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CLACKAMAS COUNTY

BICYCLE MASTER PLAN

March 25, 1996

CLACKAMAS COUNTY
Department of Transportation and Development
Tom VanderZanden, Director
Project and Policy Development Division
Norm Scott, Director
902 Abernethy Road
Oregon City, OR 97045

265 238

CREDITS

Citizen Advisory Committee

Claudia Andrews
Bud Boyer
Dwayne Foley
Sally Harbert
Bob Schroeder
Traci Bohna
Sandy Carter
Kathy Gorham
Thomas Ruedy
Dick Weber

Technical Advisory Committee

Maggie Collins
City of Milwaukie

Jonathan Block
City of Gladstone

Bill Barber of
Metro

Tamera DeRidder
City of Sandy

Ron Bunch of the
City of Lake Oswego

Rebecca Smith
City of West Linn

Debbie Bischoff
City of Milwaukie

Henry MacKenroth
City of Oregon City

Joe Marek
Traffic Engineer
Clackamas County

Dave Poese
Planner
Clackamas County

Ron Skidmore
Transportation Planner
Clackamas County

Norm Scott
Planning & Project Development Director
Clackamas County

Dave Phillips
Road and Environmental Maintenance Manager
Clackamas County

Clackamas County Board of Commissioners

Judy Hammerstad, Chair
Darlene Hooley, Commissioner
Ed Lindquist, Commissioner

Project Staff

April Siebenaler
Ron Skidmore
Greg Fritts
Dick Vaningen
Ken Fischer
Ron Weinman

Graphics

Randal Bays
Kristen Stallman
Dave Weisel

This project was partially funded by a grant from the Transportation and Growth Management (TGM) Program, a Joint Program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. TGM grants rely on federal Intermodal Surface Transportation Efficiency Act and Oregon Lottery Funds.

The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

Funding was also provided by
an Oregon Department of Transportation Bicycle and Pedestrian Program Grant,
and
the Clackamas County Department of Transportation and Development

CONTENTS

Tables and Maps

Appendices

Chapter 1
INTRODUCTION

PURPOSE

This document provides a comprehensive assessment of bicycle transportation in Clackamas County. It proposes a County-wide bicycle network and the tasks necessary to establish bicycling as a viable mode of transportation.

This plan will become the bicycle element of the County's Transportation System Plan. It will update the County's Comprehensive Plan and portions of the plan will be included in the County's Capital Improvements Plan. These plans provide policy, planning, and implementation direction for bicycle transportation in unincorporated Clackamas County.

CHAPTER SUMMARY

Chapter 2 describes Clackamas County's current Pedestrian and Bikeway Committee and Bike and Pedway Program. It also identifies the existing conditions of bikeways throughout the County.

Chapter 3 outlines the vision, goals, objectives and strategies that will guide bicycle planning in the County.

Chapters 4-8 provide a detailed discussion of the goals, objectives and strategies outlined in chapter 3. "Action" items are highlighted to assist in implementation. They outline some of the more important things that need to be done, and who is responsible for each "Action", in order to achieve the plan's vision.

BACKGROUND

Bicycling provides a low-cost, energy efficient means of transportation. Bicycling's benefits to our community include reduced traffic congestion, less air and noise pollution, less wear and tear on our roads, lower energy consumption, and the obvious health benefits.

It is estimated that 131 million Americans regularly bicycle or walk for exercise, sport, recreation, and relaxation. Nearly half of American adults ride bicycles occasionally[1]. While recreational cycling has been gaining steadily in popularity, bicycling as a form of transportation is growing more slowly. Deterrents to its use are still great. Even if bicycling is considered as an option, many trip and destination barriers still prevent bicycle use as transportation from reaching its full potential.

One of the biggest obstacles to bicycle use is the lack of adequate and safe bikeways. Several studies have indicated that if adequate bicycle facilities were provided bicycle use would increase greatly. "A recent Harris Poll showed that while five percent of respondents currently walk or bicycle as their primary means of transportation, two-and-a-half times this number would prefer to meet their transportation needs by walking or bicycling if better facilities were available."[2] Data collected in Clackamas County on arterial and collector roadways shows a doubling of bicycle travel with the presence of on-road bikeways.

The Federal Highway Administration (FHWA) reported similar findings in Case Study No. 1 of the National Biking and Walking Study. University towns tended to have higher bicycling rates; if they were excluded from consideration, cities with more bikeways per roadway mile experienced higher bicycle commuting rates. The presence of on-road bikeways also significantly increases bicycle commuting rates.

The current share of automobile trips which could potentially be accomplished by bicycle is greater than 60 percent. According to an National Personal Transportation Survey Urban Travel Patterns Study (FHWA 1994), more than a quarter of all travel trips are one mile or less, 40 percent are two miles or less, almost half are three miles or less and two-thirds are five miles or less. For short trips bicycling provides a convenient alternative to the automobile. Bicycle trips five three miles or less can often be accomplished as quickly or more quickly by bicycle than by automobile.

More importantly, bicycling provides a means of transportation for a large segment of the population which does not have access to an automobile. Approximately 16% of Oregon's population above the age of 18 does not have a valid driver's license, and 25% of Oregon's population above the age of 7 can not drive or does not have access to an automobile.[3] The young,

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[1] "The National Bicycling and Walking Study, Final Report," U.S. Department of Transportation, Federal Highway Administration

[2] "The National Bicycling and Walking Study, Final Report," U.S. Department of Transportation, Federal Highway Administration, p. VII

[3] "Oregon Drivers," Oregon Department of Transportation, Department of Motor Vehicles, 1991

the elderly, the disabled and the poor are often limited in their transportation options. The current design of the transportation system and land use patterns limit their options and consequently their ability to fully participate in the life of the community.

Improving our transportation system for bicycles will provide a viable transportation alternative to the automobile while improving our community's livability by decreasing air pollution, noise pollution, and traffic congestion, and increasing our transportation mobility.

PUBLIC AND INTERAGENCY INVOLVEMENT

The preparation of this plan was coordinated with similar work progressing in other counties and cities in the Portland region. In policy and bikeway design the County has followed the lead provided by the State of Oregon with its adoption of the "Oregon Bicycle and Pedestrian Plan". Although each local jurisdiction is engaged in Transportation System Planning work, each is at a different point along the path of plan preparation and adoption. The policy formulation and mapping of future bikeways in this plan agree, as much as possible, with neighboring jurisdictions. As each city and county completes its bike plan, the County will strive to maintain that coordination. As Metro completes its bikeway planning process, Clackamas County will continue to coordinate with regional bikeways.

Public involvement has been an integral part of this planning process. The Clackamas County Pedestrian and Bikeway Advisory Committee, acting as the Citizen's Advisory Committee for this plan, has overseen and contributed to its development. The committee has met once and at times twice a month throughout the planning process to provide guidance to staff. The monthly meetings have corresponded to the committee's regular monthly meeting time which is open to and often visited by the public. This has allowed for additional citizen input throughout the planning process.

