construction of bicycle facilities. Their advice should continue to be solicited in any future plan updates.

Bicycle Bill

Oregon pioneered a law in 1971 for funding the development of bikeways. The law provides that at least one percent of the State Highway funds received by counties and cities be expended for such development (including footpaths).

Publications

In addition to the Master Plan, the state has published maps to assist primarily touring cyclists traveling within Oregon. The Oregon Bicycling Guide shows most of the state highways within Coos County and classifies them based on suitability for bicycling. Certain cities are also mapped, showing detailed suitability. Although the Bay Area is not currently shown, the potential exists when local route improvements warrant. The Oregon Coast Bike Route map shows Coos County roads where applicable to this popular touring route.

State and Local System Continuity

The State Master Plan emphasizes the need for continuity, whether between cities or from local bikeways to designated state routes. For the purpose of funding improvements, state bicycle funds are more readily available when the selected route extends or completes a linked system. For this reason the existing designated state bicycle routes are an important consideration in local bikeway planning.
Planning Assistance

This Master Plan is partially funded by priority 4 funds of the State Plan. To qualify for this assistance, the plan must address the following items:

- Local system incorporation into the statewide network.
- Route proposals.
- Anticipated usage.
- Project priorities.

2.3 TRAVEL AND BIKEWAY CLASSIFICATION

To maintain uniformity with state planning and nationally accepted traffic standards, local planning designations should be consistent with those already established. This section briefly describes the types of bikeways and their use.

Types of Travel

Bicycling can be categorized into five general uses:

Commuting. Regular travel to and from a specific destination.

Utilitarian. Practical purpose travel, such as delivering goods or shopping.

Recreational. Riding for pleasure or fitness.

Touring. Long distance bicycling.

Racing. Sport cycling.

Types of User

Proper bikeway planning not only considers the type of use, but the bicyclists who will use the facility. The basic capabilities vary greatly from novice beginners and children to experienced users. The needs of users assist in determining the type of facility that will accommodate them.
Transportation Use. Commuter and utilitarian users usually prefer direct on-street bicycle routes. Their needs are similar to the motorist with the same purpose. They will often choose a route regardless of heavy traffic simply because it is the most efficient route. Secure parking is also important for users primarily interested in transportation.

Recreation Use. Those bicycling for fun often prefer a looped route with scenic benefits and light traffic. Touring cyclists may search for routes that combine recreational aspects with transportation use. The Oregon Coast Bike Route is an example of markers directing touring cyclists toward recreational use in lieu of a more direct route along Highway 101. Recreational use is often directly related to availability of adequate facilities. Facility development and improvement encourages more use.

Bikeway Classification

Bikeway is a broad term used to generally describe any facility where bicyclists may ride. For planning purposes, classification is necessary to define the different types of bicycle facilities. A bicycle route is usually designated as such by a jurisdiction and route selection is an integral part of the planning process. Whether designated as a route or not, there are five basic types of facilities that accommodate bicycle travel:

Shared Roadway. The vehicle lane used by motorists is shared with bicyclists. Most common on narrow rural roads and residential streets.

Shoulder Bikeway. Paved roadway shoulders where adequate width allows bicyclists to ride with few conflicts with motor vehicles. Shoulder bikeways are common on the state highway system, and are often delineated with a pavement stripe (fog line).

Bike Lane. A designated portion of the roadway that is marked and signed for use by bicyclists.

Bike Path. A bikeway that is physically separated from motor vehicle traffic.

Mountain Bike Route. An unpaved, generally unimproved route that accommodates bicycles designed for "off-road" use.
2.4 TRENDS

Route, user and travel types have undergone gradual change since the first bicycles were developed a hundred years ago as a transportation vehicle. Twenty years ago, the trend was toward bike paths to alleviate the many conflicts between the motorist and bicyclist (primarily recreation use). Today, with the increasing interest in bicycling, specialized equipment, and renewed utilitarian use, the concept of on-road bikeways is the trend. Beside conserving funds in construction and maintenance, a common route unites motorists and bicyclists for better cooperation and safer operation than was observed on separated routes.

Another problem with bike paths was the lack of adequate planning and/or proper design that was predominant in many of those constructed. If a path was not looped, linked to another system, or maintained regularly, it received little use. The bike path still has an important role in certain situations (for example, recreational use) if properly planned, but the modern cyclist desires function above all else when choosing a route. A separated path will not be chosen by the bicyclist if it is isolated, poorly designed, or not maintained.
SECTION 3
PUBLIC AND AGENCY PARTICIPATION

3.1 GENERAL

This planning effort incorporated intensive public and agency input and participation. In addition to City and County Officials, many community members, agencies, and organizations also contributed to the planning process. Input regarding identification of needs and possible solutions was offered within every phase of the plan. This section briefly reviews the various sources of input. Sincere appreciation is extended to all those participating in the development of the plan.

3.2 PRIMARY CONTACTS

One official each from Coos Bay, North Bend, and County Parks notified appropriate city and county staff during the course of the plan. They also assisted in identifying possible local volunteer contacts. One volunteer each from Bandon, Charleston, Coquille, Lakeside and Powers coordinated efforts within their respective communities for the County Parks Plan. Several members of the Bay Area volunteered to serve on an ad hoc committee, which was involved with the more comprehensive city plan.

3.3 QUESTIONNAIRE

A majority of the public input resulted from six different questionnaire forms distributed in January and February of 1991. They solicited information specific to the five areas mentioned in Section 1.2 for the County Park Plan, while the Bay Area questionnaire was more in-depth in nature. The questionnaire forms are included in the Appendix. For the most part, results of the questionnaires are included in the section of text dealing with the subject (Sections 4-6). A brief summary of demographic and other general information obtained from the questionnaires follows.
Bay Area

Although input from non-cyclists was welcome, all of the 45 respondents to the Bay Area questionnaire were bicyclists. Most considered themselves to be avid, either as a utilitarian user or biking often in their spare time.

**Frequency.** Over a third ride 2 to 5 times a month, with slightly less averaging 11 to 20 trips in the same period.

**Length.** Half of the respondents average 5 to 15 miles each time they ride. None listed "less than one" mile as an average trip length.

**Type of Use.** When considering all travel by bicycle, about half is recreational. The other half is evenly split between utilitarian (including commuting) use and fitness bicycling, which many considered the same as recreational use.

**Anticipated Usage.** Although half of the respondents said they bike about the same amount, "compared to a year ago," a large majority of the remainder use their bicycles more. A similar question found 30% "would bicycle more if it were safer."

The average age of the Bay Area respondent was 40. Approximately 58% live in Coos Bay, 24% in North Bend, and 18% out of town.

Coos County Parks

The response to the questionnaire varied greatly in the outlying areas. The number of people returning forms was: Bandon - 7; Charleston - 5; Coquille - 15; Lakeside - 22; Powers - 84. The average age was 35.

**Frequency.** No pattern was observed in the number of times respondents rode their bicycles. The answers were evenly divided from none to "over 20" times a month.

**Length.** Average trip length was generally less than the Bay Area bicyclists. 80% listed under 5 miles.

**Type of Use.** Type of travel compared with the results of the city questionnaire. There was a slightly larger percentage of recreational users and less commuters.

**Anticipated Usage.** About 30% of the respondents thought they biked more than they used to, and 20% believed they would ride more if conditions were safer.
3.4 PUBLIC MEETINGS

This section summarizes the various meetings conducted during the course of the planning process.

Goals, Objectives and Questionnaire Results. On March 4, 1991, a meeting was attended by some city and county staff members and interested local contacts. The Coos Bay District Manager of the Oregon State Highway Division also attended.

Route Selection. Several meetings with bicyclists and primary contacts were held during April of 1991 to assist with the route selection process. Information from these meetings was subsequently reviewed with County, City, and State officials of the agencies with jurisdiction.

Draft Plan. On June 6, 1991, a hearing on the draft plan was conducted. This meeting followed a three week period during which the document was available for review at various locations throughout the County.
3.5 GOVERNMENT AGENCIES

In addition to local city and county officials, several other government agencies also participated in the planning process. Coordination between responsible agencies will be necessary to successfully implement most phases of the plan.

Oregon State Highway Division (OSHD)

The Bicycle Program Office is the primary participant in local bikeway planning. Located in Salem, this office oversees statewide bicycle planning (see Section 2.2). The office coordinates efforts, provides resources, and assists local programs as much as possible. In August of 1990, 188 bicyclists on the Oregon Coast Bike Route completed a questionnaire developed by the Program Manager. Results are included with those of this plan where applicable within Section 4. The office also reviewed the draft of this plan.

Oregon Bicycle Advisory Committee. Working closely with the Program Office, this committee of eight members from throughout Oregon was created as a result of the Bicycle Bill. The local committee formation recommended by this plan (Section 8) could be modeled after the state group.

A conference for bicycle coordinators and local committees was conducted by the state advisors on April 9, 1991. Information acquired at forums such as this is very useful in implementing local plans. Formation of a local citizen committee could assure that Coos County and its cities are included in the growing network of communities sharing ideas on bicycling.

Accident Data Division. Statistics on automobile/bicycle accidents were provided and are discussed in detail within Section 5.

Region 3. Many projects administered by OSHD are developed through the Roseburg Office. The 1991-96 Six-Year Highway Improvement Program includes many within Coos County. By law, the state is required to review the need for bicycle facilities on every construction and reconstruction project. Specific projects are discussed in Section 8.
Coos Bay District Office. The local OSHD office is helpful in addressing needs on Coos County projects and the important function of shoulder maintenance. This office is the best source of information regarding site-specific items on state highways within the study area.

Coordination with OSHD is important within the context of both plans for two reasons: (1) The state highways form the basic transportation links between all communities. As they are improved, so should the bicycle facilities. On the basis of long range continuity of systems, shoulder bike routes are the cost effective choice, and should be encouraged. (2) Highway 101 is the state's highest priority for a bicycle route, and perhaps the best recreational link within the county. It is also the most frequently mentioned route in need of improvement, based on the Bay Area questionnaire results. Approximately one-half of Region 3's bicycle dollars go to Highway 101.

Oregon Traffic Safety Commission

The Bicycle Education Coordinator of this agency administers the Smart Cycling Program, a federally funded effort to improve safety education and law enforcement related to bicycle use. Besides providing useful information, some of which is included within this document, the Coordinator is available for training others to instruct bicycle law and safety. The focus of instruction is on children 10 to 12 years old.

Oregon State Parks

Several of the state parks within the County are adjacent to the Oregon Coast Bike Route. Master planning for certain parks includes references to bicycle facilities.

Sunset Bay. Hiker-biker camp is available. Good base for other Cape Arago Parks.

Bullards Beach. A proposal exists to develop a bicycle trail from the campground to the lighthouse near the jetty. Biker campground is the busiest on the Oregon Coast.

William M. Tugman. Biker camp is available.

Other Cities and Counties

Master plans and related information from other areas in Oregon were obtained to review the various approaches taken to bikeway planning. Discussions with agency personnel regarding effectiveness of the approach and lessons learned were also useful. This input is summarized as follows.
Corvallis. This city initially relied on low volume streets signed as "Bike Routes" for the basis of their system. A study conducted in 1975 determined the system was unsuccessful and instead recommended development of bike lanes on major streets. This system has proven effective and the city currently has over 30 miles of designated lanes. The Transportation Services staff continues to support lanes on arterial and collector streets.

Eugene. Soon after the Bicycle Bill passed the legislature, Eugene developed its first master plan. 5 years later an evaluation found that the 50 miles of bikeways were serving the community well. The plan is updated annually. The city has an extensive path system and on-street lanes. Space for the latter was achieved by removing curbside parking, widening during street improvements, narrowing existing car lanes or removing a car lane. Eugene is a leading innovator in all aspects of bikeway design.

Deschutes County. As Bicycle Bill funds accumulate, smaller governments have become able to develop plans. This eastern Oregon County recently completed a master plan. It is more comparable to Coos County than other areas of the state with bicycle plans. However, there appears to be wider acceptance of bicycling on roadways in Bend and its surrounding communities. Aside from route selection, the Deschutes Plan also emphasizes maintenance, education and parking. It is one of the first Oregon plans to recognize the interest in mountain biking and the associated needs of this category of bicycling.

Law Enforcement Agencies

Law enforcement personnel provided information regarding primarily bicycle accidents and the extent of law enforcement. The general opinion was that many accidents go unreported even though the law requires that a law enforcement agency should be notified. Bicyclists are rarely cited even when they are at fault. There existing efforts to improve this area of bicycle safety are by means of grant applications being submitted by the Coos Bay Police Department.

Schools

Limited bicycle safety awareness is taught as a part of health education instruction. The need for better education programs in bicycling was identified by district staff. The Bay Area Schools could be a focal point for safety education.
3.6 OTHER ORGANIZATIONS

Various other organizations were contacted regarding available information related to bikeway planning. Their participation is briefly summarized below.

Bicycle Federation of America

This is a national, non-profit organization established to promote the increased, safe use of bicycles for transportation and recreation. It serves as a clearinghouse for information on all aspects of bicycling. Their publications regarding route selection and liability aspects of bikeway designation are useful in the development of local plans. They publish many other documents, including a monthly newsletter.

Bicycle Travel Association

Also known as Bikecentennial, this group advocates improving local conditions for bicycling with newsletters and other publications. Proper planning, safety and information exchange between communities nationwide are emphasized by Bikecentennial, primarily through their quarterly issue of "Bicycle Forum".

Tours

Oregon is popular with touring bicyclists. Organized bicycle tours are attracted to areas that have scenic qualities. Improved bikeways add to this attraction, which can benefit the local economy and possibly generate return visits. "Cycle Oregon" is the highest profile tour and in recent years has involved 2,000 bicyclists. A different route is chosen each year since its inception four years ago when it passed through Coos County. It is expected to return to this area within the next couple of years. A newly formed tour called "Oregon Bike Ride" will pass through southern Coos County late this summer.

Bicycle Shops

Commercial establishments provide useful information regarding increased use, sales, and repair of bicycle equipment. Personnel often receive input from customers regarding local conditions and needed improvements. Discussions with them often yield insight into common concerns that need to be addressed in planning.
SECTION 4
EXISTING SYSTEM

4.1 GENERAL

The planning areas do not currently have an extensive designated bikeway system. Many routes are used by bicyclists, but few are identified as bikeways. This section reviews those that exist, including planned OSHD projects, and describes the transportation system features in terms of bike route use and potential, based on the objectives and scope of the individual plans. Deficiencies, user concerns, and jurisdiction factors are also discussed.

4.2 INVENTORY AND USE

The Oregon Bicycling Guide classifies the state highways within the County based on suitability for bicycling. The highway system is the primary network linking the cities and, combined with county roads, provides the basic continuity required for a county-wide bikeway system. Figure 4.2.1 shows the county area and the major roads available for network planning.

County Parks

Existing conditions of the five areas mentioned in Section 1.2 are briefly described:

Charleston. The hub of significant recreation activity, this area was also the most popular preferred destination according to the Bay Area questionnaire (outside of city limits). Bastendorff Beach County Park is the closest available camping facility to Charleston. The Oregon Coast Bike Route (OCBR) passes through the area via Cape Arago Highway south from Coos Bay to Seven Devils Road. Cape Arago Highway south from Seven Devils is also shown on the OCBR Map as being an alternative choice to access Bastendorff and the several State Parks adjacent to the highway. Other points of recreation interest include the South Slough Sanctuary, Port/Marina Facilities, beaches, lighthouse, and scenic lookouts. There are no designated bicycle routes other than the state route. According to the County Parks questionnaire, Cape Arago Highway receives the most bicycle use.
Lakeside. Close to the OCBR on Highway 101 and state and federal recreation areas, Lakeside is the main access point for the Tenmile Lakes recreation area. County facilities include Tenmile Lake Park and two boat ramps. There is a large area next to the Park and lake where additional recreational area may be developed. A recently completed shoulder bike lane connects Highway 101 with the downtown area. The questionnaire results indicated "around town" is the most common use of bicycles.

Powers. Located at the northern entrance to the Siskiyou National Forest, the City is also home to Powers County Park. Powers residents offered more responses to the questionnaire than any other area. Volunteers have accomplished some work on developing foot and bike trails in and around the County Park. Respondents indicated most existing use of bicycles occurred within the City and on outlying rural roads, with few specific locations listed.

Coquille. Little in the way of County Park facilities or designated bike routes exists, but planned OSHD projects will substantially improve the shoulder bikeway system. Highway 42 currently has adequate shoulders for bicycling from Coquille eastbound past Myrtle Point almost to the county line. The Coquille reroute project is in progress and will extend the shoulder bikeway around the City with further extensions also planned. People appear to ride bikes outside of town the most, according to the questionnaire. The potential to develop routes accessing the extensive Bureau of Land Management (BLM) road system was expressed by many respondents.

Bandon. This City is also on the OCBR and offers a variety of recreational activities such as beaches, parks, shopping, scenic vistas, and the marina. The designated state route departs Highway 101 heading south at Riverside Drive and follows First Street, Edison Avenue, Fourth Street, Ocean Drive, Beach Loop, and Sea Bird Lane before returning to the highway about a mile south of town. The City has recently made improvements to the route on Edison and Fourth. The South Jetty County Park is a popular access point for the beach. Questionnaire respondents indicate Beach Loop receives much of the current local bicycle use.
Bay Area

Existing designated bikeways are shown on Figures 4.2.2 and 4.2.3 along with the few separated paths located in the area. Current use patterns based on public input are also shown. Use appears to be evenly split between areas within and outside the City limits. Within the cities, utility purpose trips between core areas and other traffic generators on Highway 101, Ocean, Newmark, and other arterial and collector streets is the common use. Outside the cities, the locations being used are East Bay Drive/Coos River, Cape Arago Highway, Catching Slough, and Horsefall, in order of popularity.

Designated Routes. The OCBR is the only continuous marked route passing through the area. It is a combination of shared roadway, shoulder, and bike lane types. The recently constructed couplet on Highway 101 in Coos Bay also has designated lanes in both directions.

Bike Paths. Three separated path systems receive pedestrian and bicycle traffic.