Two larger public meetings have also been held. On October 12, 1994, the bicycle planning process was initiated at the Clackamas County Soft Traffic Open House. Attended by over 30 citizens from throughout the County, the Open House provided an open forum for comments and questions on bicycle issues by the public. Specific feedback was requested on where people bike for recreation and commuting, and where improvements were needed for bicyclists. Also provided for citizen feedback was a draft copy of the plan's goals and objectives.

The second public meeting was held March 15, 1995. This meeting was attended by fewer people, approximately ten citizens. The comments

received however proved important. Questions posed at the meeting included: where do you bike; where you would bicycle if you could; what is preventing you from bicycling there now; what would help you bike more often?

~~One more public meeting is currently planned to be held this summer to present the draft plan and to allow for public comment on the document.~~ The final draft plan is being presented to interested Citizen Planning Organizations and other interested groups. An informational slide show is presented followed by a questions and answers.

THE LAWS RELATING TO BICYCLING

Bicycles, according to Oregon State law, are considered vehicles, and as such, must follow the same rules of the road as motor vehicles with some exceptions. Bicycles are allowed on all public roads in Oregon except urban freeways.

Over the last 20 years all levels of government have become more supportive of bicycling. Legislation now exists on the federal and state levels integrating bicycling into a multi-modal transportation system. Metro and local jurisdictions are now planning for bicycle travel as a part of the transportation system plans.

Federal

The Intermodal Surface Transportation Efficiency Act (ISTEA) was passed by Congress in 1991. It recognizes bicycling as a viable mode of transportation and provides opportunities to increase consideration for bicycling within the National Intermodal Transportation System. The following paragraph states the vision of ISTEA.

> *It is the policy of the United States to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner.*

ISTEA requires that each State appoint a bicycle and pedestrian coordinator. It also provides funding opportunities through the National Highway System, Surface Transportation Program Funds, including Transportation Enhancement Activities allocations, Congestion Mitigation and Air Quality Improvement Program Funds, Scenic Byways Program Funds, Federal Lands

Highway Funds and the National Recreational Trails Fund. Bicycle safety is also a priority, subject to expedited approval for Section 402 Highway Safety Program Funding. All this means greater opportunities for providing more bikeways and a more balanced transportation system throughout Clackamas County.

State

1971: Oregon Revised Statutes 366.514: USE OF HIGHWAY FUNDS FOR FOOTPATHS AND BICYCLE TRAILS. Often referred to as the "Oregon Bike Bill," this law requires that bikeways and walkways be provided on road construction, reconstruction, or relocation projects and enables road funds to be used for this purpose.

The law also requires the use of road funds for maintenance of bikeways and to provide walkways and bikeways independent of road construction. This is frequently referred to as the 1% minimum for bikeways and walkways. The intent of the law was not to limit the amount spent on bikeways and walkways to 1% but to require reasonable amounts of road fund dollars to be expended on bikeways and walkways.

The 1980 Constitutional Amendment (Article IX, section 3a) now prohibits the expenditure of road funds outside the road right-of-way.

1974: Statewide Planning Goals. The Land Conservation and Development Commission established 19 statewide planning goals for preserving natural resources, farmland, and livability of the state. The County's Comprehensive Plan and all other plans must comply with these goals.

Goal 12: To provide and encourage a safe, convenient and economic transportation system. It states that a transportation plan shall: consider all modes of transportation, one of which is bicycling; consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; minimize adverse social, economic, and environmental impacts and costs; conserve energy; and facilitate the flow of goods and services so as to strengthen the local and regional economy.

1991: OAR 660-12: The Transportation Planning Rule. LCDC adopted the Transportation Planning Rule to implement Goal 12 of the Statewide Planning Goals. It requires the development of a balanced transportation system and mandates the reduced reliance on any one mode of transportation. Metro and local jurisdictions must now include a bicycle element in their Transportation System Plans.

265 247

1991: Oregon Benchmarks. The Oregon Progress Board released the first set of benchmarks in 1991 and Governor Barbara Roberts adopted them "as a tool for stating concrete objectives, setting program and budget priorities, and measuring performance."

The benchmark that applies directly to this plan is:

31b. Percentage of streets in urban areas that have adequate pedestrian and bicycle facilities.

Other benchmarks also relating to this plan are:

20. Percentage of new development where occupants are within 1/2 mile of a mix of stores and services, transit, parks and services, and open spaces.

21. Percentage of existing development where occupants are within 1/2 mile of a mix of stores and services, transit, parks and open spaces.

32. Percentage of Oregonians who commute to and from work during peak hours by means other than a single-occupancy vehicle.

33. Vehicle miles traveled per capita in Oregon metropolitan areas (per year).

1995: The Bicycle and Pedestrian Plan. The State has adopted its Bicycle and Pedestrian Plan which includes policies, standards, and consideration of maintenance and safety of bikeways. The design standards from this plan will be followed by the County.

County

Since the early 70's, the County's Zoning and Development Ordinance (ZDO) has required bikeways in all development where indicated by the Clackamas County Bikeway Plan. In 1974, the County adopted a Bikeway Plan.

Since then the County's Comprehensive Plan has supported construction of bikeways along newly constructed, reconstructed, or relocated roads, and along existing streets in accordance with adopted plans. The County's Comprehensive Plan adopted in 1980 (and subsequently acknowledged by the Land Conservation and Development Commission, [LCDC]) provided greater detail with regard to bikeways along specific roads, as did the amended Comprehensive Plans of 1989 and 1992.

These long-standing policies in the Comprehensive Plan and Zoning and Development Ordinance are responsible for creating the pattern seen on the Existing Bikeway Maps 1 and 2.

Oregon's Transportation Planning Rule (TPR) adopted in 1991 requires that cities' and counties' Transportation System Plannings (TSP) ~~work be done, to~~ create a balanced transportation system, and be included in local Comprehensive Plans by May 8, 1997. This Bicycle Plan is part of Clackamas County's TSP, and it is expected that parts of it will be adopted into the Comprehensive Plan.

In September, 1994 the Zoning and Development Ordinance (ZDO) was amended to implement concepts contained in the State's Transportation Planning Rule. These included provisions for new development to supply bicycle parking. Bikeways are required in the reconstruction and new construction of any street if a bikeway is indicated in the County Bikeway Plan. Bikeways shall be considered in the reconstruction or new construction of any other arterial or collector. Bikeway improvement standards shall be those of ODOT. Accessways for pedestrians and bicyclists may be required in new development.

The County's ZDO complies with the policies of the TPR with regard to bikeways. As policies in this Bicycle Plan are debated and considered in conjunction with the needs of pedestrians, autos, trucks, and the desire for "skinny streets", it is possible that additional changes will be necessary in the County's ZDO. This would reestablish the traditional order of planning prior to implementation through zoning.

Chapter 2
COUNTY OVERVIEW

EXISTING COMMITTEES AND PROGRAMS

Pedestrian and Bikeway Advisory Committee

The Clackamas County Pedestrian and Bikeway Advisory Committee was established in 1990 and serves as an advisory body to County staff and the Board of Commissioners. The committee has 10 seats with broad geographic representation. The committee meets monthly and more often as needed.

The committee's mission is to promote and encourage safe bicycling and walking as a significant means of transportation in Clackamas County. Its goals include the development of a coordinated system of safe and convenient bikeways and walkways, the stimulation of public awareness, and the examination of current and future financing options and budgeting strategies for bicycle and pedestrian projects.

As an Advisor to the Board of County Commissioners, the committee makes recommendations to both the County staff and the County Commissioners on all matters concerning the planning, implementation, and maintenance of a comprehensive bicycle system. They also provide recommendations on project funding.

Bike and Pedway Program

In 1993, the County Commissioners established the Bike and Pedway Program, committing a portion of the County road fund to pay for bike and pedestrian improvements. One full-time staff person oversees the development and construction of all bikeways and walkways. The first priority of the Bike and Pedway Program is to improve access and safety in areas near schools.

265 250

EXISTING CONDITIONS

Bikeways

Maps 1 and 2 show the existing bikeways within Clackamas County. A bikeway is any road, path, or way which in some manner is open to bicycle travel, whether it is designated for the exclusive use of bicycles or are shared with other transportation modes. As can be seen on the map, in the urban area of the County, bikeways provide fairly complete north/south connections. These bikeways include bicycle lanes on River Road, Oatfield Road, Webster Road, and the State's I-205 Bike Path and the bike lanes on Hwy 43, which the State is currently working on to complete from near Oswego Creek through West Linn. Notable exceptions to the north/south grid are McLoughlin Boulevard, 82nd Avenue and connections north through Lake Oswego, Milwaukie and Happy Valley into Portland. Links are also missing from these main north/south connectors into Oregon City. Three connections into Portland currently exist. They include the Terwilliger multi-use path, 17th Avenue and the I-205 multi-use path.

The County's urban area is deficient in east/west bikeway connections. Connections have begun to be made east of the Willamette River and west of I-205 but are not yet complete. These connections should include Courtney Avenue, Oak Grove Boulevard, Concord Road, Roethe Road, Jennings Road, Hill Road, Thiessen Road, Johnson/Lake Road, Clackamas Road, and Strawberry Lane. Bike lanes are planned to be built by 1997 on Courtney Avenue, Concord Road, Hill Road, and Strawberry Lane. Even with these additional bikeways, connections east/west across the urban area will still be sparse.

East/west connections east of I-205 are also limited. The two main roads carrying traffic into the urban area of the County, Sunnyside Road and Hwy 212/224, have wide shoulders along portions of them. Due to the high volume of automobile traffic, high speeds along these road, and few bikeway connections to other roads and across I-205 bicycle travel on these road is currently limited.

Bikeways providing access across I-205 are very limited. Bikeways currently exist on Johnson Creek Boulevard, 82nd Drive in Gladstone, and Hwy 213. However, all of these bikeways include obstacles to bicycle travel such as high speed automobiles entering or exiting the freeway. Of particular concern are free right hand turns off freeway ramps from I-205. These pose extreme hazards for cyclists. Motorists traveling at high rates of speed have little time to react to cyclists in their path, and bicyclists, who are traveling at much slower speeds, are not able to maneuver out of the way quickly. Safe bikeways across I-205 at various points need to be developed.

Map 1

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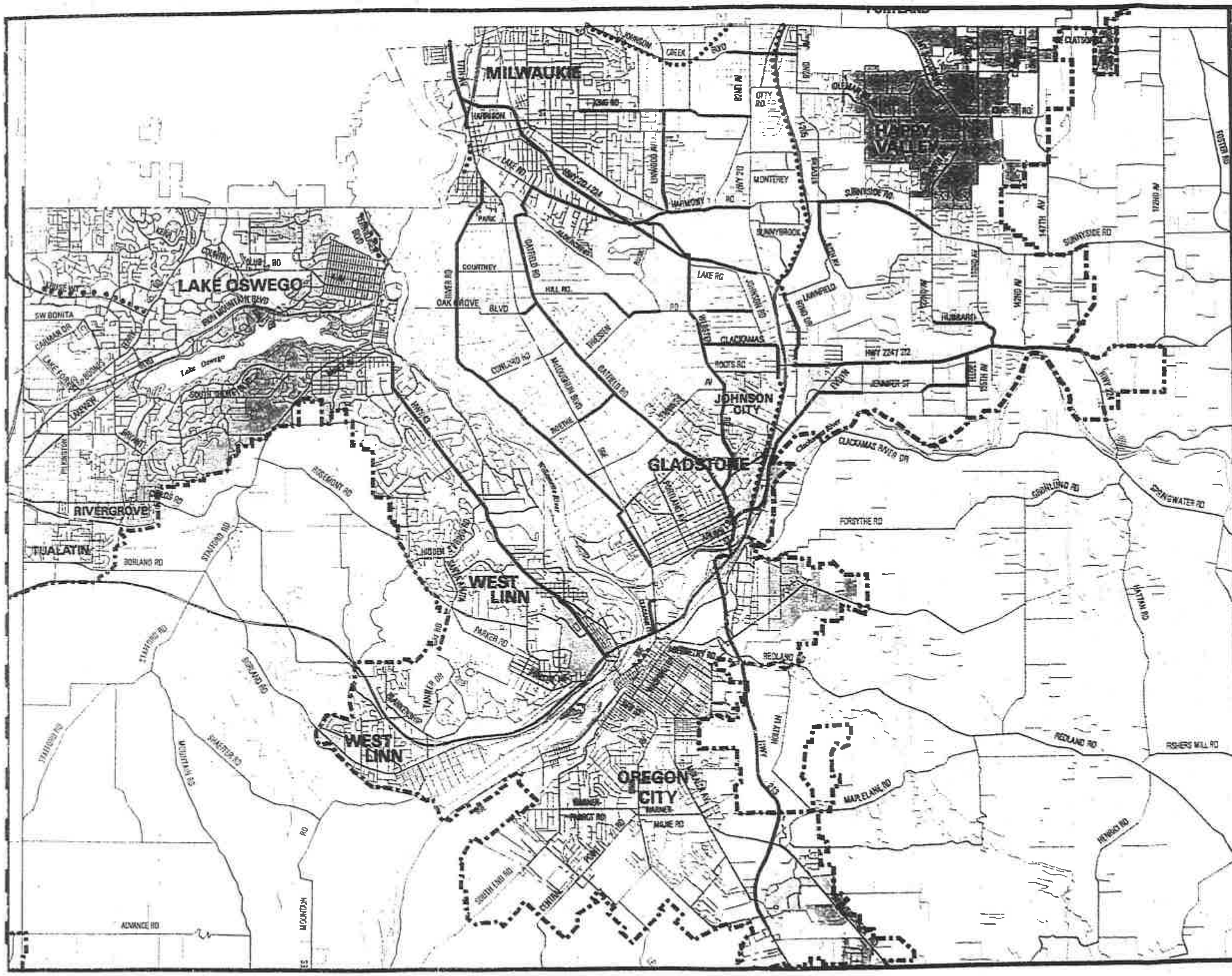
Existing Bikeway Network
Urban Area