Empire Lakes Park - Two miles of asphalt trails surrounding Lower Empire Lake, including two bridges. Access points are located at the end of Hull and Ackerman Streets on the south side of the park, on Morrison Street near Chickses Creek on the west side, and at the end of Crocker Street and Seagate Avenue on the north side. These trails provide the best opportunity for recreational bicycling within the City limits. Some volunteer trail building is in progress.

Mountain Bike Trails - Connected to the paved trails at the park, about 1 1/2 miles of cleared dirt and gravel trails are available for "off-road" bicyclists.

Waterfront Path - Approximately 2/3 mile of asphalt trail exists from Market Street to Coalbank Slough between the Southern Pacific Railroad and waterfront. It is a dead end to the south and connects to Front Street and 101 northbound on the north end.

Barview Empire Path - Not actually within the City limits, this 1 3/4 mile path was constructed as a part of a sewer project in the 1970's. It is located on the east side of the Cape Arago Highway right of way. It connects to the highway at the Coos Bay city limits (north - Wisconsin Avenue) and Pidgeon Point Road (south). The trend away from separated paths is evident by the state signing the highway as the OCBR instead of the path. There are numerous stop signs at cross streets.
LEGEND

- EXISTING BIKE LANE
- EXISTING BIKE PATH
- PAVED
- UNPAVED
- COMMONLY USED ROUTES
- STATE HIGHWAYS
- CITY OR COUNTY ROADS
- DEFICIENT CONDITIONS
- ACCIDENTS JAN. 1985 - JUNE 1990

SCALE

BAY AREA SOUTH BIKEWAY MASTER PLAN
EXISTING SYSTEM

FIGURE 4.2.3
4.3 SYSTEM DEFICIENCIES AND USER CONCERNS

In general, bicyclists are somewhat dissatisfied with the existing system. This section describes the major deficiencies and concerns that planning can help to alleviate. The Barview-Empire Path is an example of a facility with problems significant enough that bicyclists avoid it. Care must be taken to select routes that function to satisfy the target user's needs.

Bicycling Community (Bay Area Plan)

The following items are listed in order of general (high to low) acceptability, and how the community is perceived by the bicyclists participating in public input.

Touring. For the time of year input was solicited (winter), expectations of comments by touring cyclists was not great. However, the OCBR input of 1990 was favorable.

Law Enforcement. There is not much activity in this area in regards to citing for violations, etc. Cyclists and law enforcement personnel are aware that rules of the road are frequently not obeyed. Improvement is needed in this area.

Recreational Use. Existing bikeways are available, such as at Empire Lakes, but getting to them is not necessarily an enjoyable ride.

Safety Education. Unknown to many participants - needs improvement. Discussed further in Section 5.4.

Commuting. Generally rated poor by most bicyclists. Places of employment are most readily accessible by motor vehicles on streets lacking continuous adequate shoulder width for bicycle travel. Streets most frequently mentioned as deficient were Highway 101, Ocean/Central, Broadway, Virginia, Coos River Highway, Newmark. Bridges such as Isthmus Slough and McCullough were also noted. Drainage and maintenance on certain routes are also problems.

Routes in General. The lack of continuity in types of bikeways and the absence of links between them are the major reasons why routes in general are rated poor. Experienced bicyclists are more accepting of these deficiencies as long as adequate width exists in the right hand travel lane for a motor vehicle and a bike to occupy at the same time. Delineating lanes with pavement markings would certainly benefit both users by defining the space to be
used by each, but is only viable if the original lane is wide enough over an appreciable length to allow it. Striping that creates a shoulder bikeway of varying width is not good practice. Horizontal curves on curbed streets can be a problem if adequate curve widening needed for motor vehicles was not originally built in.

**Bicycle Awareness.** This category appears to be the most significant deficiency of all. Bicycling has proven effective as an alternate mode of transportation in many cities throughout the Country, yet the general feeling emanating from public input is that local acceptance leaves something to be desired.

**Existing Route Selection (Bay Area Plan)**

In order of importance, the following considerations are factors when currently choosing a route. This information is useful in route system planning of Section 6.

**General Safety.** Overall concern to minimize danger.

**Avoid Traffic Conflicts.** Bicyclists tend to avoid routes that have too many conflicts with motor vehicles. Recreational users emphasize this more than utilitarian cyclists.

**Scenic Attractiveness.** Also more important to recreational users and not a primary concern to those interested in transportation travel. Touring bicyclists may choose routes based strictly on this factor.

**Minimize Stops and Delays.** Somewhat split along transportation/recreation lines, the existing arterial and collector streets are often chosen for the same reason motorists choose them.

**Avoid Hills.** Topography of the Bay Area is such that busier streets are often used in lieu of those that have considerable grades. An example of this is Tenth Street/Koos Bay Boulevard versus Highway 101 when choosing a north-south route between the two cities.

**Directness.** Not a significant concern by the recreation user, this factor is similar to minimizing stops and delays. Again, the major streets are often utilized.
User Concerns (County Parks Plan)

In general, there is some concern that the Parks Plan is not comprehensive. For the sake of continuity and linking of routes, many felt that long range planning would be better served by considering the whole county at this time. Most of the other concerns are related to specific deficiencies, while those listed here deal with things that are known to exist but not easily solvable nor addressed within the plan.

Motorist Concerns. The rural nature of the areas where the Parks Plan is concentrated creates concerns not found in urban settings. Many result from the alignment and width existing on county and state highways. Cyclists share the roadway and motorists often drive well into the opposing lane to avoid them. Limited visibility on curves adds to the problem. Careless and unpredictable behavior by cyclists is also a concern for motorists, as well as observations that many younger users disobey traffic laws.

Bicyclist Concerns. Little can be done regarding the speed of drivers or presence of large trucks, which were both mentioned often. Many cyclists feel that their rights to share the roadway are not respected by the motorist and at times is reflected by inconsiderate drivers.

Deficiencies

The following system deficiencies represent the greatest needs for improvement in bikeway planning. Proposed improvements to the system can only address the needs to the extent the scope of each plan allows. Specific Bay Area locations with problems are shown on the Existing System Figures 4.2.2 and 4.2.3.

Lack of Facilities. This is by far the most commonly cited deficiency based on participation in both plans. Primarily a shortage of streets and roads with adequate shoulder width or dedicated lanes and not enough bicycle paths.

Maintenance. Roadway edges accumulate debris from motor vehicle lanes. Without adequate sweeping the material is a hazard for bicyclists who will often swerve into the motor vehicle lane to avoid it. Certain bike paths are also lacking adequate maintenance.
Continuity and Linking. The system is deficient in linking routes with state highways, the OCBR, and other existing routes. Without continuity, routes will not be used to their full potential.

Community and Motorist Awareness. A general perception that bicyclists feel is lacking and needs improvement so that (1) the benefit of cycling as an alternative mode of transportation will be proven; (2) drivers understand that bicycles and motor vehicles have equal rights to use the roadway; and (3) the potential of the area for cycling can be realized and advertised as such.

Education. There is little in the way of instruction or related activities to teach traffic law and safety to young bicyclists.

Enforcement. There is little effort to enforce laws or cite cyclists at accident scenes.

Miscellaneous Hazards. Heavy traffic, catch basin covers, abrupt pavement edge, parked cars and opening car doors, puddles due to poor drainage, bridges, and dogs are all hazards that bicyclists can encounter. The plans address many of these, but to a limited degree.
4.4 JURISDICTION

Right of way ownership is important for a number of reasons that will be evident in the route selection phase of the plan, but are briefly described here as they relate to the existing system. Jurisdiction of major existing routes commonly used by bicyclists is shown on the Figures of this section.

Function

Existing jurisdiction affects planning in that the function of the bikeway determines the location and type of bikeway. Urban use, where several of the functions combine, is often applicable to existing streets owned by the state, county or city. Utilization of existing right of way usually makes the most sense for planning. Recreational use may justify other options, especially if high use is expected.

Funding and Construction

Assistance in funding improvement projects is more readily available if located within public right of way. Some bike routes may be improved during the course of renovation work on existing streets, therefore reducing construction costs.

Maintenance

The jurisdiction with maintenance responsibility will certainly be concerned with any additional obligation. For this reason, their input in the planning and eventually the design process is needed. Generally speaking, shoulder lanes and bikeways are the preferred choice, as they can be maintained along with the road.
SECTION 5
PLAN CRITERIA

5.1 USAGE PROJECTIONS

Expected growth and development is important in transportation planning, but difficult to quantify in terms of bicycle use. Little data is available regarding the amount of bicycle traffic locally. One point is evident - if existing bikeways were better and local conditions safer, there would be more use.

Existing Use

OSHD estimates over 9,000 bicyclists a year travel the OCBR. Most of this use is concentrated in the summer months. Traffic counts on the coast route and at a few other intersections in the Bay Area identify bicycle use.

<table>
<thead>
<tr>
<th>Month - Year</th>
<th>Intersection</th>
<th>Hours Counted</th>
<th>Number of Bicyclists</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 91</td>
<td>Coos River Hwy. @ 6th &amp; &quot;D&quot;</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>August 90</td>
<td>Highway 101 near Pine</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>July 89</td>
<td>Highway 101 @ Horsefall</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>July 89</td>
<td>Broadway @ 12th (NB)</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td>September 88</td>
<td>Highway 101 @ Hauser</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>April 87</td>
<td>Ocean Blvd. @ West Hills</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>
Anticipated Use

Projections of bicycle use are based on qualitative terms of assessment. The questionnaire solicited input in this area and found about one-quarter of the respondents would bike more if it were safer. Approximately one-third said their bicycling use was increasing when compared to the prior year. This was significantly more than those saying their use was declining, especially for the Bay Area users.

National and local bicycle sales combined with statistical data and master plans from other areas indicate the trend in bicycle use is upward. The comprehensive plan policies of all three agencies involved with this master plan are favorable to encouraging non-motorized forms of transportation and recreation. Based on public participation, the lack of adequate bikeway facilities is the primary hindrance to the pursuit of these policies.

Harris Poll. The survey research firm of Louis Harris and Associates conducted a national poll of 1,254 adults in November of 1990. It was found that only one in sixty commuted to work by bicycle in the previous month, but one in five would if there were better facilities. This agrees with the input generated locally from the questionnaire. Rising fuel costs are also a significant factor, with those surveyed indicating their bicycle use would increase proportionally.
5.2 ROLE OF BIKEWAYS

Establishing bikeways by designating routes is one element of an effort to improve bicycling safety and convenience. This is accomplished either by accommodating motor vehicles and bicycles on roadways or by extending the road system with paths intended for the preferential use of bicycles where the system does not meet the needs of the bicyclist. The role of bikeways in planning is important, similar to the function of arterial, collector, and local streets in the automobile transportation system.

The basic role of planning bikeways is to provide a service to the various types of users, traveling for different reasons, by utilizing one or more of the route types. Considering that the Bay Area and Parks Plans have slightly different objectives, a combination of five types of routes function as basic guidance criteria for long range county planning. With a network consisting of these five types, virtually all needs of county bicyclists can be met.

Rural Touring Network

Major routes link cities and are primarily located on state and county highways. Most users are experienced cyclists and have the capability to ride long distance. The OCBR serves as a rural touring route. Between cities there are many one-time users.

Urban Recreation Route

Frequently a neighborhood type facility, these routes are popular with a wide range of users. They will receive multiple use by regular users. Ages and cycling capabilities will also vary.

Rural Recreation Access Route

These are typically routes with a specific function, such as linking two or more destinations. The rural nature of these routes dictates that the areas being connected will usually have too little bicycle traffic to warrant further route development beyond linking them. They are often appropriate for providing access between a traffic generator and a recreation area.

Urban Access Route

These serve a specific function within cities to by-pass an obstacle by means of a preferred route. They are more common in large cities with barriers such as freeways and rivers.
Urban Route Network

A set of routes which identify streets that can be used to gain access to a variety of destinations. The network receives use by a wide variety of bicyclists.
5.3 BIKEWAY DESIGN PARAMETERS

Detailed design criteria should conform to the standards established by the references mentioned in Section 1.2. This section reviews the basic design parameters to be utilized in facility design.

General Designation Criteria

Route designation depends on the role of the bikeway in the system as discussed in the previous section. Criteria is determined by the type of facility.

Roadway Routes. Shared roadways, shoulder bikeways, and bike lanes must consider the interaction with motor vehicles. All new road and reconstruction projects should be designed to be used by bicycles. Only bike lanes should be signed and well marked in all cases. The other two may be signed if bicycle travel is significant. Shoulder bikeways usually have a pavement stripe.

Bike Paths. Separated paths require some different criteria than roadway routes, since they are intended for the preferential use of bicycles. They are normally two-way facilities and have less conflicts with motor vehicles. They often serve an exclusive recreational purpose.

Bicycle Use. Where bike use is expressed as a number of bicycles per day, it should be measured as the average daily use during the three months of highest use.

Roadway Improvement Criteria

Parameters specific to each of the three types of roadway bike routes are described, followed by criteria common to all of them.

Shared Roadway. Although the right lane can be any width to function in this capacity, the optimum width is 14 feet, as measured from the lane stripe to the pavement edge, curb face, or longitudinal joint. Greater widths may encourage use by two motor vehicles in the lane, in which case striping as a bike lane would be desirable.

Shoulder Bikeway. The desirable width for a shoulder bikeway is 6 feet. Minimum width should be 4 feet unless a curb, gutter, guardrail or other roadside barrier exists, in which case a 5 foot minimum width should be used. Urban collector and arterial streets should also have wider shoulders. Pavement lines delineate the shoulder from the motor vehicle lane. Shoulders on uphill grades should be at least 5 feet to allow more space for maneuvering.
**Bike Lanes.** Designated lanes should be considered on existing Bay Area streets if width permits and when warranted by existing or anticipated bicycle traffic. In rural areas, lanes should be considered if traffic exceeds 50 bicycles per day. The desirable width is 6 feet, and 4 feet is the minimum. Lanes greater than 6 feet are not recommended. When curbside parking exists, a 5 foot minimum bike lane width should be used.

**Pavement.** Where existing roadways are widened, the new pavement structure should match the adjacent surface in material and cross slope. There should be no longitudinal pavement joints in the bikeway, and abrupt edges are to be avoided. Thickness should be based on state and AASHTO guidelines. An asphalt thickness of 2 inches is typical.

**Storm Drain Catch Basins.** Curb inlets are the preferred type of catch basin, but grates are commonly installed in them. Although parallel bar grates can be corrected by welding cross straps onto them, replacement with bicycle safe covers should be considered, especially on designated routes.

**Structures.** Bridges, railings, fences, and other structures should have minimum clearance of two feet when in close proximity to a roadway bikeway improvement. Protective structures should be considered when embankments or other hazardous areas are next to the route. Ramps should be provided at bridge crossings where the sidewalk may be used by cyclists, especially when the roadway is too narrow.

**Intersections.** Special considerations need to be addressed during design at each intersection of a bike lane with cross streets. Motor vehicle "right turn only" lanes create conflicts with through bicycle traffic. AASHTO and MUTCD guidelines describe several methods of dealing with bike lane intersections.

**Gravel Driveways.** Where gravel surfaced driveways meet roadway bikeways, paved aprons are recommended to prevent gravel from being spread onto the bike route. A distance of 15 feet, or to the right-of-way limit, is recommended.

**Bike Path Criteria**

Certain circumstances may justify the higher cost and maintenance problems associated with bikeways being located off the roadway. Additional right-of-way is often needed, but separated paths can serve corridors not served by other routes. One-way paths are not recommended.
Paths Parallel to Roadways. Although not recommended to lie immediately adjacent to roads, paths are acceptable if a five-foot minimum width separates them, preferably including a physical barrier. Where many cross street intersections exist, paths do not function well.

Width. A minimum width of 10 feet should be used unless high volume or significant multiple use with pedestrians and joggers is expected, in which case a 12 foot minimum is desirable. At least a two-foot wide graded area should be maintained on both sides of the path. An 8 foot minimum path may be considered if peak traffic will be low, few pedestrians are expected, alignment allows frequent passing opportunities, and maintenance vehicles will not damage the pavement edge.

Surface. Ashpaltic concrete and Portland cement concrete should both be considered for path surfacing. A minimum two inch thickness of asphalt placed on at least four inches of compacted aggregate base is recommended. Portland cement concrete should be five inches thick on a three inch minimum base. The surface is more costly to construct, but requires less maintenance over the years.

Clearance. Horizontal clearance from the edge of a path to any obstruction requires a 3 foot clear zone. Vertical clearance of 8 feet should be maintained for vegetation and a 10 foot height should be designed for permanent structures.

Design Speed. Minimum design speed should be 20 miles per hour and increased to 30 miles per hour for grades over 4 percent.

Grade. Grades should not exceed 5 percent except for short distances.

Drainage. A minimum cross slope of 2 percent is needed to provide adequate drainage. A lip at the edge of the pavement is acceptable to shed water onto the graded shoulder area, but should not exceed 2 inches in height.

Motor Vehicle Restrictions. Although barrier posts are a common means to prevent motorists from using a path, they can be a hazard to bicyclists. Alternatives such as signing or "Y" branches at street intersections, should be considered. Provisions must be made for maintenance vehicle access.
**Miscellaneous Design Details.** Horizontal and vertical alignment should be based on standard design criteria outlined in the AASHTO guide. Design speed, friction factor, super-elevation, sight distance for stopping and lateral clearance are some variables that need to be considered. Intersections with streets or highways should be located away from the influence of other intersections. Path grades should be flattened off at street crossings. Lighting should be considered if applicable.

**Mountain Bike Paths.** Special considerations are required if unpaved paths are designed. Lower surface friction factors, steeper grades, and less restrictive clearance and design speed parameters will likely result in alignments much different than those needed for paved paths. In general, this type of use is found on existing forest access roads or trails, and specific criteria for dedicated use has not been established on a national basis.

**Signing**

Adequate signing must be considered in the design of all bikeways. Roadway improvements require signs easily understood and located to avoid confusion by both motorists and bicyclists. The three basic types of signs, regulatory, warning and guide, and their appropriate use, are discussed in detail in the MUTCD. The following guidelines are recommended in signing for bicyclists.