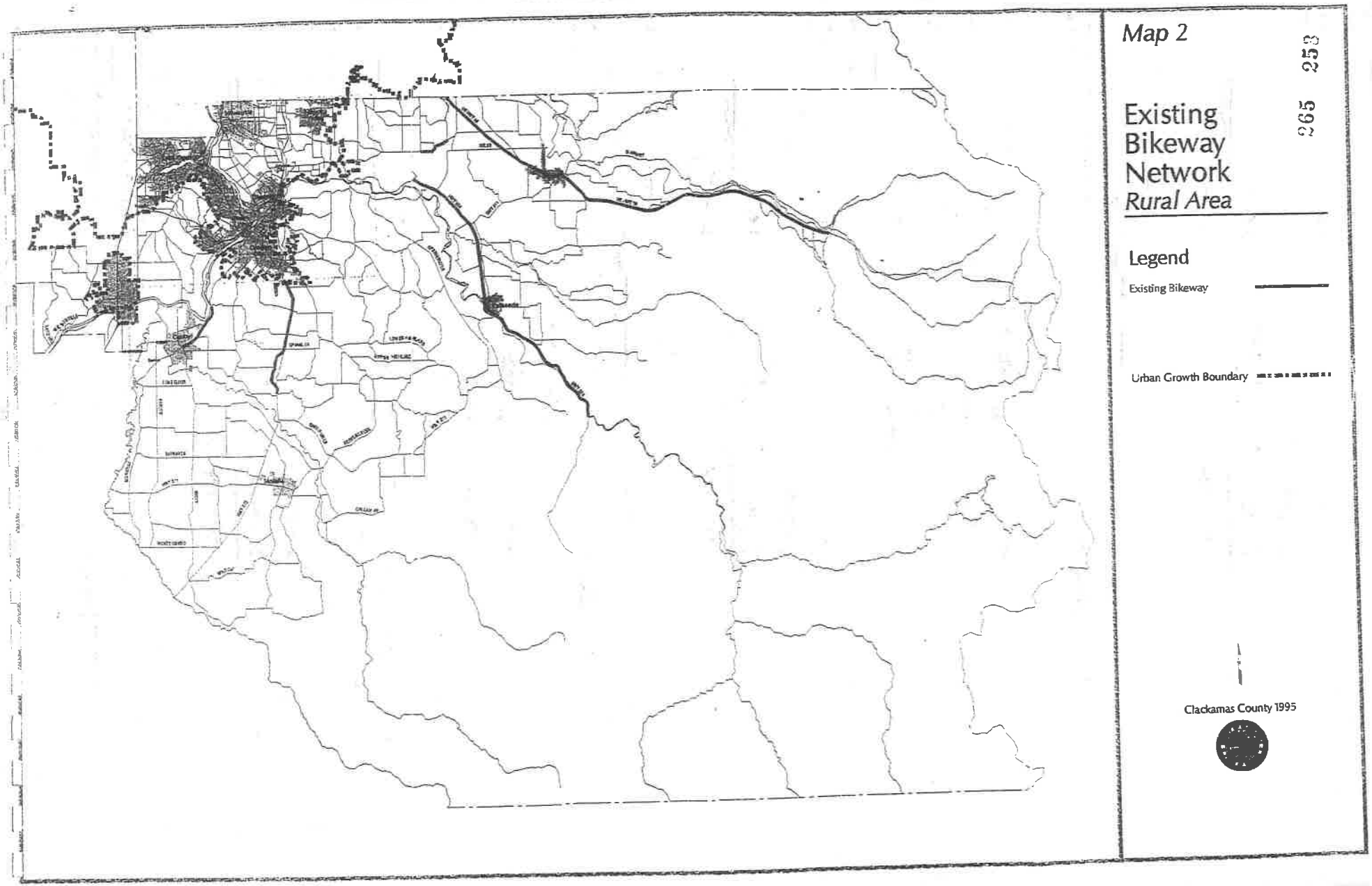
Legend

Existing Bikeway

Existing Multi-use Trail

Urban Growth Boundary

Scale: 1" = 1 mile
Clackamas County 1995



Map 2

265 253

Existing Bikeway Network
Rural Area

Legend

Existing Bikeway

Urban Growth Boundary

Clackamas County 1995

The bike lanes to be built on Strawberry Lane will not include widening the narrow I-205 overpass. This narrow link in the network between Webster Road and 82nd Drive is shared by all modes; bicyclists, pedestrians, Tri-met buses, and motorists, in two twelve-foot travel lanes.

The unincorporated urban area east of I-205 has no bikeways except for a few east/west connections including a portion of Sunnyside Road, Hwy 224/212 from I-205 to Armstrong Circle, and Hubbard Road between 122nd and Hwy 224/212. This rapidly growing area experiences very heavy traffic flow, particularly on Sunnyside Road and Hwy 224/212. The area is also hilly, making for challenging cycling. North/south bikeways through this area are nonexistent.

The area between Tualatin and Wilsonville lacks any sort of connective bikeway. Important roads providing these connections include Borland Road between West Linn and Tualatin, and Stafford Road connecting Wilsonville to Borland Road.

The South County area, with a more dispersed population, is also lacking in bikeways. Many of the roads in this area are very narrow. There is a need in this area to widen roads and provide shoulders not only for bicycles, but also for increased safety for automobiles. As the population in the outlying areas increases, shoulders will become more important. The population of the County's rural areas to the east and southeast is dispersed into small pockets. Bicycle travel between these areas tends to be recreational. Attractions in the area include Mt. Hood, Timothy Lake, and the Mt. Hood National Forest. The two main roads providing connections between the urban area and these rural areas are Hwy 26 and Hwy 224. Hwy 26 heads east from the City of Sandy toward Mt. Hood. Hwy 224 follows the Clackamas River southeast through the County toward Timothy Lake. The Mt. Hood National Forest, which covers the eastern third of the County, has many miles of trails used by mountain bicyclists. Mt. Hood Ski Bowl supports a seasonal bicycle shop in the summertime to serve the growing mountain biking industry.

Recreational Versus Commuter/Utility Routes

Existing bike lanes in the urban area of the County are used primarily for commuting and utility trips. High automobile speeds, high volume traffic, and the lack of east/west bike lane connections, limit their use for recreational purposes. Recreational cyclists like to travel loops. The lack of east/west bikeway connections limits potential loop connections with existing bike lanes. However, portions of River Road and to a more limited extent Oatfield and Webster, serve some recreational purposes.

The I-205 pathway is also used for recreational purposes. New bicyclists and some recreational cyclists prefer to be completely separated from automobile traffic. While the path's lack of connections to destinations limits its use for utility trips, it does serve as a connector for commuting bicyclists.

The rural areas of the County have a higher level of recreational use. Many roads have low volume traffic and beautiful scenery. Popular recreational destinations such as flower farms, parks and camping areas draw recreational cyclists into the area. Commuter and utility bicycling in this area is more limited due to the lower population and employment density.

The Springwater Corridor, Molalla River Pathway and the Portland Traction Line are all planned multi-use trails which will provide important non-motorized corridor access through Clackamas County. Both recreational and commuting bicyclists utilize these types of linear multi-use accessways. Recreational cyclists, particularly less experienced cyclists, utilize them to sharpen their bicycling skills away from motorized transportation. Commuters use them for a more relaxed ride away from high speed roadways.

Bicycle Parking

Bicycle parking in the unincorporated portions of the County is severely lacking. Major destination areas such as the Town Center, and businesses along McLoughlin, Sunnyside and 82nd Avenue have either no bicycle parking or substandard bicycle parking. Little of the existing parking is protected from weather.

No bike storage lockers exist at Tri-Met park and ride lots or the transfer stations within the County.

CITY BICYCLE PLANNING STATUS

The cities of Wilsonville, Tualatin, Lake Oswego, West Linn, Oregon City, Gladstone, Milwaukie, and Happy Valley have each negotiated Urban Growth Management Agreements (UGMAs) with Clackamas County. Each will complete its own Transportation System Plan, including a bicycle element for land within its boundary. In addition, Lake Oswego, West Linn, Oregon City and Milwaukie will plan for bicycle facilities within an unincorporated area assigned to it for "active planning" by their UGMA.

The City of Wilsonville is the only city in the County which currently has an adopted bicycle master plan. Oregon City's bicycle plan is now in the

adoption process. The City of Canby has completed the bicycle element of its Transportation System Plan (TSP) which is currently adopted as an interim plan. The County will continue to follow Canby's process as they approach final adoption. Milwaukie, Gladstone, and Sandy are currently completing bicycle plans as part of their Transportation System Plans. Molalla, Estacada, Lake Oswego, Happy Valley, and West Linn will be updating their Transportation System Plans to include bicycle elements by May 8, 1997.

Coordination with the cities and all public agencies takes place on various levels.

- The Clackamas County Transportation Coordinating Committee meets monthly and is attended by senior staff from all public agencies responsible for transportation planning in Clackamas County. They have been kept apprised of the County's bicycle master planning process and serve as liasions to their agencies.
- Draft plans are circulated between staff members of the various agencies for comments. All agencies have received copies of the Draft Bicycle Plan.
- County staff members occasionally attend public meetings hosted by neighboring jurisdictions.
- Specific road construction or reconstruction projects are coordinated by staff members from all involved agencies serving on project level technical advisory committees.
- Specific bikeway projects are coordinated by County staff with all agencies involved.
- Metro's Regional Bicycle Program Work Team also fulfills a major role of coordination at the regional level.

Chapter 3
VISION, GOALS, OBJECTIVES, AND STRATEGIES

This section provides the vision, goals, objectives, and strategies that will be adopted by the Board of County Commissioners as part of the County's Comprehensive Plan.

VISION

Create an environment which encourages people to bicycle in a networked system that facilitates and promotes the enjoyment of bicycling as a safe and convenient transportation mode.

GOAL 1

Provide a County-wide safe and convenient network of accessible bikeways integrated with other transportation modes.

1:1 Objective: Provide a networked grid of bikeways connecting neighborhoods, transit stops, commercial areas, community centers, schools, parks, libraries, churches, day care centers, employment places, other major destinations, regional bikeways, and other transportation modes.

1:1:1 Strategy: Identify bikeway improvements necessary to ensure a direct and continuous network of bikeways on the County road system.

1:1:2 Strategy: Construct all bikeways designated in this Plan and any others proposed to be safe in accordance with the current Oregon Bicycle and Pedestrian Plan, and the American Association of State Highway and Transportation Officials (AASHTO) standards.

265 257

1:1:3 Strategy: Require that new development provide bikeway connections within and between adjacent developments to increase non-motorized mobility.

1:1:4 Strategy: Support the continuation of the "Bikes on Transit" program for all public transit routes.

1:1:5 Strategy: Promote grid-street development patterns to provide connections to the transportation system.

1:1:6 Strategy: Encourage plans to support compact, mixed land use development.

1:2 Objective: Provide more bikeways.

1:2:1 Strategy: Provide bikeways which to encourage a reduction in the number of motorized vehicle trips and increase bicycle usage.

1:2:2 Strategy: Work with the Oregon Department of Transportation, the Forest Service, Metro, Parks Districts, and City Parks Departments to achieve a safe and convenient off-road trail system connecting to the on-road bikeway network.

1:2:3 Strategy: Support acquisition and development of multi-use paths on abandoned public and private right-of-ways.

1:2:4 Strategy: Encourage increased bicycle access across the Willamette River.

1:3 Objective: Ensure funding for the construction of bikeways and supporting facilities necessary to complete the planned County Bicycle System in a timely manner.

1:3:1 Strategy: Support continuation of current (or equivalent) federal, state, and local funding mechanisms to construct County bicycle facilities.

1:3:2 Strategy: Develop dedicated funding sources to implement the Clackamas County Bicycle Plan.

1:3:3 Strategy: Provide bicycle facility improvements based on the priority system established in the plan with flexibility to allow for outside opportunities.

1:3:4 Strategy: Review dedicated funding sources every three years to ensure that funding is adequate to address improvement needs identified in the Clackamas County Bike Plan.

GOAL 2

Integrate bicycle facilities into all planning, design, and construction activities.

2:1 Objective: Adopt policies and design standards that provide for safe, convenient and enjoyable bikeways.

2:1:1 Strategy: Adopt roadway design standards which safely accommodate bicyclists on roads of all functional classes along both urban and rural roadways.

2:1:2 Strategy: Adopt standards to include bicycle-sensitive traffic control devices, appropriately identified with road markings and signage, in all signalized intersection improvement projects and new construction.