**Designated Roadway Routes.** When bicycle use is less than 20 bikes per day, no signs should be used. Shared roadway and shoulder bikeways should have a "Bike Route" sign at every major intersection if use is 20-50 bikes a day.

If width is available on city streets, or use exceeds 50 bikes daily on rural routes, a bike lane is warranted. In this case "Bike Lane" signs should be installed after each intersection in an urban setting and one per mile for rural routes. Urban arterials with a speed limit less than 45 MPH and few cross streets should have signs every 1000 feet. The "Bike Lane" sign should not be installed where the lane is left of curb side parking.

If the available shoulder on a signed route becomes less than 3 feet wide, additional signs may be installed. The "Bike Sign", with a graphic bike symbol, along with one saying "On Roadway" is recommended. If the condition persists, another sign with "Next X Miles" is justified.

**Bike Paths.** "Bike Route" signs should be used at access points with streets. Warning and regulatory signs should be used as applicable and in accordance with the MUTCD.
Pavement Marking

Striping is helpful as a control device if width is available to delineate the bikeway. The MUTCD is the primary guide for details on pavement marking.

Shoulder Bikeway. A 4 inch stripe should be used if the road is designated as a bike route. Refer to "Roadway Improvement Criteria" earlier in this section regarding the various types of routes. Whether a lane or shoulder type would work best is site specific depending on many considerations.

Bike Lane. A diamond symbol with "Bike Only" legend should be painted within the lane. The lane itself must be marked with at least one 8 inch stripe. Urban spacing should be 1000 feet and after intersections, adjacent to the "Bike Lane" sign.

Bike Path. Paths usually require no striping unless there is heavy multiple use, in which case a broken yellow center line may be used. The line should be solid in curves and other areas of limited sight distance.

Reflectors. Generally not recommended on the stripe delineating a shoulder or lane, reflectors are a hazard to bicyclists. If they must be used for motorists, they should be installed on the motor vehicle side of the stripe.

5.4 SAFETY PARAMETERS

No bikeway is inherently safe. Physical design standards are intended to make route conditions as safe as possible, but users are the critical factor in system safety. This section describes the criteria pertaining to user safety.

Accident Statistics

More than five years of local bicycle/automobile accidents were reviewed. Of 87 accidents, 66 were within the Coos Bay or North Bend city limits. The results are summarized below and Bay Area locations shown on Figure 5.4. Few patterns were observed in terms of specific location. Virginia Avenue and the Johnson Avenue intersection with 101 were two areas with a concentration of accidents. Two-thirds of the accidents were at street or driveway intersections.
<table>
<thead>
<tr>
<th>Reported Cause</th>
<th>Percentage of Total Reported Bicyclists at Fault</th>
<th>Percentage of Total Reported Motorists at Fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection and Driveway Accidents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Yield of Right-of-Way</td>
<td>24%</td>
<td>19%</td>
</tr>
<tr>
<td>Improper Turn</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Ran Stop Sign</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ran Traffic Signal</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>45%</td>
<td>22%</td>
</tr>
<tr>
<td>Accidents at Other Locations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improper Lane Change</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>Wrong Way</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Too Fast</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Machine Defect</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>27%</td>
<td>6%</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>72%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Most of this data is similar to results found statewide. One difference is the number of young people involved. Over 80% of the accidents in which cyclists were at fault involved those less than 16 years of age. Statewide this percentage is about 60%. Possibly due to less adult utilitarian use locally, lack of training in the rules of the road more than likely contributes to the difference.
Traffic Laws

Virtually all of the reported causes of bicycle accidents are the result of disobeying traffic laws, whether the cyclist or motorist is at fault. The bicyclist's common concern that their right to share the roadway is not respected by some motorists may be manifest in driver's observations that some cyclists do not heed the traffic laws. The Motor Vehicle Code is clear in stating that "bicyclists have the same rights and duties as motorists". There are several important factors related to traffic law that concern bicycle safety. Based on accident history and existing system conditions, the following are noteworthy:

Yield Right of Way. Failure to comply with this requirement is the most common motorist cause of accidents, and bicyclists need to obey this one also. Since bikes have a right to the road, motor vehicles may need to slow down before they pass in a shared roadway situation. Four other common errors that drivers make also conflict with a bicyclist's right-of-way: Turning at an intersection or driveway without checking for a bicyclist on the right who is continuing straight ahead; Opening a car door into the path of a bicyclist; Pulling or backing out of a driveway without checking for a bicyclist in the street or on a sidewalk; Occupation of a dedicated bicycle lane except when making a turn.

As a bicyclist, the most common failure to yield is when a left turn is made in front of a vehicle without first scanning behind or signaling. Driveway rideout is also a frequent mistake. Cyclists must stop before entering a street from a driveway and look both ways before entering.

Obey Traffic Control Devices. Very common with bicyclists, running stop signs and traffic signals for the sake of saving momentum is a dangerous practice.

Ride With Traffic. Wrong way bicycling is also a common practice with children. Proper bicycling habits should be based on accepted rules of the road, which includes riding on the right side with the direction of traffic.

Other Safety Considerations

Other common sense items to consider regarding bicyclist safety are:

As a Bicyclist:

• Wear a helmet - Refer to Appendix for guide.
• Be predictable
• Be visible
• Respect pedestrian rights
• At night, use good lights and reflectors
• Use arm signals when turning
• Maintain equipment and inspect it regularly
As a Motorist:

- Respect rights of bicyclist
- Do not honk
- Be aware of cyclist hazards
- Children create special problems

The last two items need elaboration. A bicyclist is hampered by road hazards that may not be easily noticed by drivers such as potholes, glass, litter, and catch basin grates. Consequently, the cyclist may move into a motorist's path or slow down. Motorists should give plenty of clearance whenever possible.

Children cannot see out of the corner of their eyes as well as adults. They also have trouble judging the speed and distance of oncoming vehicles. They believe that adults will look out for them. They also lack a sense of danger. Motorists need to be aware of a child's unpredictable nature.

Liability Consideration

The County and Cities need to be aware of the liability aspects of bikeway designation and safety. This is a complex issue, the details of which are beyond the scope of these plans. The government entities should understand a few basic principles for the purpose of planning. Since tort cases usually result from an accident and subsequent accusations of alleged negligence, the most important step to reduce potential liability is to reduce accidents. As long as reasonable care is taken in the planning and management of the bikeway system, liability risk will be low.

Standards. Route selection and design should conform to acceptable standards such as those described in these plans. Compliance with the criteria provides strong evidence that the agency has used reasonable care.

Maintenance. Operational-level decisions like those involved in maintenance have a greater potential liability risk than policy decisions. A negligent maintenance claim could include a failure to sweep, remove limbs, fill a pot-hole, or replace a sign. Generally the government must have notice that the condition exists, but notice will be presumed if the condition has existed long enough that the agency should have known about it.

Monitoring. The experience of bicycle traffic on routes should be monitored. Steps should be taken to investigate and remove hazards reported by users or others. Written records of these activities should be made as a part of formal record keeping.
Use of "Safe". Governments should not make statements that a designated route is safe or that it is safer than other routes. A possible public perception that routes are designated because they are safer should not be augmented by additional safety claims.

In summary, a user's claim would have to prove that the government breached its duty of protection against unreasonable risk and that the accident was caused by the entity's negligence. An agency needs to be aware of two basic points: Bicycles have a greater susceptibility to certain roadway conditions than larger vehicles; Their position and presence on the roadway is somewhat predictable and should be anticipated in designation and subsequent maintenance of bikeways.
5.5 IMPROVING LOCAL CONDITIONS

The criteria for bikeway planning is a process of understanding what bicyclist's needs are in current and anticipated usage, defining the roles bikeways should occupy in the transportation and recreation system, then incorporating design and safety parameters into the existing system so that local conditions can be improved. Through this process the goals and objectives of both plans can be met. Although route selection is an important step in the improvement process, it can be the most expensive if it involves physical changes to existing roadways or the construction of bike paths. Because funds are limited, especially for smaller counties and cities, the emphasis on inexpensive improvements becomes even more important. This section summarizes the more cost effective methods of improving local conditions.

Encourage Use

Besides the obvious benefits of reduced congestion, improved air quality and healthier citizens, greater bicycle use will help to justify the need for funding assistance from outside the County.

Maintenance. Roadway edge sweeping, pothole patching, and removing hazards are maintenance activities that discourage use if not accomplished on a regular basis.

Parking. Utilitarian use is encouraged by providing adequate parking facilities at destinations that generate traffic.

Printed Information. Brochures and maps are helpful after an initial system is developed. Both local bicyclists and outsiders benefit from a handy reference showing bike routes of the area. Section 7 outlines some of the information that should be included in bicycle guide literature.

Advisory Committee. Many communities throughout Oregon have organized successful citizen groups who act on behalf of the area to coordinate and stay informed of bicycle related topics and concerns. The Bay Area and County would benefit from such a committee. The existing Parks Advisory Committee may find it useful to designate a specific member as a bicycle coordinator. This is discussed further in Section 8.1.
Project Review

Whether accomplished by committee or government staff, all road projects should be reviewed to assure bicycle accommodations have been considered. This includes maintenance crew work.

Shoulders. Any effort to widen and pave road shoulders along with overlay or road renovation projects would be beneficial to the bikeway system.

Wide Curb Lanes. When re-striping, overlaying or renovating urban streets, consideration should be given to lane width configuration. Manipulation of median, center lane, curb-side parking, or other applicable features may allow a wider curb lane for bicycles, where even a foot or two of extra available width can benefit. Motor vehicle capacity of, for instance, a 12 foot inside lane will be negligible if reduced to 11 feet, unless the speeds are high. On streets with a history of excessive motor vehicle speed, this may be advisable to slow motorists down.

Standards. Projects should also be reviewed to see if bikeway standards of AASHTO and the MUTCD are adhered to.

Safety

Miscellaneous improvements that could be included in a safety program would cost little to implement, yet assist in planning updates.

Accidents. Records of bicycle accidents are useful in identifying problem areas, whether site specific or accident type. Monitoring statistics can aid in determining areas that need improvement.

Hazards. Users occasionally inform the agency with jurisdiction of the bikeway when hazards are present. A system to assure these reports are investigated and the hazards removed should be incorporated into the agency maintenance program.

Enforcement. Law enforcement officers should cite bicyclists who do not obey traffic laws and motorists who do not abide by the rules of sharing the road with cyclists. This includes motor vehicle/bicycle accidents. Through proper enforcement there will be an improvement in local attitudes towards bicycling.
Education

Cited offenders may benefit from assignment to an education program in which bicycling safety and traffic law is taught. One example, available specifically for children 10-12 years of age, is the federally funded Smart Cycling Program administered by the Oregon Traffic Safety Commission.
SECTION 6
ROUTE SELECTION

6.1 APPROACH TO SELECTION

Bicycle route selection and identification of needed bikeway improvements is, to many users, the most important aspect of planning. This section describes the process of selection and methods of designating bike routes. The three basic considerations in defining a route project are: why it should be established; who it is intended to serve; and what type of bikeway is needed. The reasons why designated routes are worthwhile have been discussed in previous sections and are reviewed here as they relate to the selection process.

Provide Service

The basic function of a bike route is to provide guidance or directional assistance to the user. Routes selected should not only improve access and mobility, but also minimize cyclist risk. Chosen bikeways should promote use, accommodate demand, and enhance the quality of the bicycling experience. Directional information and guidance is shown by various designation mechanisms, depending on the service provided for:

- Identify a route more suitable than others
- Lead users to a specific destination
- Identify a bypass to a barrier
- Define and guide along a recreational route
- Identify a connection between discontinuous routes
- Lead users along complex connections or through a special use facility such as a bridge, sidewalk.

County Parks. The limited focus of the Parks Plan suggests a particular service, primarily leading bicyclists to and from specific destinations, mainly along recreational routes. While the process concentrates on certain park areas, the objectives of enhancing bicycling in general and encouraging use of the County Park system could be further fulfilled by someday linking all parks and cities together. In effect, the outlying towns and park recreation access routes would be connected to rural touring networks that provide continuity with urban bikeway systems.
Bay Area. Utilitarian and recreational users can best be served by a system where they may choose the route that accommodates their needs. By providing a network of routes that accesses traffic generators and links recreational destinations, all bicyclists will be encouraged to utilize the system.

Bicyclist Ability

Bike route selection is somewhat user dependent. There is a wide variety of bicyclists and range of capabilities when compared to motorists who must be licensed to use the roads. The selection process is based on the assumption that anyone operating a bicycle on the streets and highways should be expected to have the skill to do so safely under normal traffic conditions. Realizing the limits of this assumption, the traffic law and safety education aspects of the plans are emphasized for those without basic capabilities.

Location Factors

The following factors are important when evaluating the alternatives available to locate routes so that they will adequately serve intended users.

Attractiveness. A subjective quality that includes scenery, recreation opportunities, points of interest and variety of terrain. The significance of this factor depends greatly on travel and user type.

Services. Certain services may be needed in the case of touring and recreation routes, such as food, water, restrooms, or camping facilities. Urban routes should consider the need for secure parking at destinations to be served.

Grades. Steep hills affect desirability and operational safety of routes. Reduced speed and weaving may cause conflicts with motorists on uphill climbs. Downhill speeds are a safety concern, depending on the cyclist's ability.

Directness. The shortest route between two points is often a significant characteristic for the utilitarian cyclist. The recreational user is more willing to deviate to avoid heavy traffic or some other undesirable condition. Minimizing necessary stops is preferred.

Continuity. A route should be as logical as possible and not too complex in alignment. It should link with other routes and clearly show the connection. If a route must end without linking, it should never abandon the cyclist to a hazardous condition.
Access. Routes should be convenient to where the cyclists originate and their destinations. The Bay Area Plan should serve residential areas, employment and retail centers, recreation areas, and public facilities. The routes should lead to bikeways that access locations outside the cities. The Parks Plan routes should conveniently access the parks and routes that connect with other recreation and population centers.

Overall Feasibility. A particular route should be free of major bottlenecks and barriers. It should be in a location that will be maintained. The cyclist will only use routes viewed as better, to some degree, than the alternative choices.

Suitability Factors

Any particular section of an existing road may be more or less suitable than another. Route selection involves objective assessment, using data such as lane width and motor vehicle traffic characteristics, but also considers subjective input given by area cyclists and other sources during planning.

Lane Width. The available lane width is the most important characteristic of an existing street when judging its suitability. On roads with more than two lanes, the outside lane width is critical to roadway sharing between motor vehicles and bicycles.

Surface. Type and condition of the pavement on the right side of the roadway will affect the available space for bicycling. The presence of gutters and catch basin grates should be considered along with drainage characteristics and potential for proper maintenance. Shoulder pavement areas are most likely to deteriorate and least likely to be maintained.

Traffic Conditions. Motor vehicle speed and volume are also factors in judging suitability. As they increase, so should the space desirable for separation. Traffic mix also affects bicyclists, especially at high speeds when large trucks create wind turbulence when passing.

Parking. Curbside parking restricts sight distance at driveways and intersections, presents the hazard of opening doors, and reduces the amount of lateral space available for shared use.
Intersections. Route suitability is judged in regards to cross streets and the risk associated with the intersections. The factors are: traffic volumes on the streets; number of intersections and driveways per mile; extent of special intersection treatments such as exclusive turn lanes; adjacent land use patterns and associated influences on traffic; presence and type of traffic control; and observed or restricted sight distance.

Sight Distance. Between intersections, sight distance also affects suitability. On rural routes, alignment is the major cause of sight distance problems resulting in conflicts for motorists passing bicycles on shared roadways. In the urban environment, fences, walls, hedges, and parked cars often restrict sight distance at curves and intersections.

Traffic Control Devices. The presence or absence of stop signs and signals can affect the suitability of a route for bicycle travel. Frequent control devices may induce some users to avoid the route or ignore the device.

6.2 TRAFFIC GENERATORS AND DESTINATIONS

Neither the County nor the Bay Area have an existing network of bikeways. There are a few isolated paths and even fewer bike lanes. The Oregon Coast Bike route and existing state highway system form the basis of links upon which to plan future systems. This section identifies the origins and areas to be served by the routes selected, and other information necessary to define the extent of improvements.

Bicyclist input regarding preferred destinations and common traffic generators are shown on Figures 6.2.1 and 6.2.2 for the Bay Area. Popular recreational routes beyond city limits are also shown as destinations. Similar information for the County Parks Plan is shown on Section 8 figures.

Recreation

Typical recreation destinations include city parks within Coos Bay and North Bend. Many cyclists riding for fitness choose to ride to the Cape Arago Parks and Charleston area or bike the Coos River/East Bay Drive circuit. Some also loop the Bay Area utilizing McLain-Libby Road and Ocean Boulevard or other city streets. The existing path system at Empire Lakes is a common destination point for recreation cyclists.
LEGEND
TRAFFIC GENERATORS
○ RECREATIONAL
□ UTILITARIAN
ARTERIAL AND COLLECTOR STREETS
--------- MOST SUITABLE
--------- MODERATELY SUITABLE
--------- LESS SUITABLE

NOTE: SUITABILITY RATINGS BASED ON LANE WIDTH AND TRAFFIC VOLUME

BAY AREA NORTH BIKEWAY MASTER PLAN
ROUTE SELECTION
FIGURE 6.2.1
LEGEND

TRAFFIC GENERATORS
- RECREATIONAL
- UTILITARIAN

ARTERIAL AND COLLECTOR STREETS
- MOST SUITABLE
- MODERATELY SUITABLE
- LESS SUITABLE

NOTE: SUITABILITY RATINGS BASED ON LANE WIDTH AND TRAFFIC VOLUME

BAY AREA SOUTH BIKEWAY MASTER PLAN
ROUTE SELECTION

FIGURE 6.2.2
Utilitarian

Commuter destinations include the downtown area of each city and other employment centers. Schools generate bicycle traffic for youngsters as well as adult commuters. The need for bikeway improvements between utilitarian traffic generators may also satisfy the needs of other users. Other utilitarian destinations such as stores, post office, libraries, and shopping centers generate significant traffic, but with a shorter trip duration than commuters.

Origin

The route selection process considers not only where bicyclists want to go, but where they originate. Specific neighborhoods are not targeted. Instead, the existing transportation system, which is motor vehicle oriented, is used as a basis for selection. The existing arterial and collector street system as classified by the 1981 North Bend Major Street Traffic Safety Program and the 1978 Coos Bay Roadway and Traffic Safety Management Plan is shown on Figures 6.2.1 and 6.2.2 along with the destinations.

6.3 SELECTION PRIORITIES

Several key characteristics, in addition to location and suitability factors, influence the selection process. Planning a workable system of routes considers much of what has been presented thus far to assure that improvements will satisfy the wide variety of bicyclists, be accepted by motorists, and accomplish the goals of the plans. Due to the limited base of existing bikeways, certain priorities guide the selection process.

Bay Area Routes

The comprehensive nature of the plan and public input indicates that establishing a multi-purpose urban route network is warranted. None currently exists and this fact discourages many from bicycling. The general priorities in selection of network routes are:

1. Consider the role of bikeways and the types of users.

2. Utilize and link the established state highway and bikeway system.

3. Emphasize improvements eligible for funding by the Bicycle Law, ORS 366.514.
4. Provide for network continuity.

5. Connect utility, recreation, and employment destinations.

Coos County Parks

The type of travel in parks and adjacent areas is primarily recreational, thereby requiring slightly different priorities when selecting routes. These priorities are:

1. Travel and user are recreation based.

2. Emphasize loops or recreation destinations.

3. Integrate county outdoor planning with local input preference.

4. Determine applicability of Bicycle Law to selected routes.

Common Emphasis

This combined planning effort of the three agencies enables the County to consider long range comprehensive planning. The concept of future development county-wide is a priority in the route selection process of both plans. The emphasis on routes utilizing the existing road system is a result of this concept for a number of reasons:

- The one percent gas tax revenues are the most readily available source of bikeway funds, and they may only be used for improvements within public road right-of-ways.

- The existing transportation system provides the most efficient routes for utilitarian bicyclists.

- Roadway improvements are usually more cost-effective than separated path development on the basis of time, right-of-way acquisition, design, construction and maintenance.

- Expenditure priorities of the Oregon Bicycle Master Plan are for roadway bikeway improvements.
6.4 SELECTION OF ROUTES

Public input verified that the arterial streets and highways are the routes of choice for current utilitarian use and long distance recreational bicycling. Highway 101, Ocean, Newark, Broadway, and Virginia were the streets identified by a majority of Bay Area cyclists as needing the most improvement. Outside the city limits, Cape Arago Highway, East and North Bay loops, Coos River Highway, and Horsefall Beach access are the preferred routes.

County Parks

Basic Network. The OCBR and state highways form the rural touring network linking the cities together and the county with the remainder of the state. The Oregon Bicycle Plan will continue to improve these routes in the future. All selected routes within the Parks plan connect with this network. It should also be the foundation of all plan updates, including long range comprehensive county planning.

Jurisdiction Cooperation. Selected Bay Area routes will be used to travel outside the city limits, as expressly desired by the bicyclists. Improving routes beyond the limits with city funds will not likely be possible. To facilitate route continuity, the state and county could encourage bicycling from the Bay Area to their parks by improving those links. The prime example is the Charleston area where state and county roads connect to the Bay Area. Another example is Coos River Highway and East Bay Drive which lead to facilities up the Millicoma River.

Maps. The route selection process for the County Parks does not require detailed maps in this section. Traffic generators and routes are shown on figures within Section 8. Maps of Bandon, Charleston, Lakeside and Powers areas show proposed routes for the County Park Plan. They function as rural recreation access routes and connect with the rural touring network, also shown on a County map in Section 8.

Bay Area

The comprehensive urban plan, in addition to linking with the rural touring network, requires a route network that will encourage use by the wide variety of bicyclists. The process of selecting routes included a general rating of the collector and arterial streets based on suitability factors, which is shown on Figures 6.2.1 and 6.2.2. The critical factors are lane width and traffic volume. Grades are also considered in the rating of streets. Other location factors were then
evaluated along with origins, destinations, general travel corridors, hazards, and the extent of current bicycle activity. Tentative routes were chosen and public and agency participation was solicited, most notably bicyclists and the agencies with jurisdiction over the right-of-way being considered for route improvement.

**Basic Network.** The urban arterials and major collectors form the basic network. Certain sections of these street pose a hazardous route for bicyclists in which case urban access routes are chosen as the preferred bikeway. These by-pass facilities are recommended where removing the obstacle, widening the street or otherwise changing the existing condition is cost prohibitive or not practical. An example of this is Central Avenue, west of Tenth Street. Lane width, traffic volume and grade combine to create a hazardous condition for cyclists, especially those westbound. For this reason, an alternative route is justified.

**Jurisdiction Cooperation.** Within the cities limits, several of the state owned streets are commonly used by bicyclists and will likely remain the preferred routes for commuter and utilitarian bicyclists. Routes have been selected as alternatives, mostly to fulfill the role of urban recreation routes, but also to act as an integral part of the urban route network until state highway improvements are made to upgrade the bikeway facilities. The route selection process has proven both city and state streets should be a part of the network, but projects to improve state highways for bicycles by adding lanes or re-striping lane configurations is not a high priority unless it is part of a reconstruction or improvement project. In other words, retrofitting any of the highways strictly for bikeways is not a viable option. This is discussed further in Section 8.5.

**Re-Striping.** Cyclists input and projects in other areas of the state indicate re-striping to be a cost effective method of fitting a bike lane or shoulder bikeway onto an existing street. This was a significant consideration in the route selection process. Knowing funds are limited, working within the curbs of existing streets was a priority in choosing routes. It is also the preference of the agency with jurisdiction. Minimum allowable motor vehicle lane width standards vary between jurisdictions for new construction. The standards are often waived for re-striping projects. The national "Policy on Geometric Design of Highways and Streets", by AASHTO, recommends 10 to 12 foot widths for urban arterials. An 11 foot width is considered adequate for left turn refuge lanes.
SECTION 7
BICYCLING GUIDE

7.1 GENERAL

At some point in time, a Bay Area and/or County bicycling guide should be published. The existing bikeway system does not warrant it in the near future. But as routes are developed and improved, an information publication will assist in encouraging use of the system. This section reviews the possible items to be included within a bicycling guide.

7.2 MAPS

The basic ingredient for a successful guide is a map that provides the user with information on the relative suitability of various streets and highways or designated routes for bicycling.

Format

Maps should not be too complex. Map reading skills vary greatly, similar to the wide variety of bicyclists who will be using them. Strip maps are useful for long recreational routes between specific destinations. Fold-out maps are appropriate for general guides for a city or area, with loops and details shown by insets. Separate sheets may be utilized by the outlying towns.

Content

The needs of the potential users will dictate the information to be shown. Emphasis should be on the commuter and utilitarian cyclist for city maps. County wide guides and touring brochures should be targeted for local and visiting recreational bicyclists. Topography of the planning area indicates that grade information on routes, such as frequency and steepness of climbs, would be useful to include on the maps as long as clarity is maintained.

Services. Basic services a bicyclist may need and points of interest should be located on the map, but not so many that they obscure important route information. For example, medical facilities, bicycles shops, campgrounds, schools, city or county government, post offices, law enforcement agencies, parks and the OCBR should be shown. Other considerations are viewpoints, resorts, hostels, picnic areas, shower facilities, and telephones in rural area.
Design

Graphic representation should be kept simple, yet clear to the first-time rider. The four types of bikeways should be differentiated on the map. Although more costly, the use of color improves readability greatly.

Designated Route Maps. The following color code should be used to conform to recommended statewide standards:

- Bike Lanes - Blue
- Bike Paths - Brown
- Shoulder Bikeway - Solid Green
- Shared Roadway - Dashed Green

Suitability Maps. If a suitability map is used, the code should be:

- Most Suitable - Green
- Moderately Suitable - Yellow
- Less Suitable - Red

A suitability map should only show arterial and collector streets, similar to Figures 6.2.1 and 6.2.2. Local function streets need not be coded.

Generally, a suitability map would work best for the County, while the designated route map would be more appropriate for the Cities. Tour maps are route specific and are often accompanied by a narrative. In all cases, maps should be laid out consistent with the way it will be held, usually with north at the top.

7.3 INFORMATION

The maps within the guide need to be supplemented with text to cover miscellaneous information. Some of the items to be considered are summarized below.

Sources

Publisher. The entity responsible for publication should be listed with a contact phone number and address. Suggestions or comments may be solicited regarding information compiled or specific bikeway hazards.

Visitor Information. Most lodging, dining, resort, historical and recreational information cannot be shown in a guide. The location and phone number of visitor centers and chambers of commerce should be listed.
References. Other publications should be referenced in the guide if related to Bay Area or County bicycling. One example is the OCBR map. Adjacent county guides could also be listed with the source.

Safety

Safety Tips and the Law. A summary of the rules of the road is a must for a bicycling guide. These include, but are not limited to: Light and reflector equipment for night riding; Ride single file and as far to the right as possible; Abide by motor vehicle laws. Other safety tips include: Wear bright clothing and helmets; Know your limitations and your bicycle's capabilities; Yield to pedestrians.

Disclaimer. The publisher's legal counsel should assist in formulating a statement disclaiming responsibility for the fitness of any route designated.

General

Environment. A statement on the bicycling environment of the area covered by the guide is useful. Route designation, descriptions of the types of bikeways, and seasonal weather expectations are often included.

Promotion. A reference to bikeway planning efforts in the guide could encourage use. Existence of the local bicycle advisory committee could also be noted, if applicable. Tourists visiting may be inclined to return to the area, knowing the area promotes bicycling through proper planning. Local bicyclists would be notified that their input may be helpful in plan updates through public participation.

Campgrounds. Depending on the nature of the map, specific information on camping facilities may be desirable to list in the guide. It is generally more useful on touring or recreational route guides.

Specific

Route Information. Special route information could be included in text form. Suggested loops to be ridden or routes not recommended could be described. High traffic streets and alternate routes should be listed, if applicable.

Distances. A scale in miles is likely adequate for a Bay Area guide map. A County guide could include a table of distances between various towns and destinations.
Mountain Bicycling. Information should be provided on the extensive BLM and USFS road systems available for mountain bicycling, especially if the maps cannot show access points. Agency addresses could also be included.

7.4 PRODUCTION

Prior to final publication, a draft guide should be given to cyclists typical of the targeted users. The routes can then be ridden to assure the guide is accurate in its intent.

Responsibility

Local bicycling guides are often the result of cooperation among several agencies and groups. County and City staff may arrange to utilize their time for development of the guide while actual production is funded by outside sources. Funding is discussed further in Section 9.2. Volunteer effort, such as the recommended advisory committee, is important in producing a successful guide. Past experience in other areas has shown that a small group of motivated individuals is usually responsible for achieving success in this area.

Costs

Some costs of production may be defrayed by charging a nominal amount for the guide. Cost saving measures such as eliminating the color coding may be considered to complete the project. Bicyclists prefer the guides to be waterproof. This desirable feature may also need to be eliminated to reduce costs. The best approach to developing a guide is to proceed only when adequate funds are available so that quality will not be sacrificed to save money. Guides will not be used if not easily readable and useful to the bicyclist.
SECTION 8
MASTER PLANS

8.1 POLICIES

This section describes proposed policies that should be adopted to effectively implement the Master Plans. New and existing policies need to be pursued if the objectives of the Plans are to be achieved.

Existing

The comprehensive plans of Coos Bay and North Bend recognized the benefit of bicycling as an acceptable alternative mode of transportation and identified the lack of sufficient facilities within the existing bikeway system. This was verified by public input. Both plans included recommendations to develop, improve and expand the existing system.

Comprehensive planning for Coos County Parks established a policy that gives priority to non-motorized forms of recreation. Coos County also emphasizes coordination in recreation planning and encourages all cities within the County to participate actively.

Proposed

The proposed policies of the Bikeway Master Plans complement the existing Comprehensive Plans to support bicycling as a form of recreation and transportation that will enhance the opportunities and livability of Coos County. For this reason, policies should be county-wide. The proposed policies are:

- Encourage bicycling by actively pursuing the goals and using the criteria established within this Master Plan.
- Maintain existing bikeways and assure funds are allocated to continue maintenance of new facilities.
- When improving designated routes, anticipated usage, safety, and construction costs shall be the primary considerations. Safe transportation of vehicles on streets is a higher priority than storage of vehicles on streets.
- Assure facilities satisfy the utilitarian and recreational needs of county residents and visiting bicyclists.
- Emphasize roadway bikeways, due to the construction and maintenance costs of separated paths. Always consider bikeways in future roadway projects.
- Assist appropriate agencies with the development of safety and education programs.
- Establish a Coos County Bicycle Advisory Committee.
Coos County Bicycle Advisory Committee

The main purpose of the Committee would be to advise the responsible governments in the implementation of the Master Plans. Government staff typically has limited resources to monitor the progress and effectiveness of a bikeway plan once it is adopted. A volunteer group of motivated individuals, acting in Committee, has proven successful in other Oregon counties. Primary duties would include:

- Coordinate and develop plan updates or a comprehensive County plan.
- Collect public input and incorporate it into the planning and implementation process.
- Establish safety and education program priorities.
- Modify improvement project priorities, if necessary.
- Provide bicycle planning assistance where needed within the framework of the transportation system.
- Accountability of Bicycle Bill funds spent by the County and Cities.
- Promote bicycling in the County.

Membership. The committee should consist of volunteer members appointed by the Board of Commissioners. Area members could be nominated by City officials. The proposed committee could be comprised of seven members, four from the general public, one from the bicycle industry, and two from agency staff. For example, the public members could be chosen such that one is from each of the Bay Area cities, and two at large from the County. Staff members could be from city planning or public works departments, state or county parks, schools, police or state highway agencies.

Details regarding terms, meetings and procedure should be developed by the initial committee and adopted or amended by the Board of Commissioners.

8.2 LAWS AND REGULATIONS

Bicycles within the planning areas are regulated by State law. They are considered vehicles and their operators are subject to the same rules and penalties as motorists. The Motor Vehicle Code (MVC) defines the laws that all vehicles must obey. Bicyclists are the only vehicle operators in the MVC not required to be licensed or trained.
Enforcement Program

The MVC should be enforced whenever a violation of the code is observed by law enforcement officers. This includes citations when accidents occur. State and local enforcement agencies can assist in educating the public in proper vehicle operation. Bicyclists have a tendency to obey the law more if enforcement is consistent. The Oregon Traffic Safety Commission can assist with bicycle enforcement training. An increase in enforcement combined with the safety education program described in Section 8.7 will reduce accidents and improve motorist attitude toward bicyclists.

Alternative Sentencing. A cooperative effort between the courts, parks or recreation department, and law enforcement agencies has proven effective in other cities. It consists of citing bicyclists who violate a law, but treating juveniles differently. Their parent is notified and the child is required to complete a bicyclist training program. Older offenders may choose between training diversion and conventional fines. Repeat adult offenders may be required to take the training. Alternative sentencing requires much coordination and could not be considered until a training program is well established.

Oregon Bicycle Operator's Manual

The Department of Motor Vehicles is currently developing a manual for bicyclists that will be similar in format to the Oregon Driver's Manual. It is expected to be published and distributed in late summer. It will be available at all Motor Vehicle offices and copies may also be obtained to assist with enforcement and education programs.

8.3 Proposed Improvements (Figures 8.3.1 - 8.3.7)

Future improvements to existing county and city roadways should always consider bikeway improvements, similar to the state highway policy. The designated routes recommended for improvement within this section are based upon the existing transportation system, public and agency participation, likelihood of funding, and proposals of previous plans. The latter item is discussed in more detail later in this section.

Coos County and the Park System

The focus of the Parks Plan is on recreational bicycling. Specific improvements county wide are not within the scope of the plan, but a possible network of links accessing the cities and parks is shown on Figure 8.3.1. Generally, the major state highways are shown as existing or proposed shoulder
EXISTING SHARED ROADWAY
PROPOSED SHOULDER BIKEWAY
REFER TO HIGHWAY DIVISION 6 YEAR PLAN

LEGEND
BIKE ROUTES
EXISTING SHOULDER BIKEWAY
EXISTING SHARED ROADWAY
PROPOSED SHOULDER BIKEWAY
REFER TO HIGHWAY DIVISION 6 YEAR PLAN

COOS COUNTY PARKS
BIKEWAY MASTER PLAN
PROPOSED IMPROVEMENTS

FIGURE 8.3.1
bikeways. The county roads are shown as shared roadways, with few exceptions. The reason for this is from a practical standpoint. Paths or shoulder lanes are certainly the cyclist's preference, but constructing separated facilities or widening rural county roads to accommodate bicyclists is a low priority compared to other needs. If at all possible, road widening should be done for the sake of long-range planning. The state system receives more bicycle traffic and the first expenditure priority of the state plan is construction of bikeways whenever an existing highway is renovated. County expenditure priorities should be addressed in future comprehensive county planning.

This current phase of county planning concentrates on improvements in the areas of Bandon, Charleston, Lakeside, and Powers, where popular county park facilities exist. Proposed improvements are shown on Figures 8.3.4 through 8.3.7. Each improvement is identified by a priority number, which is discussed further in Section 9.1. The Coquille area is not shown in detail. The boat ramp is the only county facility and public input indicated little desire to improve access to it, currently provided by shared roadway. The same is true of Shelley Road, which was mentioned in the Request for Proposal for this Plan. Respondents to the Coquille questionnaire cited county roads tributary to the BLM road system, Fairview and Arago as the routes needing improvement. These are shown in Figure 8.3.1.

Coos County - Rural Touring Network on State Highways

State Highways 101 and 42 will someday accommodate bicyclists with shoulder bikeways for their entire length within Coos County. State jurisdiction within the Bay Area is discussed separately. The remaining state highways are also shown as designated routes and should be improved for bikeways whenever possible.