2:1:3 Strategy: Sign existing and new bikeways according the Oregon Department of Transportation Bicycle and Pedestrian Plan to indicate their intended use.

2:2 Objective: Encourage the provision of adequate trip end facilities.

2:2:1 Strategy: Provide bike lockers and/or properly designed and constructed bicycle racks or lockers at major destinations (i.e., business districts, parks, schools, libraries, retail/commercial areas) and major transit connections.

2:2:2 Strategy: Support the provision of appropriate supportive facilities and services for bicyclists, including showers, lockers, bike racks on buses, commuter centers, bike repair and maintenance information/clinics and secure bicycle parking.

2:3 **Objective:** Ensure a continuing, comprehensive, and cooperative planning process that provides for the efficient and timely implementation of the County Bicycle Plan.

2:3:1 Strategy: Promote the ongoing education of bicyclists' needs for all staff who plan, engineer, build, and inspect transportation facilities.

2:3:2 Strategy: Incorporate an inventory of needed bikeway improvements, prioritized according to the process developed in this Plan, into the annual County Transportation Improvement Program.

2:3:3 Strategy: Coordinate recommended bicycle system needs with roadway improvement projects to take advantage of cost-sharing opportunities.

2:3:4 Strategy: Coordinate the implementation of bikeways with neighboring jurisdictions and jurisdictions within the County.

GOAL 3

Maintain bikeways to ensure safety and encourage use.

3:1 **Objective:** Keep bikeways free of debris and in good repair in order to accommodate bicycling conveniently and safely.

3:1:1 Strategy: Integrate the maintenance of bikeways into all roadway maintenance activities.

3:1:2 Strategy: Develop routine maintenance standards and practices for on-road and off-road bikeways including traffic control devices.

3:1:3 Strategy: Respond promptly to reports by the public and others, of potentially unsafe conditions for bicyclists on County roads and bikeways.

3:1:4 Strategy: Promote the ongoing education of bikeway maintenance needs for all staff who maintain the transportation system.

3:1:5 Strategy: Support programs and volunteer community services that assist in maintaining the County Bicycle System.

3:1:6 Strategy: Coordinate utility installation/repair with maintenance of the County Bicycle System.

3:1:7 Strategy: Promote the education of utility companies and their repair personnel regarding bicyclist's needs through an informational pamphlet or appropriate materials.

3:1:8 Strategy: Enforce use of traffic control, safety devices during construction and maintenance activities.

GOAL 4

Increase the use of bicycles as a mode of transportation.

4:1 Objective: Provide information to assist and encourage people to use bicycles for transportation and recreation.

4:1:1 Strategy: Develop and implement a public information program to encourage individuals and businesses to use bicycles for transportation and recreation.

4:1:2 Strategy: Recognize bicycling as a means to achieve Transportation Demand Management (TDM) and achieve reduced reliance on single occupancy vehicles (SOVs).

4:1:3 Strategy: Encourage participation of citizens in, and coordinate with jurisdictions throughout the County, to promote a Bike To Work Week.

4:1:4 Strategy: Educate the public as to the benefits of bicycling including those benefits related to improving air quality, reducing energy consumption, reducing congestion, stimulating the economy, and promoting health and physical fitness.

4:1:5 Strategy: Regularly update the Clackamas County Bicycle Map.

4:2 Objective: Increase the effectiveness and extent of the County's Bike and Pedway Program.

4:2:1 Strategy: Continue to fund a full-time program Coordinator to administer the bicycle program and staff the Pedestrian and

Bikeway Advisory Committee.

4:2:2 Strategy: Ensure an opportunity for representative citizen involvement in the County bicycle planning process by sponsoring the County Pedestrian and Bikeway/cycle Advisory Committee as a forum for public input.

GOAL 5

Heighten the awareness of bicyclists, motorists and pedestrians of their rights and responsibilities for bicyclist's safety, and for sharing both on-road and off-road bikeways.

5:1 Objective: Implement bicycle safety education programs to improve bike handling skills, traffic skills, and observance of traffic laws, and to promote safety for bicyclists of all ages.

5:1:1 Strategy: Seek sources of funding and support in providing bicycle safety education and training.

5:1:2 Strategy: Develop and provide bicycle safety and education information for adults and children and encourage community organizations to participate in bicycle/traffic safety education.

5:1:3 Strategy: Coordinate with local jurisdictions and school districts in the County to establish a bicycle safety education program for elementary-school age children, offered on a regular basis which provides both classroom and on-bicycle training.

5:2 Objective: Increase security for bicycles and bicyclists.

5:2:1 Strategy: Encourage law enforcement agencies and neighborhood watch groups to emphasize the patrol of bike rack areas as part of their crime prevention efforts.

5:2:2 Strategy: Encourage the provision of street lighting to increase the visibility and personal security of bicyclists.

GOAL 6

Monitor and update the bicycle plan.

6:1 Objective: Provide the data collection, evaluation and review activities necessary to maintain and expand the programs established in this Plan and to respond to the changing needs of the bicycling public of Clackamas County.

6:1:1 Strategy: Update the bikeway inventory for the County on a tri-annual basis.

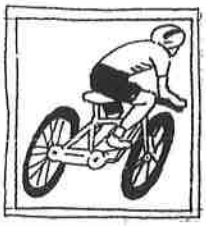
6:1:2 Strategy: Collect bicycle travel data for the County every two years to measure how an area or facility is actually being used.

6:1:3 Strategy: Review bicycle accident data in the project priorities evaluation of the Capital Improvement Plan.

6:1:4 Strategy: Review new land use development to determine impacts on plan priorities in the Capital Improvement Plan updates.

6:1:5 Strategy: Review annually the priorities in the Capital Improvement Plan.

6:1:6 Strategy: Review and revise as necessary the Bicycle Plan as a part of periodic review.



Chapter 4
RECOMMENDED BICYCLE NETWORK AND ITS IMPLEMENTATION

As an element of the Transportation System Plan, the bicycle plan strives to ensure a comprehensive look at the roadway system and roadway cross sections to provide a place for bikeways necessary for safe bicycling. This will increase the attractiveness of bicycling as a viable transportation option.

Three bikeway types are part of roadway cross sections. 1) Bike lanes - A portion of the roadway which has been designated by striping and pavement markings for the preferential or exclusive use of bicyclists. 2)Shared roadway - Bicyclists and motor vehicles share a travel lane. 3) Shoulder bikeways - Bicyclists travel on a paved shoulder. Multi-use paths are physically separated from motorized vehicle traffic by an open space or barrier and are for use by bicyclists, pedestrians, joggers, skaters, and other means of non-motorized transportation.

This section of the plan addresses each goal, objective, and strategy with a concrete program, set of facilities, or proposed ordinance language to achieve the vision.

GOAL 1

Provide a County-wide safe and convenient network of accessible bikeways integrated with other transportation modes.