- Cape Arago Highway
- Coos River Highway
- Powers Highway
- 42 South
Bay Area

The bikeway plan shown on Figures 8.3.2 and 8.3.3 is a long range proposal to satisfy the needs of the many types of users in the community. The suitability and location factors described earlier were used in evaluating the arterial/collector street system of both cities, which was mapped on Figures 6.2.1 and 6.2.2. Sections judged less suitable need the most improvement if designated as routes, and are therefore avoided in the plan if improvement is not cost effective.

Without an existing designated urban system, the cities should first establish a route network that will access the variety of destinations and traffic generators. The major consideration was to link the following routes and locations:

- Oregon Coast Bike Route
- Highway 101
- Downtown Core Areas
- Schools, Parks, Shopping, and Employment Centers
- Empire Lakes Recreation Routes
- Popular out-of-town routes (Cape Arago, Coos River, Libby)

Each improvement is identified by a priority number, which is discussed further in Section 9.1. In general, the priority is to develop the network. However, much of this is dependent upon OSHD streets. The route improvements are prioritized so that state, city and county agencies can work together to accomplish the goals of their respective plans.

Many improvements are needed to establish an urban route network within the Bay Area. The route selection process revealed the arterial and collector streets that will function best as designated routes. For the most part, routes currently ridden by the cyclists will continue to be used. The proposed improvements include urban access routes to complete the network where hazardous conditions preclude designating certain sections or improving the condition is not cost-effective. Most improvements recommended are within existing curb limits and public right-of-way. They are shown on the figures and briefly summarized here according to their role in the system. Improvements within state jurisdiction are noted and discussed in Section 8.5.

1. West Park - Pony Creek Route. North-south alternative to 101 and Broadway/Woodland.

2. Virginia (OSHD), 101 to Broadway. Partly the OCBR, high accident rate. Main east-west corridor of North Bend.
3. Butler - Juniper Connection. Urban access route to avoid Central/Ocean grade between Butler and Seventh.

4. Ocean (OSHD). Most direct commuting route between Empire and Coos Bay.

5. Harrison - California Connection. North Bend Traffic Safety Program recommendation for east-west couplet would greatly benefit bicycle travel in this high accident area.

6. Newmark - Empire Boulevard Route (OSHD, OCBR). Some existing shoulder bikeways, this section is mentioned in the six-year state plan and the Coos Bay Traffic Plan. Adjacent to SWOCC and is a direct commuting route.

7. Newmark from 101 to Broadway. Continues Imp. No. 6 east to Imp. No. 1 and provides the main central Bay Area east-west corridor.

8. Highway 101, Coos Bay - North Bend. Route identified most often in public input. High priority for OSHD Region 3, but urban characteristics and width are problems for proper bikeway needs. Main reason for Imp. No. 1.


10. 101 Downtown Coos Bay (OSHD). Extend existing lanes north and connect with Imp. No. 8.


12. Coos River Highway (OSHD). Several alignment and bridge problems exist. This plan supports the Six year highway plan to reroute around Eastside.


16. 101 Downtown North Bend (OSHD). Extend route of Imp. No. 10 through core area.

17. Southwest Blvd. Links Coos Bay to Englewood and McLain Libby Road.

18. 101 North (OSHD). North Bend Traffic Safety Program recommendation to widen highway would benefit this section of the OCBR.

20. 101 South (OSHD). Extends existing couplet lanes to Coos River Highway and beyond.


22. Anderson/Tenth/Elrod. Improves access downtown and alternate route to busier streets.

23. Maple/Colorado/Fenwick Loop. Provides recreational route and commuting access to airport industrial park.


25. Sherman/Teakwood. Width available to provide additional residential access route and alternative to 101.


27. Empire Lake Lanes. Improves recreation access.


29. Tenth Connection. Width is limited, but eventual improvement is warranted.

30. Shared Roadways. Throughout the Bay Area, the routes shown should be preserved as bike routes. Some are alternatives to improvements proposed until construction is complete. Otherwise, all streets are currently used to some degree as shared roadways, and future improvements should always consider bicycle travel.
Coos County - Rural Touring Network on County Roads

County Roads that provide a rural network, link many parks, and are supported by cyclists:

- Oregon Coast Bike Route
  - Seven Devils - Beaver Hill Road
  - Riverside Drive
  - Beach Loop Drive
  - Seabird Lane
- East Bay Drive
- McLain - Libby Drive
- Horsefall Road
- Coquille - Arago - Myrtle Point Roads.
- Fairview Route
- North Bay Drive
- Ross Slough Road
- Coquille River Road (Powers South)
- Coos Bay Wagon Road
- Myrtle Point - Sitkum Road
- North Bank Coquille River Road
- Catching Slough Road
- Bear Creek - Parkersburg Road

This is a general priority list, based on current and anticipated usage.

Coos County Parks - Rural Recreation Access Routes

The following route improvements are proposed to meet the objectives of the Parks Plan. Additional details may be found in the section on cost estimates. Not all are estimated.

Bandon - Figure 8.3.4.

South Jetty County Park Access. Includes widening Jetty Road, Fifth Street and Lincoln Avenue between the park and Edison Avenue (OCBR). Widen to provide four foot shoulder bikeway.

Improve OCBR. Phased improvement of state route by striping within existing curbed streets and widening others. Five steps include: First Street in Old Town; Fourth, Ocean, Seventh and Beach Loop to Eleventh; Beach Loop south of Eleventh; Sea Bird from Beach Loop to 101; and Riverside Drive.

Charleston - Figure 8.3.5.

Bastendorff Beach County Park Access. Includes widening Beach Road southwest of park entrance to Cape Arago Highway (OCBR). Steep grade will require six foot lane on uphill side.
Improve OCBR within State Park. Includes widening of Cape Arago Highway between Lighthouse Way and Sunset Bay State Park campground.

Improve Beach Access. Includes widening of Coos Head Road and looping bikeway to park access. Steep grades exist.

Boat Basin Drive. Widening of marina access road. Eventual extension to Coos County Fishing Dock along Charleston Avenue.

Seven Devils Road. OCBR improvement to South Slough Sanctuary. Includes road widening, possibly southbound only as some sections would be costly to widen.

Mountain Biking. Shared gravel roadway to Coos Head Lookout, looping with Coos Head Road.

McLain - Libby Road. Popular loop for Bay Area cyclists. Road should be widened in future renovation projects.

Lakeside - Figure 8.3.6.

Tenmile Lake County Park Access. This would connect the park to the existing bicycle lanes on North Eighth Street. Involves widening North Lake Avenue to South Eleventh and continuing lanes to the boat ramp area.

Airport Way. Includes widening for lanes to connect North Eighth Street lanes to OCBR (Highway 101) at south entrance to Lakeside.

Powers - Figure 8.3.7.

Powers County Park Access. Includes bike path on existing subgrade to connect park with downtown area. Coquille River bridge will remain shared roadway, or bicyclists may walk on sidewalk.

Forest Service Office Access. Includes shoulder bikeway from park to ranger station. Continues to existing shoulder bikeway at bridge and Woodward Creek Road.

Park Pond Loop. Multi-purpose path would connect to existing paved path near campground and loop into park access path.

Poplar - South Powers Extension. This improvement would extend the existing shoulder bikeway on First Avenue along Poplar Street and Coquille River Road to Johnson Mountain Road.

Orchard Park Access. Includes widening Coquille River Road to stripe for shoulder bikeway leading to popular city park. Continuing on this road accesses the Siskiyou National Forest road system.
BANDON - BIKEWAY MASTER PLAN
PROPOSED IMPROVEMENTS

FIGURE 8.3.4
LEGEND
BIKE ROUTES
- OREGON COAST BIKE ROUTE (EXISTING)
- OREGON COAST SPUR ROUTE (EXISTING)
- EXISTING SHARED ROADWAY
- EXISTING SHOULDER BIKEWAY
- PROPOSED SHOULDER BIKEWAY
- IMPROVEMENT PRIORITY
TRAFFIC GENERATORS
○ RECREATIONAL
□ UTILITARIAN

TO CAPE ARAGO & SHORE ACRES
SUNSET BAY STATE PARK CAMPGROUND WITH HIKER BIKER CAMP
TO HIGHWAY 101, SOUTH SLough SANCTUARY, & BANDON

COOS COUNTY FISHING DOCK
BASTENDORF BEACH COUNTY PARK
SCENIC VISTA
UNPAVED ROADS
VISITOR INFORMATION

SCALE
0 1200 2400 3600 4800 FEET

CHARLESTON - BIKEWAY MASTER PLAN
PROPOSED IMPROVEMENTS

FIGURE 8.3.5
Proposals of Previous Plans

Three published documents contain proposed improvements that would directly affect County bikeways. In several cases, this Bikeway Plan incorporates the proposals into the route network. For the benefit of bikeway planning, all previous proposals are supported, and should be implemented. The significant ones are summarized below and locations shown on applicable figures.

North Bend Major Street Traffic Safety Program, 1981 - Bike lanes should be included with the street projects recommended in the Program.

- Widen Highway 101 north of Florida Avenue
- Install a Virginia - California couplet between 101 and Harrison Avenue
- Improve the intersection of Newmark and Broadway
- Widen Newmark at various locations
- Extend Virginia and Colorado Avenues westerly into Coos Bay
- Develop bikeways throughout the City and bicycle storage facilities

Coos Bay Roadway and Traffic Safety Management Plan, 1978 - The following recommendations would improve the bicycling environment in the City. Specific street projects should include bike lanes. Some facets of these improvements have been completed.

- Broadway (101 southbound) - Alder to Elrod; Includes removal of curbside parking on east side of street
- Newmark at Wasson and Cammann - Remove parking on Newmark
- Newmark at Ocean - Improve channelization
- Eliminate parking close to intersections
- Eliminate parking along narrow sections of Principal Arterials such as Central west of Tenth and 101 downtown
- Replace storm drain grates that are not bicycle safe
- Various Traffic Safety Programs
Oregon State Highway Division, 1991-1996 Six-year Highway Improvement Program. The state should include bikeways in any roadway project within the County. Selected bikeway related projects are listed here, according to the phase of planning.

Construction

- Highway 42. Coquille Reroute - New Construction
- Highway 101, Coos Bay, Greenwood - Elm realignment (Northbound curve at north end of couplet)
- Coos River Highway - Catching Slough Bridge Replacement
- Highway 101. Saunders Lake - Haynes Inlet, Reconstruction
- Highway 42. Chrome Plant - Cedar Point Road, Reconstruction
- Highway 42. Manning Gulch Slough - Greenacres Curves, Realignment

Development

- Highway 42, Myrtle Point. Maryland Avenue to South city limits

Projects Considered

- Highway 101. Haynes Inlet Slough Bridge, Teakwood Drive north to McCullough Bridge, Davis Slough Road, Bandon Beach Loop to County Line. Various widening and striping projects
- Cape Arago Highway. SWOCC to Empire/Coos Bay Highway, reconstruction
- Coos River Highway. Eastside to Catching Slough, new construction
8.4 COST ESTIMATES

For planning purposes, approximate costs for the proposed bikeways are estimated within this section using a simplified unit price process for construction. Four other components of cost are also included - contingencies, engineering, legal and administrative. A combined factor of 35% is applied to the construction cost estimates to cover these components.

Construction Cost. The estimated construction costs presented in this Plan are based on actual construction bidding results for similar work, published cost estimating guidelines, and other construction cost experience. The estimates are based on construction by general contractors through normal public contracting procedures, and it is acknowledged that some reduction in cost may be realized where force account procedures are utilized and labor and equipment is furnished by the City Public Works crews or State/County maintenance crews. A slight inflation factor has been applied to convert the construction cost estimates to the 1991 construction season. To update the estimates beyond 1991, it is recommended that an average inflation factor of 3% per year be applied, as this approximates the average annual increase in construction costs during the past two-year period. For projections beyond the year 1995, it is recommended that the project costs be re-evaluated or escalated in accordance with the Engineering News Record (ENR) construction cost index.

The construction cost estimates presented in this plan are very approximate. The estimates are based on limited preliminary layout and design, and they should only be used for project planning and general budgeting. It is recommended that each estimate be confirmed and/or refined during detailed design when the scope and magnitude of each project is more precisely determined.

Some of the construction cost estimates are based on unit cost criteria developed within this section of the plan. The application of unit cost criteria is reasonably accurate for standardized types of construction where the quantities of work or materials are easily predictable. Such is the case with asphalt concrete paving and pavement markings, where dimensions and material quantities can be rather accurately determined on a preliminary planning level. However, other items of work such as roadway widening involving earthwork or separated path construction can vary significantly in both nature and quantity and must be evaluated separately for each improvement. Earthwork quantities and cost can only be reliably estimated based on detailed on-site survey work and preliminary design.
The cost estimates do not include any cost for the acquisition of right-of-way or easements, and for some improvements, additional property or easements may be required. This cost item should be addressed, if applicable, during detailed design.

**Contingencies.** A contingency factor equal to 10% of the estimated construction cost has been added. In recognizing that the cost estimates are based on preliminary design, allowances must be made for variations in final quantities, bidding market conditions, adverse construction conditions, unanticipated specialized investigation and studies, and other difficulties which cannot be foreseen at this time but which may tend to increase final costs. The actual construction costs may be higher than estimated due to soil conditions, existing utility conflicts or associated improvements, or other site conditions.

**Engineering.** The cost of engineering services for major bikeway improvement projects will typically include design surveys, the preparation of plans and specifications, bidding services, contract administration, construction staking, and inspection. Costs may also include geotechnical services, testing, and other specialized services. Depending on the size and complexity of the project, the cost of providing all of these services may range from 15 to 25 percent of construction cost. The cost estimates presented in this Plan include an allowance of 20% for engineering services, which represents approximately 10% for design phase and 10% for construction phase. This estimate is based on substantial size projects, and the actual engineering cost for very small projects may be significantly higher as a percentage of construction cost.

Some of the proposed improvements may not require complete plans and specifications and consultant services, and can be adequately administered by government agency staff. However, the engineering allowance should be applied in either event.

**Legal/Administrative.** An allowance of 5% construction cost has been added for legal and administrative costs. This allowance is intended to cover the cost for internal project planning and budgeting, cost accounting, liaison, interim financing, legal advertising, and other related expenses.

**Unit Prices**

Construction costs are estimated using approximate material quantities and unit prices. The following are considered applicable unit prices for the 1991 construction season, including all labor, equipment, and materials. Average conditions are assumed.
1. Mobilization and Miscellaneous - includes mobilization, demobilization, bonds, clearing, grubbing, traffic control, construction signing, curb repair, drainage and other incidental work.

2. Earthwork - includes excavation, embankment compaction, short haul and stockpiling of native material. Generally applicable to roadside improvements. $ 10.00 per cubic yard (CY).

3. Pavement Striping - include preparation and painting. 4-inch wide - $ 0.20 per length foot (LF) 8 inch wide- $ 0.30 per LF.

4. Pavement Graphics - Diamond and "BIKE ONLY" for lanes. $ 60 each.

5. Stripe Removal - by sand blasting. $ 0.75 per LF. for a 4-inch wide line.

6. Curb Painting - $ 1.00 per LF.

7. Aggregate Base - includes shoulder surfacing where applicable. Hauled, placed, spread and compacted - $ 20.00 per CY.

8. Asphalt Concrete Paving - strip paving such as roadway widening - $ 50.00 per ton.

9. Concrete curb and gutter - $ 10.00 per LF.

10. Concrete bike path or sidewalk, five inch depth - $ 2.50 per square foot (SF).

11. Signing - $ 20.00 per SF.

Standard Unit Cost Criteria

The following unit cost criteria is developed to simplify the preparation of cost estimates for those improvements which can be categorized.
Bike Lane Striping and Signing (Example - 1000 LF)

Mobilization & Misc. $110
Graphics at 2 intersections 2 x $ 60 120
Signs - designating route 16 SF x $ 20 320
Striping - 8 inch 1000 LF x $ 0.30 300

Construction $850 (0.85/LF)
Contingencies, Engineering, Legal, Administrative 300

Project Cost - 1000 LF $1,150
Project Cost per LF $1.15/LF

Shoulder Bikeway Striping and Signing (Example - 1000 LF)

Mobilization & Misc. $50
Signs - designating route 4 SF x $ 20 80
Striping - 4 inch 1000 LF x $ 0.20 200

Construction $330 ($0.33/LF)
Contingencies, Engineering Legal, Administrative 120

Project Cost - 1000 LF $450
Project Cost per LF $0.45/LF

Roadway Widening and Paving (Example - 100 LF)

Mobilization & Misc. $250
Earthwork 20 CY x $ 10 (mild sideslopes) 200
Aggregate Base (includes 2” shoulder) 15 CY x $ 20 300
Asphalt Paving 5’ x 100’ x 0.0075 x 2” x $ 50 375
Striping and Graphics 30
Signing for Lane 30

Construction $1,185
Contingencies, Engineering Legal, Administrative 415

Project Cost - 100 LF $1,600
Project Cost per LF $16.00/LF

Add $ 4.00/LF for steep sideslopes or curb/sidewalk demolition

Bike Path Construction (Example - 100 LF)

Mobilization & Misc. (includes signing) $370
Earthwork 50 CY x $ 10 500
Aggregate Base (includes 2’ shoulders) 30 CY x $ 20 600
Asphalt Paving 10’ x 100 x 0.0075 x 2” x $ 50 750

Construction $2,200
Contingencies, Engineering, Legal, Administrative 780

Project Cost - 100 LF $3,000
Project Cost per LF $30.00/LF

8-23
Coos County Parks Bikeway Plan - Cost Estimates

The following costs represent the project budgets needed to establish the proposed improvements in the areas where planning was focused. Few of these projects are actually within county parks. Refer to Section 9 for further information on priorities, phasing and comprehensive county planning.

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<thead>
<tr>
<th>Project Description</th>
<th>Total LF</th>
<th>Budget</th>
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<tr>
<td>1. Powers County Park Access</td>
<td>3,500 LF</td>
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<td>Agg. Base subgrade exists for 2500 LF</td>
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<td>Path Construction 1000 LF x $ 30</td>
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<td>Path Paving (excludes earthwork, base and some prep) 2500 LF x $ 16</td>
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<td>2. Bastendorf Beach County Park Access</td>
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<td>Roadway Widening 2800 LF x $ 20</td>
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<td>3. Bandon Jetty County Park Access</td>
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<td>4. Lakeside - Airport Way</td>
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<td>6. Cape Arago Hwy. Shoulder</td>
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<td>Southbound Lane 3000 LF x $ 20</td>
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<tr>
<td>Path Paving (excludes earthwork, base, some prep.)</td>
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8-24
10. Bandon - Fourth to Beach Loop (OCBR) 4,000 LF  
   Roadway Widening 2000 LF x $16 $32,000  
   Shoulder Striping 6000 LF x $0.45 2,700  
   **Total** $34,700 $34,700

11. Lakeside - Tenmile Lakes Park Access. 1,350 LF  
   Roadway Widening 800 LF x $16 $12,800  
   Striping only 1600 LF x $1.15 1,800  
   Paving only 300 LF x $8 2,400  
   **Total** $17,000 $17,000

   Roadway Widening 6400 LF x $16 $102,000 $102,000

13. Bandon - Beach Loop, 11th to Seabird, Shoulder. 5,600 LF  
   Roadway Widening, southbound (OCBR) 56,000 x $16 $90,000 $90,000

14. Bastendorf Beach Loop, Shoulder. 7,000 LF  
   Roadway Widening, one side 5000 LF x $16 $80,000  
   2000 LF x $20 40,000  
   **Total** $120,000 $120,000

15. Bandon - Riverside Drive Shoulder (OCBR) 6,500 LF  
   Roadway Widening, southbound 6500 LF x $16 $104,000

16. Powers - Orchard Park Access 5,000 LF  
   Roadway Widening in hazardous areas  
   2000 LF x $16 $32,000  
   Shoulder Striping 8000 LF x $0.45 3,600  
   **Total** $35,600 $36,000

17. Bandon - Seabird (OCBR). 4,000 LF  
   Roadway Widening, eastbound 4000 LF x $16 $64,000 $64,000
Bay Area Bikeway Plan - Cost Estimates

The following costs represent the project budgets needed to establish the urban network proposed on Figures 8.3.2 and 8.3.3, in 1991 dollars. Larger projects are rounded to the nearest thousand dollars. When part of a street project previously planned, only the bikeway portion is estimated. Refer to Section 9 for information on priorities and phasing.

1. West Park - Pony Creek Route 17,500 LF
   - Lane Striping 26,000 LF x $1.15 $30,000
   - Roadway Widening 4,000 LF x $16 64,000
   - Path Construction 2,500 LF x $30 75,000
   - Street/Apron Paving 2,000 SF x 0.0075 x 2" x $50 x 1.35 2,000

   **Total:** $171,000

2. Virginia (OCBR/OSHD) 4,500 LF
   - Roadway Widening 2,500 LF x $20 50,000
   - Lane Striping 4,000 LF x $1.15 4,600
   - Curb and gutter 2,500 LF x $10 x 1.35 33,800
   - Sidewalk 4,000 SF x $2.50 x 1.35 13,500

   **Total:** $101,900

3. Butler - Juniper Connection 1,100 LF
   - Lane Striping 2,200 LF x $1.15 $2,500

4. Ocean (OSHD) 11,500 LF
   - Stripe Removal 46,000 LF x $0.75 $34,500
   - Striping 8" 23,000 LF x $0.30 6,900
   - 4" 46,000 LF x $0.20 9,200

   **Total:** $50,600

5. Harrison - California Connection to 101 2,500 LF
   - Lane w/Street or Path (Monroe to Virginia) 1,000 LF x $30 $30,000
   - Lane Striping 5,000 LF x $1.15 5,750

   **Total:** $35,750

6. Newmark - Empire Blvd. (OCBR/OSHD) 14,000 LF
   - Stripe Removal 32,000 LF x $0.75 $24,000
   - Lane Striping 28,000 LF x $1.15 32,200

   **Total:** $56,200

8-26
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<th>Description</th>
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<td>7. Newmark, 101 to Broadway 5,000 LF</td>
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Total: **$109,250**
8.5 CONSTRUCTION GUIDELINES

This section briefly reviews the major items to consider when constructing bikeways. The proposed improvements are recommended to establish a bikeway system in the most cost effective manner utilizing the design criteria of Section 5.

The urban network of the Bay Area Plan and recreational access routes of the Parks Plan are chosen and prioritized to balance the limited funds available with the need for routes that improve safety and therefore encourage more bicycle use. This can not be accomplished without some impact on the existing transportation system. The most significant impact does not affect the movement of vehicles as much as their storage.

Curbside Parking – Bay Area

The traffic safety studies performed for both cities identified the hazards of parking near intersections and recommended elimination of parking in many areas, some of which remains to be done. Curbside parking also impedes the movement of vehicles, including bicycles. Curbside parking was often mentioned as a hazard during public input. Many of the proposed improvements involving bike lanes would prohibit curbside parking to enable the lane to fit within existing curb and right-of-way limits. Detailed design of the lanes would determine the limits of prohibition.

Bike Lanes and Shoulder Bikeways

There is little difference between these two types of facilities. Lanes have more pavement graphics, signing, and an eight inch wide stripe as opposed to the shoulder four inch stripe. The minimum width criteria is four feet for both types of route, but the lane presents an appearance of "designation" to the bicyclist. Also, bike lanes have more legal restrictions for motorists. The proposed Bay Area improvements, shown on Figures 8.3.2 and 8.3.3, emphasize lanes in accordance with the state plan for urban areas, but construction phasing may be more practical if shoulder bikeways are first installed. An example of this is where an isolated lane project is one phase of a large route improvement project. It should be designated as a route only if it does not end abruptly at a hazardous area. Usually, segments of lanes are necessary in the long range process of linking circuits together.
OSHD Jurisdiction

The many improvements shown on state highways within both plans are critical to a successful network of routes. Several projects on city streets are recommended to avoid state routes that are currently hazardous. Eventually, state highways will be improved for bicycling as directed by the state plan. In the meantime, cooperation between the cities, county and highway department is necessary to achieve the goals and objectives of this plan.

Future Land Development

In addition to street construction performed by government agencies, private developers should also be required to construct bike facilities along with their development projects. The review process described in Section 5.5 should be applied to private entities building or improving streets in conjunction with adjacent land development. Commercial development should also provide parking facilities as proposed in Section 8.8.
8.6 MAINTENANCE AND MONITORING

Regular maintenance is one of the most effective ways to encourage bicycling and improve safety. Lack of shoulder and path maintenance was identified often during public participation. Periodic monitoring of bikeways should be incorporated into street and park maintenance programs. A procedure should also be established to document hazards reported by the users of the bikeway system. Between these two efforts, the liability considerations discussed in Section 5.4 can be addressed. The following maintenance activities can affect bicycling.

Sweeping

Sanding materials, gravel, glass, leaves, and other debris accumulate on bikeways, especially roadway shoulders. When the street is curbed and relatively flat, the problem can be hazardous. Bicyclists often ride into the motor vehicle lane to avoid the debris. Regular sweeping should be done and repeated as needed in areas that are reported or identified during monitoring.

Chip Seal Coat

This maintenance activity can leave an edge or texture that is not uniformly even in height, resulting in a hazardous condition for bicyclists. Care should be exercised on shoulders during application of seal coats. One option is to stop the chip seal at the fog or lane line, providing only a slurry or fog seal on the bikeway. Another choice is to reduce the aggregate size. Some crews use sand seals. In any chip seal activity, the operation should be followed up within a week to sweep excess aggregate off the pavement.

Patching

The common problems with maintenance patching are loose asphalt particles adhering to the bikeway surface and road grader tire tracks remaining in the patch. Both of these can be avoided with careful attention during compaction and cleanup.

Overlays and Widening

Roads without curbs often have gravel shoulders that could easily be prepared for asphalt widening. This should be done wherever possible during overlay maintenance projects, especially on highways noted as bike routes on the figures of this section.
**Striping**

Subsequent to the overlays, and during lane stripe maintenance, the possibility exists for improving bikeway conditions by keeping motor vehicle travel lanes to the minimum 10 to 12 feet when painting the fog line.

**Vegetation**

A three foot horizontal and eight foot vertical clearance should be maintained on all bikeways. More is advisable on curved sections.

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**8.7 SAFETY EDUCATION PROGRAM**

All bicyclists should be knowledgable in the basic rules of the road to ride on the streets and highways within the planning area. An education program should be implemented to address the needs of all users of the transportation system. Lack of motorist awareness of the bicyclist's legal right to use the road was often cited as a weakness in the community, according to public input. The accident statistics of Section 5.4 verified a large percentage of bicyclists at fault are children. This section reviews the possibilities for a program to increase bicycling awareness and reduce the number of accidents involving bicycles. This program should be implemented in conjunction with the enforcement program described in Section 8.2.

**Awareness**

An important aspect of an education program is to show the motorist and bicyclist the respective needs of the other vehicle operator. Public awareness needs to be visible and supported by jurisdiction agencies, bicycle clubs and shops, all media sources, parents, law enforcement personnel and the school system. The recommended Coos County Bicycle Advisory Committee would act as coordinator of the awareness effort. The Oregon Bicycle Operator's Manual, discussed in Section 8.2, will be a valuable education tool for this effort.

Public awareness of the Bay Area and Coos County Parks Plans is also important. Appreciable interest was shown during the questionnaire period and could be continued if bicyclists know what is included within the Plans. A summary of the document should be made available to the public during the interim period before the Bicycling Guide described in Section 7 is published.
Oregon Bicycle Safety Education Program

This statewide program can assist local communities with safety education in a variety of ways. The Smart Cycling training, currently administered by the Oregon Traffic Safety Commission, is a part of this program. Although the instruction is designed for children 10 to 12 years of age, it can act as the diversion training for juveniles in the enforcement program.

In addition to classes, the state program offers videos, handouts and information on skills fairs and programs in other counties. The Bicycle Education Coordinator is the primary contact for state guidance on local safety programs. The phone number is 1-800-922-2022.

Literature

There are many publications on bicycle safety that should be readily available to those concerned and new bicyclists who need to learn the basics. The Education Coordinator can provide these to the cities and county.

- Oregon Bicycle Operator's Manual (see Section 8.2)
- A Consumers Guide to Bicycle Helmets - Included in appendix.
- Safe Kids Are No Accident - Reviews accident prevention
- Smart Cycling Curriculum - Instructor training available
- Helmet Campaign - General information
  - What schools and youth groups can do
  - What physicians can do
- Car/Bicycle Collisions - Common mistakes
- Say, you're not from this planet - Main rules of bike safety
- Oregon Bicycle Safety Program - Program Offerings

Many private organizations also advocate bicycle safety through newspapers and brochures, often focused on the young bicyclist. Bikecentennial has several child-oriented publications that are very informative (Box 8303, Missoula, MT, 59807).
8.8 PARKING AND COMMUTER FACILITIES

Utilitarian bicycling is encouraged when secure parking facilities are available at the destination and multi-family origins such as apartment complexes. In some cases, additional commuter facilities can also promote bicycling.

Long Term Parking

Employment and education centers should have a covered area that is at least as convenient as automobile parking. The space should be lighted and secure. The device for holding the bicycle should allow both the frame and wheels to be locked. If possible, the area should be sheltered from wind-driven rain and long exposure to the sun.

Short Term Parking

Examples of utilitarian destinations that should have bicycle parking include shopping centers, health care providers, recreation areas, entertainment areas, libraries, and public service agencies. Since these locations are often at or near employment centers, commuter and convenience parking areas may be combined, however weather protection is not as important for short term parking. The device should be easy to use and situated somewhat close to an easily monitored access in order to reduce theft.

Design Considerations

Bicycle parking should be easy to locate, utilizing signs if necessary. Access aisles five feet wide and spaces two by six feet should be provided. Vertical clearance should be seven feet. The device should hold the bicycle in a stable position without damage. Parking facilities must offer some degree of security to be regularly used. Generally, one bicycle space per twenty automobile spaces is adequate. A minimum of two spaces should be provided for each commercial area or isolated establishment. Schools and the college need at least one space for every ten automobile spaces. One space per unit is recommended for apartments. The need for spaces should be responsive to demand, in all cases.

New Development

Existing establishments should be encouraged to provide parking and commuter facilities where warranted by demand. New and expanded development should be required to install bicycle parking facilities, especially if an increased amount of automobile parking is required.
Commuter Facilities. New construction of commercial and public buildings should also include changing rooms and showers if expected to employ more than 25 people during the day. These facilities, combined with secure parking, will make bicycle commuting more attractive to employees.

8.9 SPECIAL EVENTS

Various special events involving bicycling are becoming increasingly popular every year. They are described in this section and referenced in other parts of the plan. The County and Cities can promote bicycling by encouraging events to be held locally. Agencies should be prepared to provide guidance regarding laws, regulations, safety and any other concerns to the event organizers.

Bike Skills Fair

This event is oriented toward children aged 6 to 12 to explore and challenge their skills and knowledge of bicycling. It is not a substitute for serious training regarding rules of the road, which is best accomplished one-on-one by a parent. The basic operation and safety skills are explored in a skills fair. The event is typically put on by a service group interested in children's safety and fitness. A dedicated number of volunteers is a necessity for a skills fair to be successful.

There are many excellent sources of printed information on how to conduct a skills fair, which are often called bicycle rodeos. Complete skills fair kits are also available. The Oregon Bicycle Safety Education Program provides guidance for organizing skills fairs in local communities. Bikecentennial publishes maps on sample courses for rodeos. Along with the Smart Cycling instruction, the skills fair forms the basis for a successful community safety education program that can help reduce bicycle accidents in the County.

Bicycle Racing

Oregon law allows bicycle racing on any state highway with the approval of the District Manager issuing the permit. Certain administrative rules apply and the County and Cities may wish to adopt similar rules for roads within their jurisdiction. The regulations and other pertinent information are described in the 1990 publication, "Guidelines for Administration of Bicycle Racing on Oregon Roads" prepared by the Highway Division and available at the District Office.
Sanctioning. Road races should be sanctioned and monitored by an organization with appropriate safety rules such as the United States Cycling Federation. Utilizing a permit process is recommended to assure insurance and public notice requirements are satisfied.

Mountain Bike Racing. Normally sanctioned by the National Off-Road Bike Association, mountain bike races should also require permits where they pass through County or City jurisdiction.

Bicycle Touring

Touring by bicycle is becoming very popular in Oregon and Coos County has the potential to attract more organized touring events. For larger events, permits may need to be issued, but generally they are not necessary. By providing better bikeway facilities and implementing the many different aspects of master planning, the community can develop a reputation that will invite the tours into the county and generate enough interest for return visits.
SECTION 9
IMPLEMENTATION

9.1 PRIORITIES

This document represents the first stage of comprehensive bikeway planning for Coos County. The Bay Area plan is oriented toward a variety of users bicycling for many different reasons, while the Parks plan is recreation based. Both plans have several common characteristics involving safety and bicycling awareness. Prioritization of the various aspects of each one is necessary to successfully implement the plans and determine appropriate changes for updates.

Schedule

Due to the limited funding available for bikeway development, a continuing effort should be made to pursue additional sources of funding and improve local conditions by low-cost methods such as those described in Section 5.5. Construction of proposed improvements is strictly dependent upon available funding and the affected jurisdiction, therefore the remaining, lower cost aspects of the plans can proceed on a better schedule. No period of time is stipulated within which to accomplish the physical improvements. Instead, the Bay Area plan proposes an urban route network that would achieve the stated objectives of integrating bikeways into the existing transportation system while balancing the needs of the users. Likewise, the Parks plan proposes improvements in park access routes and the rural touring network so that recreational bicyclists will be encouraged to visit the parks within the County.

Construction of the route improvements will certainly take a very long time based on current funding levels, but the goals of planning are long term and funding may improve in the future. In either event, route selection priorities are described in Section 6.3 and should be considered separate from general plan priorities that follow.

Committee Formation

The Coos County Bicycle Advisory Committee (CCBAC) should be formed to act as the key coordination and communication resource of plan implementation. By-laws and other procedural details should be based upon policies outlined in Section 8.1. The committee should initially create ordinances to implement the policies of the plan and assure that the responsible agencies are fulfilling their appropriate function within the plan.
Responsibilities

The various entities that may be responsible for implementation include:

**Coos County.** Parks department, public works staff, planning department and county sheriff. A specific liaison contact for the county should be appointed to work with the CCBAC, unless represented on the committee.

**Cities.** Public works departments, community development, parks staff, and police department. Each city should also have a primary contact for committee communication.

**State.** Highway Division - District and Region office, Bicycle Program Office and State Advisory Committee, Bicycle Education Coordinator, Oregon State Parks, Forest, and Police.

**Federal.** Bureau of Land Management and Siskiyou National Forest.

**Public.** In addition to volunteers needed for the CCBAC, continual public interest is essential in implementation of the plan. In the area of funding, the public can be an influential factor in whether or not an improvement project is financed. The public should be invited to committee meetings and to offer comments.

Plan Availability

The plan should be available for review at City and County offices, libraries and local bicycle shops. A summary of the plan should be prepared and circulated to the media and concerned individuals. With the assistance of the media, the awareness aspect of the education program can begin with exposure of the Plan and by showing what the community intends to accomplish.

Action Plan

To proceed with the programs and improvements proposed, the CCBAC and responsible agencies will, at times, need to act upon the various aspects of the Plan simultaneously. Expounding on the major themes of the Plan summarizes the action required for implementation and may be thought of as the "five Es:" Encouragement of bicycling through education, enforcement, and engineering will enable implementation.

The improvement priorities are based upon route selection criteria and input. If jurisdiction or funding actions can enable a lower priority to be accomplished sooner, then it should be done.
The grant and Highway Division Priority 3 funds processes require much lead time. Applicable improvement projects should be entered into the beginning phases of the appropriate process as soon as possible.