THE BIKEWAY NETWORK

1:1 Objective: *Provide a networked grid of bikeways connecting neighborhoods, transit stops, commercial areas, community centers, schools, parks, libraries, churches, day care centers, employment places, other major destinations, regional bikeways, and other transportation modes.*

1:1:1 Strategy: *Identify bikeway improvements necessary to ensure a direct and continuous network of bikeways on the County road system.*

Existing bikeways are shown on Maps 1 and 2.

265 264

A network of planned bikeways meeting objective 1:1 is shown on Maps 3 and 4. This network was designed to comply with the Oregon "Bike Bill", Oregon Bicycle and Pedestrian Plan, and the Transportation Planning Rule. Section 1007.05 of the Zoning and Development Ordinance calls for the provision of bikeways as indicated by this map. This long range network was coordinated to include all bikeways proposed by jurisdictions within the County as of June 30, 1995.

Several jurisdictions have not yet completed their proposed bikeway systems. Their proposed bikeway networks will be included on this map as they are completed.

ACTION
The Planned Bikeway Network maps 3 and 4 should be adopted in the County's Comprehensive Plan in place of maps V-6 and V-7.

IMPLEMENTATION OF THE BIKEWAY NETWORK

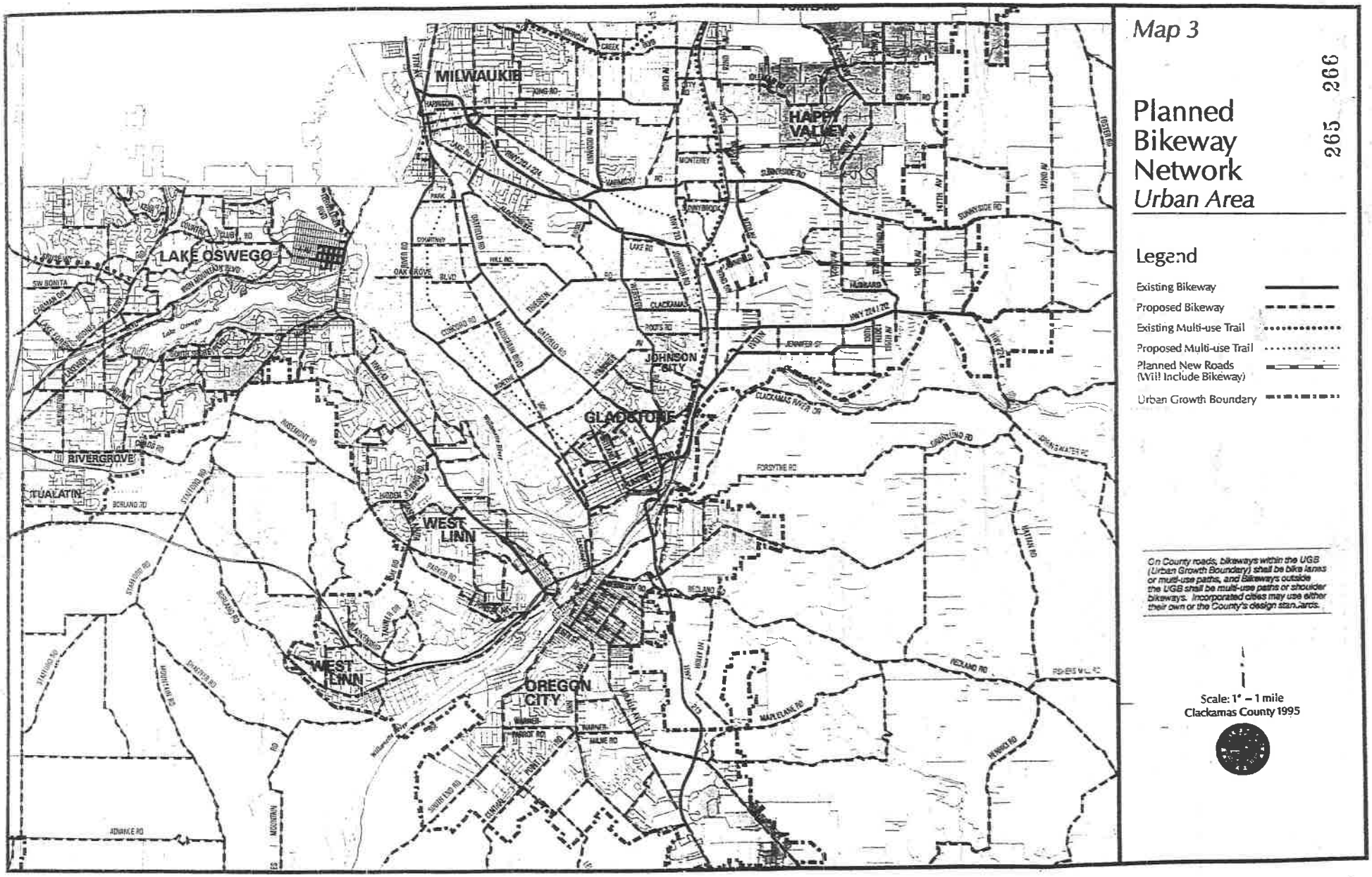
1:1:2 Strategy: *Construct all bikeways designated in this Plan and any others proposed to be safe in accordance with the current Oregon Bicycle and Pedestrian Plan, and the American Association of State Highway and Transportation Officials (AASHTO) standards.*

As is stated in section 1007.05 in the Zoning and Development Ordinance, the County will follow the bikeway design standards as specified by the current Oregon Bicycle and Pedestrian Plan.

Note: The East Sunnyside Village Plan has adopted design standards dealing with bikeways. It is the only exception area to the design standards identified in this plan. (See Sunnyside Village Plan for actual design standards.)

1:1:3 Strategy: *Require that new development provide bikeway connections within and between adjacent developments to increase non-motorized mobility.*

As stated in 1007.05 of the Zoning and Development Ordinance accessways for use by pedestrians and bicyclists shall be required when topography allows and when necessary to provide direct routes not otherwise provided by the road system. These connections are important to encourage and facilitate bicycle and pedestrian travel.