Education and Enforcement

The two programs will complement each other and should begin immediately upon adoption of the plans and formation of the CCBAC. Refer to Sections 8.2 and 8.7. Law enforcement officers should be aware of the statutes pertaining to bicycles. Motorists and bicyclists should be cited for violations, especially when they involve accidents or the laws described in Section 5.4. Jurisdiction agencies should have the literature available for distribution. New legislation is currently being considered and introduced in state congress. The CCBAC should monitor these activities and keep informed of other state-wide activities through the Bicycle Program Office. A contact at each media outlet should be sought to act as coordinator of the education and enforcement effort.

Grant Applications

Implementation of the bikeway construction part of the plan will need outside funding sources, therefore an important priority is to be aware of grant programs and apply for those available on a regular basis. One route selection priority was consideration of state bicycle law funding and most capital improvements proposed qualify for the program. Refer to Section 9.2.

Maintenance Program

An improved maintenance program should also be pursued upon adoption of the plans. State, County and City crews should be informed of the needs of the bicyclists and the concerns outlined in Section 8.6.

Monitoring. The advisory committee should monitor the success of the maintenance program. Documentation of hazards will be accomplished by the agency with jurisdiction.

Construction Phasing

The proposed physical improvements of Section 8.3 are prioritized by route. The longer routes and larger projects may need to be constructed in phases. The limited funding and grant conditions are suited to smaller projects. Phasing within individual route improvements will be necessary to implement the larger construction projects.
Jurisdiction Consideration

Many factors are involved concerning proposed construction projects. The agency with jurisdiction has final approval regarding changes within their system and bikeways are only one part of the entire transportation and recreation environment. The need for cooperation and coordination has been emphasized throughout the planning process and must continue as a priority during implementation. Although no firm schedule is recommended to construct the improvements, progress will be better if jurisdiction considerations are solicited and incorporated along the way. Improvement priorities are subject to change, and should be changed if an agency concern is involved. This is especially true with re-striping, where delaying the work until the next maintenance striping is needed is the typical preference. Cooperation such as this can also reduce bikeway improvement costs, since obliteration of old lines is bikeway related and the motor vehicle lane striping is a part of normal maintenance.

The basic transportation system is in place by means of the urban streets and rural highways located in County. The area has many recreational opportunities which the system accesses. The bicycle is recognized as a vehicle that must abide by the laws of the system. This fact is critical in implementation of these plans. The jurisdictions, motorists and bicyclists need to cooperate with each other to provide an improved environment for this mode of transportation.

Updates

The plans will continually be reviewed during the implementation process by the responsible entities and the CCBAC. As conditions and needs change, modifications will be necessary. The committee will advise the County Commissioners annually regarding updates to the plans.

Consolidation of Future Planning

Major updates are recommended to evaluate the progress of implementation and shift the focus of planning, if warranted. This first one should be no later than 1996 and should consolidate all of the areas of the County into a comprehensive plan. This need was expressed during public participation. By then, the Bay Area and County Parks planning efforts can be evaluated in detail and their updates can be incorporated into a county wide master plan.
9.2 FUNDING

There is a limited number of funding resources available for bikeway improvements. The primary source is a result of the 1971 Bicycle Law. This and other possible sources are described in this section. The total cost of proposed improvements is significantly higher than the local share of Bicycle Funds available, even if they are allowed to accumulate for several years. For this reason, funding strategy for improvements should emphasize alternate sources, consolidation with other street and maintenance projects, and cost effective improvements such as re-striping. Major capital improvements will occur at a slower pace.

Bicycle Law Fund

The Bicycle Law, ORS 366.514, mandates that no less than one percent of the State Highway Fund be allocated each year to the Highway Division, cities, and counties, to be used for bicycle and footpath purposes. There are certain expenditure restrictions and requirements which are listed in the state plan. The pertinent features of the law for this planning effort include the following:

Public Right-of-Way. Since 1980, the funds may no longer be spent outside of highway, road or street right-of-way. This factor was considered in the route selection process of Section 6. Virtually all of the proposed route improvements satisfy this requirement. Bike paths that are on public lands do not qualify unless they are actually within highway, road or street limits of right-of-way.

Education and Enforcement. One percent funds may not be spent for general safety education or bicycle law enforcement.

Bicycling Guide. The guide described in Section 7 may be developed and printed using the funds.

Maintenance. Sweeping and other maintenance of right-of-way facilities can utilize the one percent fund.

One Percent Fund - State

The Highway Division has adopted four priorities for the expenditure of their allocation of the bicycle law fund. The amount has increased over the years and is projected to be approximately $2.7 million state-wide for fiscal year 1991. City and County distribution amounts are discussed later in this section. These funds are spent by the Highway Division as described below with approximate allocated percentages for the priority also shown. Each is discussed in relation to its effect on this plan, with examples cited to aid in perspective.
Priority 1 - Percentage varies. Construct bikeways whenever highways are constructed, reconstructed or relocated. An upcoming example of this expenditure is the Coquille Reroute project which will include shoulder bikeways and lanes. The proposals of the Six-Year Plan listed in Section 8.3 are also examples of this priority.

Priority 2 - 7 1/2%. Maintenance of existing state bikeways. Removing accumulated debris on bikeways within state jurisdiction is an expense funded by this category.

Priority 3 - 50%. Construction of independent bikeway projects on state owned right-of-way, not associated with other highway improvements. This is a viable source of funding for proposed improvements of this plan noted as "OSHD" and "OCBR" in Sections 8.3 and 8.4. This amount is further split among six categories. The two pertinent to Coos County are the Coast Bike Route and Region 3 allocations, estimated for 1991 to be about $135,000 and $170,000, respectively, region-wide. The region decides which projects receive this money. Little of this is intended for Coos County projects in the near future. This plan identifies applicable projects and they should be included for consideration in the Six-Year Plan. Yearly funding levels are allocated to the region office where management decides which projects are built. The CCBAC should actively pursue this source of funds. Prior commitments and cost overruns on projects in other areas of Region 3 limit the amount of funding available for bikeway improvements in Coos County for a few years, but Region 3 management should be informed of planned projects.

Priority 4 - 10%. Financial assistance for local government agency bikeway projects. Eighty percent project grants of up to $50,000 are available to governments for construction of bikeway improvements. Fifty percent planning grants are also available. This planning effort was partially funded by a Priority 4 grant. The North Eighth bike lanes in Lakeside were also partially funded by this grant money. Grants are awarded according to a rating system that evaluates the proposed project for the following criteria.

- Cost per mile
- Previous grants
- Inclusion in adopted plan
- Links with other routes
- Potential use
- Existence of hazards
- Commuter, school, recreation access
- Quality of design standards
Priority 4 grants are very competitive, yet they are the best alternative source of funding for proposed improvements not within OSHD right-of-way. The State Advisory Committee rates the applications, which are due by September of each year. Awards are announced in December.

One Percent Fund- Local

The cities of Oregon are also subject to the Bicycle Law. The City of Coos Bay received $5,074 in 1990 and is expected to have approximately $6,400 for 1991. Cities are allowed to accumulate funds for up to ten years. Coos Bay has no accumulated funds. North Bend received $3,109 in 1990, with $4,150 expected in 1991. North Bend has accumulated about $9,000, some of which is dedicated to a Pony Point bikeway project.

A total of $22,655 was received by Coos County in 1990. Additional funds have been accumulated from prior years in the amount of about $160,000.

Other Funding Sources

Few other sources of funding exist. National and state policy is in transition and may result in other future sources for bikeway funding.

Oregon Traffic Safety Commission. The Commission provides assistance with education programs such as the one described in Section 8.7. They also assist with enforcement programs. The Smart Cycling Program is administered by the Commission with funds provided by the federal government on a yearly basis. The Bicycle Education Coordinator is currently on Commission staff, but will likely be converted to OSHD staff in the future, which will make state safety program funding more stable.

Federal Aid Programs. There are several road improvement programs that have been established by the federal government and are administered by OSHD. However, national legislation is currently being revised and this source of funding is undergoing major changes. The CCBAC should keep informed of national policy and bikeway legislation that may benefit the County.

General Funds. The Bicycle Law requires at least one percent of the gasoline taxes go to bikeways and footpaths. More may be spent and should be if the governing bodies of the County and Cities are dedicated to improving the existing system.
Land and Water Conservation Fund. This grant program is administered by the Parks and Recreation Division of the Oregon Department of Transportation. Funds are derived under Public Law 88-578 from the National Park Service, Department of Interior.

Grants are available for the acquisition of land and the development of public outdoor recreation facilities. Grants are limited to 50% of total project cost. Cities and counties are among the eligible applicants.

Bicycle/pedestrian paths have been funded under this program in instances where they have been shown as needed in connection with outdoor recreation activities.

Future Changes. Policies regarding alternative modes of transportation are dynamic, often based upon world politics or national energy crises. The Fourth Biennial Energy Plan, dated January 1991, recommends that the State of Oregon increase gasoline tax revenues and lift current restrictions on use of those taxes so they may be used for promoting alternative modes of transportation. If changes in policies such as these are made, available funding for bikeways would likely increase.
9.3 SUMMARY

The following summary represents a synopsis of the Bikeway Master Plan and is offered as a brief overview.

Introduction - Section 1

1. The Plan is actually two plans in one:

   **Bay Area Plan** - A comprehensive plan for the cities of Coos Bay and North Bend. All aspects appropriate to urban bicycling are considered.

   **Coos County Parks Plan** - A master plan concentrating on five particular areas and the recreational bicyclist. The plan is not comprehensive.

2. The scope of the planning effort was to: (1) provide guidelines and criteria for bikeway systems that will improve the bicycling environment; (2) identify methods to encourage and support bicycling as an alternate mode of transportation and recreational activity; (3) prioritize facility improvements and recommend a plan of action.

- Figure 1.2.1. Coos County - Planning Area Map.

Background - Section 2

1. City and County comprehensive plans and the State of Oregon Bicycle Master Plan are reviewed.

2. Classifications of users and bikeways are defined.

3. Bicycle travel trends of recent years are discussed.

Public and Agency Participation - Section 3

1. Public input was solicited and incorporated into the planning process. Results of questionnaires are summarized.

2. Many entities contributed to the planning effort. Their participation is reviewed.

Existing System - Section 4

1. The existing bikeway system is inventoried and found to be deficient in continuity between routes, maintenance, and roadway shoulder width in most of the planning areas.
2. The effect of existing roadway ownership on bikeway planning is reviewed.

- Figure 4.2.1 Coos County Parks - Existing system
- Figure 4.2.2 Bay Area North - Existing System
- Figure 4.2.3 Bay Area South - Existing System

Plan Criteria - Section 5

1. Anticipated bicycle use is qualitatively discussed along with the functional service that bikeways should provide to the communities.

2. Design criteria is established for various bikeways addressing width, surface features, signing, pavement marking and other physical features.

3. Safety criteria includes traffic laws and an evaluation of Bay Area accident statistics.

4. The importance of jurisdiction liability is addressed.

5. Cost effective improvement criteria are described.

Route Selection - Section 6

1. The process used to evaluate potential routes for designation is described. The priorities considered in selection are listed.

2. Bicyclist origins, destinations, and other traffic generators are integral factors in choosing routes.

3. All City arterial and collector streets are judged as to their suitability for bike routes.

- Figure 6.2.1 Bay Area North - Route Selection
- Figure 6.2.2 Bay Area South - Route Selection

Bicycling Guide - Section 7

1. An informational map and guide will be beneficial as routes are improved. The important features to include in such a guide are itemized.

Master Plans - Section 8

1. County - wide policies are recommended.

2. A Coos County Bicycle Advisory Committee is proposed.
3. An enforcement program is proposed to emphasize bicycle traffic laws.

4. Roadway improvement and bikeway construction projects are proposed for both Master Plans. Project costs are developed and estimated for proposed improvements. A total of approximately three million dollars is estimated - $1.8 million for the Bay Area and $1.2 million for the County Parks Plan.

5. A rural touring network of bikeways utilizing state and county highways and linking all cities and recreation areas is supported in the Plan.

6. Guidelines to construct the improvements are reviewed.

7. A maintenance and monitoring program is proposed.

8. A safety education program is proposed.

9. Miscellaneous facilities such as parking are addressed.

10. Skills fairs, races and tours are a few of the special events that can encourage bicycling and generate interest in the communities of the County.

- Figure 8.3.1 Coos County Parks - Proposed Improvements
- Figure 8.3.2 Bay Area North - Proposed Improvements
- Figure 8.3.3 Bay Area South - Proposed Improvements
- Figure 8.3.4 Bandon - Proposed Improvements
- Figure 8.3.5 Charleston - Proposed Improvements
- Figure 8.3.6 Lakeside - Proposed Improvements
- Figure 8.3.7 Powers - Proposed Improvements

Implementation - Section 9

1. General priorities in implementation of the Plan are outlined. Cost effective programs are emphasized in the acquisition of capital improvement funding.

2. Proposed improvement costs are much higher than funds available locally. Alternative sources are needed and described. Funding strategy is addressed. Coordination with the Highway Division is critical.

3. The Bay Area Plan recommends an urban network of routes to accommodate a variety of users. The Coos County Parks Plan recommends rural recreational access routes. Many are not directly related to the park system.
4. Due to limited funding, both plans should be considered long range regarding physical improvements. This aspect of the plans will take many years to implement.
SECTION 10.1

GLOSSARY OF BICYCLE TERMS
SECTION 10.1

GLOSSARY OF BICYCLE TERMS

AASHTO - American Association of State Highway and Transportation Officials and including their publications.

BICYCLE - A vehicle having two tandem wheels, propelled solely by human power, upon which any person or persons may ride.

BICYCLE FACILITIES - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, all bikeways and shared roadways not specifically designated for bicycle use.

BICYCLE ROUTE (BIKE ROUTE) - A segment of a system of bikeways designated by the jurisdiction having authority.

BIKE LANE - A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

BIKE PATH - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way.

BIKEWAY - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

CLEARANCE, Lateral - Width required for safe passage of a bicycle as measured in a horizontal plane.

CLEARANCE, Vertical - Height necessary for the safe passage of a bicycle as measured in a vertical plane.

COMMUTER PARKING - Long-term parking, such as at work or school, where the bicycle must be left unattended for the greater part of the day.

CONVENIENCE PARKING - Short-term parking, such as at a store or park, where the bicycle is left for a brief time.

HIGHWAY - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

MOTOR VEHICLE - This means a vehicle that is self-propelled or designed for self-propulsion.
MOUNTAIN BIKE - A bicycle characterized by rugged construction to allow stable handling on rough terrain.

MUTCD - Abbreviation for Manual on Uniform Traffic Control Devices approved by the Federal Highway Administration as a national standard for placement and selection of all traffic control devices on or adjacent to all highways open to public travel.

MVC - Motor Vehicle Code

PAVEMENT MARKING - Painted or applied line(s) or legend placed on any bikeway surface for regulating, guiding or warning traffic.

PEDESTRIAN - A person whose mode of transportation is on foot. A person "walking a bicycle" becomes a pedestrian.

RECREATIONAL CYCLIST - An individual(s) who uses a bicycle for the trip enjoyment itself. Ultimate destination is of secondary importance.

RIGHT-OF-WAY - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

ROADWAY - The portion of the highway for vehicle use.

RULES OF THE ROAD - That portion of a motor vehicle law which contains regulations governing the operation of vehicular and pedestrian traffic.

SHARED ROADWAY - A type of bikeway where bicyclists and motor vehicles share the same roadway.

SHOULDER - A portion of a highway contiguous to the roadway that is primarily for use by pedestrians, bicyclists, and emergency use of stopped vehicles.

SHOULDER BIKEWAY - A type of bikeway where bicycle travel is designated on the shoulder of the roadway.

SIDEWALK - The portion of a highway or street designed for preferential or exclusive use by pedestrians.

SIDEWALK BIKEWAY - Any sidewalk signed and/or striped to permit cyclists to share the travel right-of-way with pedestrians.

SIGHT DISTANCE - A measurement of the cyclist's visibility, unobstructed by traffic, along the normal travel path to the furthest point of the roadway surface.
TRAFFIC CONTROL DEVICES - Signs, signals or other fixtures, whether permanent or temporary, placed on or adjacent to a travelway by authority of a public body having jurisdiction to regulate, warn or guide traffic.

TRAFFIC VOLUME - The given number of vehicles that pass a given point for a given amount of time (hour, day, year).

TRAVELWAY - Any way, path, road or other travel facility used by any and all forms of transportation.

UTILITARIAN CYCLIST - An individual(s) who uses a bicycle primarily to reach a particular destination to purchase or deliver goods and services.

VEHICLE - This means any device in, upon or by which any person or property is or may be transported or drawn upon a public highway and includes vehicles that are self-propelled or powered by any means.
SECTION 10.2

QUESTIONNAIRE FORMS
QUESTIONNAIRE
BIKEWAY MASTER PLAN
CITIES OF COOS BAY AND NORTH BEND

A Bikeway Master Plan is being developed for the cities of Coos Bay and North Bend by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions relating to bikeway needs. Your cooperation will be appreciated.

Please return completed forms to the Public Works Dept. of Coos Bay or North Bend City Hall prior to February 15, 1991.

1. Which of these best describes your feelings on bicycling
   __ Bicycle enthusiast
   __ I often bike when there's time
   __ Among other activities, I occasionally ride a bicycle
   __ I would bicycle more if it were safer
   __ I seldom use a bicycle
   __ Other ___________________________

2. Average number of times a month you ride a bicycle
   __ 0-1  __ 2-5  __ 6-10  __ 11-20  __ Over 20

3. Average trip length (miles)
   __ Less than one  __ 2-5  __ 5-15  __ Over 15

4. Your age is  __ Resident of CB  __ NB  __ Other  __

5. When considering all bicycling you do, what percentage is
   __ % recreational
   __ % touring
   __ % commuting
   __ % exercise
   __ % (Other) ___________________

6. Compared to a year ago, you bicycle
   __ more
   __ less
   __ about the same

7. Where do you most frequently ride your bicycle?
   ___________________________________________________________________________

8. Besides weather, what route-related factor prevents you from bicycling more than you currently do?
   ___________________________________________________________________________

   Where is an example of this in town?
   ___________________________________________________________________________
9. Within the Coos Bay/North Bend city limits, what two destinations need bikeway improvements? Between __________________ and __________________

10. Outside the city limits, but within ten miles, what destination would you bike to if access improvements were made?

11. Rate these factors for importance to you when choosing a bicycle route. 0 = not important 5 = very important

   --- Minimize number of stops or delays
   --- Scenic attractiveness
   --- Directness (shortest distance)
   --- Avoid hills
   --- Minimize motor vehicle traffic conflicts
   --- General safety

12. What one street or general area of Coos Bay/North Bend needs bikeway improvements the most.

13. Grade the community for the following items as they relate to bicycling. (A,B,C,D or F)

   --- Safety education
   --- Traffic law enforcement
   --- Commuting by bike
   --- Touring
   --- Recreational bicycling
   --- Bike routes in general
   --- Bicycle awareness

Comments. Discuss specific hazards, deficiencies, problems or concerns. What would make this a better community for bicycling? As a motorist, what is the greatest danger posed by cyclists? As a cyclist, what is the greatest danger posed by motorists?
QUESTIONNAIRE
BIKEWAY MASTER PLAN
COOS COUNTY PARKS DEPARTMENT
POWERS AREA

A Bikeway Master Plan is being developed for the Coos County Parks Department by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions. A proposed project would establish a bicycle route between Powers County Park, the City of Powers and the Forest Service Office.

Please return completed form to Powers City Hall prior to February 15, 1991. Your cooperation will be appreciated.

1. Which of these best describes your feelings on bicycling
   ___ Bicycle enthusiast
   ___ I often bike when there's time
   ___ Among other activities, I occasionally ride a bicycle
   ___ I would bicycle more if it were safer
   ___ I seldom use a bicycle
   ___ Other ____________________________

2. Average number of times a month you ride a bicycle
   ___ 0-1   ___ 2-5   ___ 6-10   ___ 11-20   ___ Over 20

3. Average trip length (miles)
   ___ less than one   ___ 2-5   ___ 5-15   ___ Over 15

4. Your age is ___

5. When considering all bicycling you do, what percentage is
   ___ % recreational
   ___ % touring
   ___ % commuting
   ___ % exercise
   ___ % other ____________________________

6. Compared to a year ago, you bicycle
   ___ more
   ___ less
   ___ about the same

7. As a motorist, what is the greatest danger posed by cyclists?
   ______________________________________

As a cyclist, what is the greatest danger posed by motorists?
   ______________________________________

8. Where do you currently ride your bicycle the most?
   ______________________________________
9. What priority would you give to improving the following potential bicycle routes? (1 = high 10 = low).

<table>
<thead>
<tr>
<th>Route</th>
<th>Priority</th>
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<tbody>
<tr>
<td>City to County Park</td>
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<tr>
<td>Park to Forest Service</td>
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<td>Within County Park</td>
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<td>City to Orchard City Park</td>
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<td>Within City limits</td>
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<tr>
<td>City to Forest Service Road system</td>
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<td>Powers to Myrtle Point</td>
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<td>Other</td>
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Comments:

_________________________________________________________________________
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QUESTIONNAIRE
BIKEWAY MASTER PLAN
COOS COUNTY PARKS DEPARTMENT
BANDON AREA

A Bikeway Master Plan is being developed for the Coos County Parks Department by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions.

Please return completed forms to Bandon City Hall prior to February 15, 1991. Your cooperation is appreciated.

1. Which of these best describes your feelings on bicycling
   ___ Bicycle enthusiast
   ___ I often bike when there's time
   ___ Among other activities, I occasionally ride a bicycle
   ___ I would bicycle more if it were safer
   ___ I seldom use a bicycle
   ___ Other ____________________________

2. Average number of times a month you ride a bicycle
   ___ 0-1  ___ 2-5  ___ 6-10  ___ 11-20  ___ Over 20

3. Average trip length (miles)
   ___ less than one  ___ 2-5  ___ 5-15  ___ Over 15

4. Your age is ___

5. When considering all bicycling you do, what percentage is.
   ___ % recreational
   ___ % touring
   ___ % commuting
   ___ % exercise
   ___ % other ____________________________

6. Compared to a year ago, you bicycle
   ___ more
   ___ less
   ___ about the same

7. As a motorist, what is the greatest danger posed by cyclists ?
   ____________________________

   As a cyclist, what is the greatest danger posed by motorists ?
   ____________________________

8. Where do you currently ride your bicycle the most ?
   ____________________________
9. What priority would you give to improving the following potential bike routes?

- 101 to South Jetty County Park
- Bandon to Bullards Beach State Park
- Beach Loop Road
- 101 to City Park (11th Street)
- Bandon to Prosper/Parkersburg
- Other ________________________________

Comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
QUESTIONNAIRE
BIKEWAY MASTER PLAN
COOS COUNTY PARKS DEPARTMENT
LAKESIDE AREA

A Bikeway Master Plan is being developed for the Coos County Parks Department by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions. A proposed project would establish a bicycle route connecting Tenmile Lake County Park with existing Lakeside bike routes, boat ramps and a future picnic/fishing area at the end of Park Avenue.

Please return completed forms to Lakeside City Hall prior to February 15, 1991. Your cooperation is appreciated.

1. Which of these best describes your feelings on bicycling
   ___ Bicycle enthusiast
   ___ I often bike when there's time
   ___ Among other activities, I occasionally ride a bicycle
   ___ I would bicycle more if it were safer
   ___ I seldom use a bicycle
   ___ Other __________________________

2. Average number of times a month you ride a bicycle
   ___ 0-1  ___ 2-5  ___ 6-10  ___ 11-20  ___ Over 20

3. Average trip length (miles)
   ___ less than one  ___ 2-5  ___ 5-15  ___ Over 15

4. Your age is ___

5. When considering all bicycling you do, what percentage is
   ___ % recreational
   ___ % touring
   ___ % commuting
   ___ % exercise
   ___ % other __________________________

6. Compared to a year ago, you bicycle
   ___ more
   ___ less
   ___ about the same

7. As a motorist, what is the greatest danger posed by cyclists?
   __________________________________________

   As a cyclist, what is the greatest danger posed by motorists?
   __________________________________________

8. Where do you currently ride your bicycle the most?
   __________________________________________
9. Lakeside now has a designated bike route on North 8th Street. What priority would you give to connecting the following areas to North 8th. Street with bike route improvements. (1 = high 8 = low)

[ ] Tenmile Lake County Park
[ ] 6th. Street Boat Ramp
[ ] North Tenmile Lake
[ ] Elliot State Forest via North Lake Road
[ ] Tugman State Park
[ ] Reedsport
[ ] North Bend/Coos Bay
[ ] Other ________________________________

Comments:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
A Bikeway Master Plan is being developed for the Coos County Parks Department by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions. A proposed project would establish a bicycle route connecting the City with Sturdivant Park and the County Boat Ramp.

Please return completed forms to Coquille City Hall or the County Parks Department (Courthouse Annex) prior to February 15, 1991. Your cooperation will be appreciated.

1. Which of these best describes your feelings on bicycling
   ___ Bicycle enthusiast
   ___ I often bike when there's time
   ___ Among other activities, I occasionally ride a bicycle
   ___ I would bicycle more if it were safer
   ___ I seldom use a bicycle
   ___ Other ____________________________

2. Average number of times a month you ride a bicycle
   ___ 0-1   ___ 2-5   ___ 6-10   ___ 11-20   ___ Over 20

3. Average trip length (miles)
   ___ less than one   ___ 2-5   ___ 5-15   ___ Over 15

4. Your age is ___

5. When considering all bicycling you do, what percentage is
   ___ % recreational
   ___ % touring
   ___ % commuting
   ___ % exercise
   ___ % other ____________________________

6. Compared to a year ago, you bicycle
   ___ more
   ___ less
   ___ about the same

7. As a motorist, what is the greatest danger posed by cyclists?
   ____________________________________________________________

   As a cyclist, what is the greatest danger posed by motorists?
   ____________________________________________________________

8. Where do you currently ride your bicycle the most?
   ____________________________________________________________
9. If the following routes were to be improved for bicycle travel, how would you rank them? (1 = high priority 10 = low priority)

   ____ City of Coquille to Sturdivant Park
   ____ City to boat ramp
   ____ Shelly Road
   ____ Coquille to Arago
   ____ Coquille to Myrtle Point
   ____ Fairview Road
   ____ Inside City Limits
   ____ City to BLM road system
   ____ Other

Comments:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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________________________________________________________________________
________________________________________________________________________
A Bikeway Master Plan is being developed for the Coos County Parks Department by Gary L. Dyer, Consulting Engineers. This questionnaire is intended to give the public an opportunity to express opinions, concerns and suggestions. A proposed project would establish a bicycle route connecting Bastendorf Beach Park and the Charleston Fishing Dock.

Please return completed forms to the Old General Store prior to February 15, 1991. Your cooperation is appreciated.

1. Which of these best describes your feelings on bicycling
   ___ Bicycle enthusiast
   ___ I often bike when there's time
   ___ Among other activities, I occasionally ride a bicycle
   ___ I would bicycle more if it were safer
   ___ I seldom use a bicycle
   ___ Other ________________________________

2. Average number of times a month you ride a bicycle
   ___ 0-1  ___ 2-5  ___ 6-10  ___ 11-20  ___ Over 20

3. Average trip length (miles)
   ___ less than one  ___ 2-5  ___ 5-15  ___ Over 15

4. Your age is ___

5. When considering all bicycling you do, what percentage is
   ___% recreational
   ___% touring
   ___% commuting
   ___% exercise
   ___% other ________________________________

6. Compared to a year ago, you bicycle
   ___ more
   ___ less
   ___ about the same

7. As a motorist, what is the greatest danger posed by cyclists?

   ________________________________

   As a cyclist, what is the greatest danger posed by motorists?

   ________________________________

8. Where do you currently ride your bicycle the most?

   ________________________________
9. What priority would you give to improving the following potential bicycle routes? (1 = high 10 = low)

- [ ] Charleston to Bastendorff Park
- [ ] Cape Arago Highway South
- [ ] Charleston to South Slough Sanctuary
- [ ] Cape Arago Highway North
- [ ] Libby Road
- [ ] Seven Devils Road
- [ ] Other ________________________________

Comments:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
SECTION 10.3

BICYCLE HELMET GUIDE
THE ONE MINUTE SUMMARY

- You always need a helmet whether you ride on streets or bikepaths. All cyclists crash eventually. Even a low-speed fall on a bicycle path can scramble your brains.
- Excellent helmets meet the Snell helmet standard. Good ones at least meet the ANSI standard. Look for the sticker inside. Snell stickers are green and have a serial number.
- Hard shell helmets can offer better protection than soft shell (foam-only) helmets if your crash occurs at high speed. Soft shell helmets are lighter and may be better for children.
- If the weight of a hard shell helmet strains your neck, pick a soft shell. Its protection will be more than adequate in most crashes. Choose one with a tough cover or internal reinforcing to hold the foam together.
- Buy a bright color for visibility. You want motorists and other cyclists to see you.
- Fit is important for safety. With the straps adjusted and buckled the helmet must be level on your head and you should not be able to pull it off no matter how hard you try.

If you have six more minutes, please read inside!

WHEN SHOULD YOU REPLACE A HELMET?

Replace any helmet when you crash in it. Impact damages the foam. The helmet is less protective but the damage may not be visible. The helmet softens impact, so you may not even be aware that your head hit. Helmets also age in normal use, and manufacturers usually recommend replacement after five years. Soft-shell helmets collect dents and nicks not visible under a thin cloth or plastic cover. Replace any helmet immediately when it is crashed, or if it is damaged by solvents. Replace the buckle if it cracks or if any piece of it breaks off.

CHILDREN'S HELMETS

A child's head needs protection, but a young child's neck muscles may not be able to support the weight of a helmet. If there is any doubt, take child and helmet to a pediatrician for advice. The light weight of an soft shell helmet makes sense for children. A child's helmet needs ventilation, since the foam holds heat in. Children's heads vary a lot in shape and size, so pay careful attention to fit. The helmet should cover as much of the child's head as possible, sit level, and be secure on the head once the strap is fastened. As with adult helmets, look for the green Snell sticker.

THE BICYCLE HELMET SAFETY INSTITUTE

BHSI is the helmet testing and advocacy program of the Washington Area Bicyclist Association (WABA). BHSI is located at 4611 Seventh Street South, Arlington, VA 22204-1419, telephone (703) 486-0100 (voice or fax). We produce this pamphlet and provide general and technical helmet information. WABA is a local non-profit advocacy organization established in 1972 to improve bicycling conditions in the Washington, D.C. area and to encourage the use of bicycles for transportation. This pamphlet was produced with donations from those who read it earlier. We welcome your tax-deductible donation to make it available to the next rider who will need it.

March 1990

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A CONSUMER'S GUIDE TO BICYCLE HELMETS

Compiled by the Bicycle Helmet Safety Institute

A program of the Washington Area Bicyclist Association

Reprinted by The Oregon Traffic Safety Commission
**THE SIX MINUTE ANALYSIS**

**Need One? Yes!!**

Experienced, careful bicycle riders crash every 4,500 miles on the average. Nobody expects to fall, but in time you will too. When you do you must have head protection, since 75% of the 1,000 to 1,400 annual deaths from bicycle crashes in the U.S. are due to head injury. Road rash and broken bones heal; scrambled brains may not. There are other benefits. Car drivers see you better and give you more respect. But the purpose of a helmet is to prevent brain damage in a very hard impact.

**What to Look For**

A bicycle helmet reduces the peak energy from an extreme impact to prevent brain injury. This requires a layer of stiff, non-springy foam to cushion the blow by crushing slowly. Nearly all good bicycle and motorcycle helmets do this with expanded polystyrene (EPS), a stiffer version of the white picnic cooler foam used to protect eggs and stereo equipment. Spongy foam is added inside for comfort and better fit, but does not absorb crash energy. A new material, expanded polypropylene (EPP), was introduced in 1989. We do not have test results yet on helmets using it.

The helmet must stay on your head even when you hit more than once -- usually a car first, and then the road. So the helmet needs a strong strap, normally made of nylon. The fastener must be equally tough. Look for D-rings or a top quality buckle which cannot be jiggled open or ruined by bending a retaining tab. The helmet should sit level on your head and cover as much as possible. Above all, with the strap fastened you should not be able to get the helmet off your head by any combination of pulling and twisting. Keep the strap comfortably snug when riding.

Finally, the most protective helmets have a hard outer shell to spread impact energy if you hit a sharp object. The shell skids easily to prevent catching on rough pavement, which could make your sudden stop even worse or jerk your neck. The shell also holds the polystyrene liner together after the first hit, and protects the softer liner from damage by solvents or daily wear and tear.

Some models have no shell, but are made entirely of foam. Others have a very thin plastic shell, but they belong in the soft shell category unless the shell is rigid in an impact. Soft shells hold up reasonably well in daily use and some of them are very protective. They need reinforcement or a tough skin to hold together for a second impact. Soft shell helmets should appeal mostly to those who have a real need for the lightest possible equipment. They are also good for young children whose developing neck muscles need a lighter helmet.

**Performance Standards -- Snell or ANSI**

There are two recognized U.S. performance standards for bicycle helmets. The best bicycle helmets give superior protection and meet the Snell Memorial Foundation standard. They are listed in the one minute summary. Others may only pass the American National Standards Institute ANSI Z90.4 standard, which is much easier to meet than the Snell standard. Do not buy a helmet which does not at least meet the ANSI standard. Look for a standards sticker inside. The Snell sticker is reproduced below. It is green.

**Comfort Requirements**

Coolness, ventilation, fit and sweat control are critical comfort needs. Air flow over the head determines coolness, so check the vents carefully. Large front vents usually provide better air flow. Sweat control requires a brow pad or separate sweatband. Snug fit with no chafing ensures correct position on the head when you crash. Surprisingly, weight is less important.

Riders easily adjust to the weight of hard shell helmets, and soft shell helmets are even lighter.

**Special Problems**

Bald riders should avoid helmets with big vents on top, or be ready for some funny tan lines. Odd-shaped heads require more fiddling with fitting pads. Exceptionally large heads are hard to fit. Try some of the Snell-certified helmets in their largest size or write to us for more information. Decals and paint can attack helmet materials, so check with the manufacturer before applying them.

**PRICES AND WHERE TO BUY**

Helmets are available in bicycle shops for $25 and up. A good shop offers valuable help in fitting, and fit is important for safety. Chain stores or mail order from magazine ads may be less expensive if you already know what you need. Wherever you buy, helmets are cheap for the benefit you get, often costing less than a jersey or cyclometer. Do not wait for a sale. Cost is no excuse to delay. Your brain is priceless!

**HOW TO BUY**

When you pick up a helmet, look first for a Snell sticker inside and a bright color on the outside. Put it on, adjust the straps, and try hard to tear it off. Wear it for 30 minutes to see if fit problems develop. Look for a brow pad or separate sweatband. Snug fit with no chafing ensures correct position on the head when you crash. Surprisingly, weight is less important.

Riders easily adjust to the weight of hard shell helmets, and soft shell helmets are even lighter.
SECTION 10.4
ORS 366.514
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 290.100, to be held for not more than 10 years, and to be expended for the purposes required or permitted by this section.
   (c) For purposes of computing amounts expended during a fiscal year under this subsection, the department, a city or county may record the money as expended:
      (A) On the date actual construction of the facility is commenced if the facility is constructed by the city, county or department itself; or
      (B) On the date a contract for the construction of the facilities is entered with a private contractor or with any other governmental body.

(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 810.200, 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 non-motorized 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. [1971 c.676 §1; 1979 c.523 §1; 1983 c.19 §1; 1983 c.328 §191]

*Attorney General of Oregon interpreted 1980 constitutional amendment to include only bikeways within public right-of-way. Refer to Section 9.2, page 9-5.