Map 3

Planned Bikeway Network

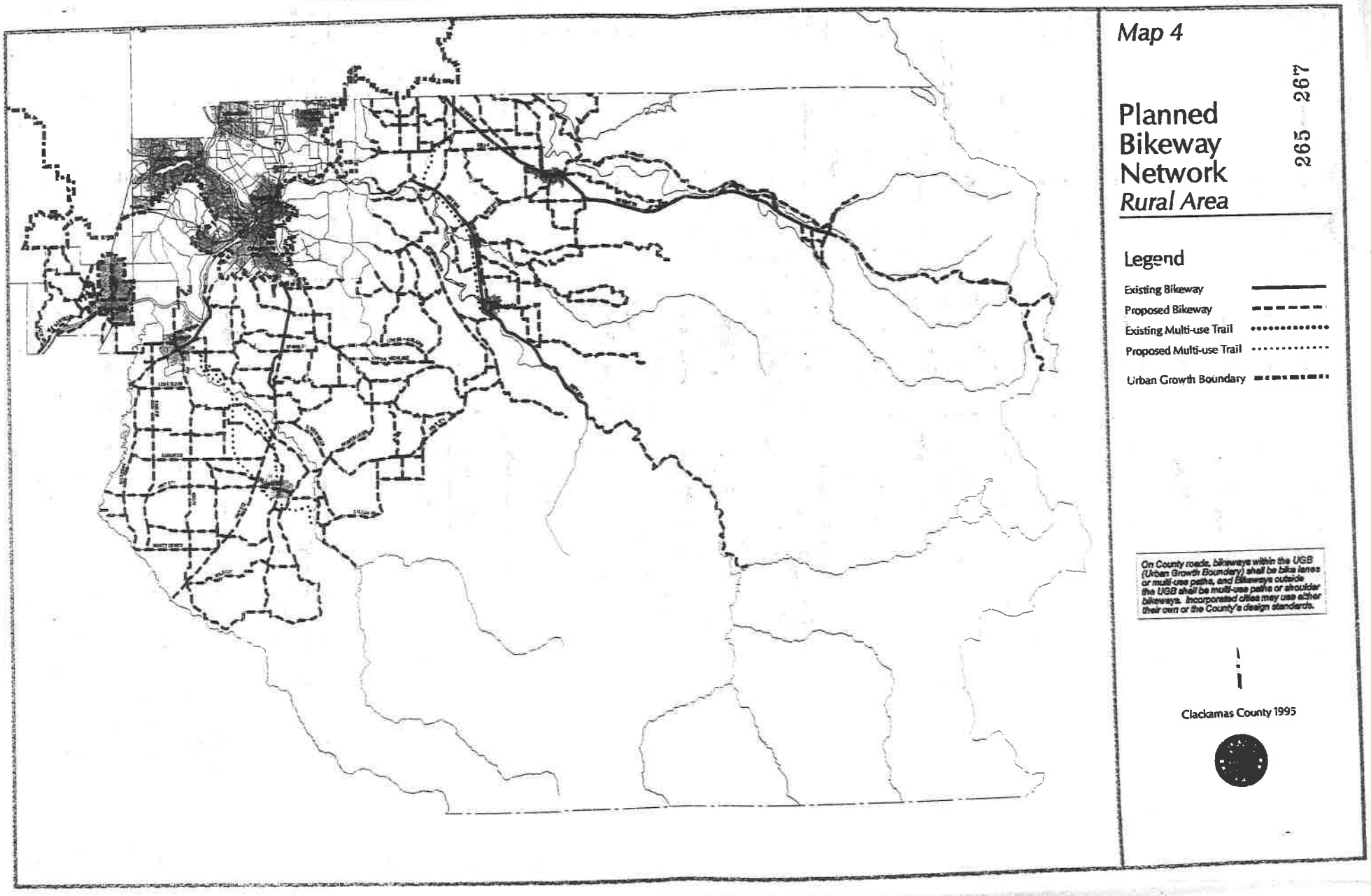
Urban Area

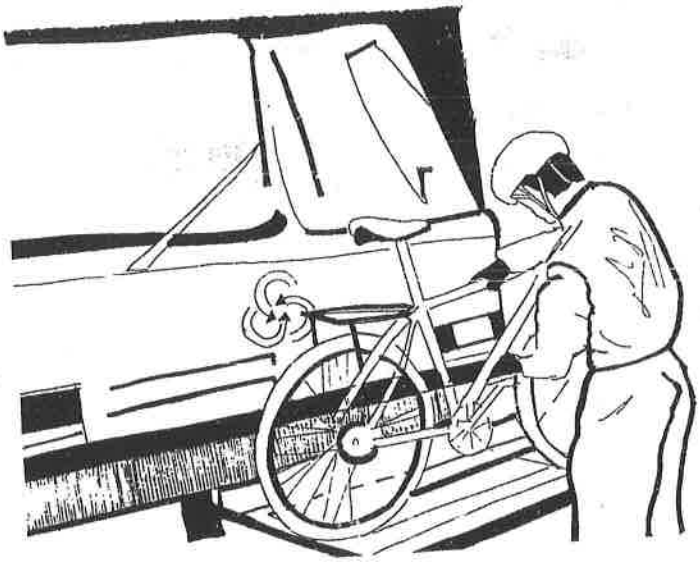
Legend

- Existing Bikeway
- Proposed Bikeway
- Existing Multi-use Trail
- Proposed Multi-use Trail
- Planned New Roads (Will Include Bikeway)
- Urban Growth Boundary

On County roads, bikeways within the UGB (Urban Growth Boundary) shall be bike lanes or multi-use paths, and Bikeways outside the UGB shall be multi-use paths or shoulder bikeways. Incorporated cities may use either their own or the County's design standards.

Scale: 1" = 1 mile
Clackamas County 1995


Map 4
Planned Bikeway Network
Rural Area
265 267
Legend
Existing Bikeway
Proposed Bikeway
Existing Multi-use Trail
Proposed Multi-use Trail
Urban Growth Boundary
On County roads, bikeways within the UGB (Urban Growth Boundary) shall be bike lanes or multi-use paths, and Bikeways outside the UGB shall be multi-use paths or shoulder bikeways. Incorporated cities may use either their own or the County's design standards.
Clackamas County 1995



1:1:4 Strategy: *Support the continuation of the "Bikes on Transit" program for all public transit routes.*

The "Bikes on Transit" program is an important part of public transit for all areas of the region outside the central city, and its continuation should be encouraged. The program helps to encourage bicycle travel by allowing bicyclists to extend the distance they wish to travel and to escape foul weather, darkness, and to navigate areas not conducive to bicycle travel.

ACTION
As opportunities arise, the County should coordinate with Tri-Met to promote the "Bikes on Transit" program. County events promoting and educating the public on bicycling, such as the 1994 Soft Traffic Open house, present such opportunities.

1:1:5 Strategy: *Promote grid-street development patterns to provide connections to the transportation system.*

1:1:6 Strategy: *Encourage plans to support compact, mixed land use development.*

Bicyclists prefer direct routes as provided by the road system when it is designed to have connectivity in a grid pattern or at least a pattern resembling a grid. If roadway connections are not provided at short intervals, short cuts consisting of accessways for bicycle and pedestrian travel are suitable alternatives. The County cannot institutionalize trespass, therefore accessways need to be dedicated during the platting of subdivisions and development of property, or otherwise acquired, to ensure direct routes on publicly owned or County owned right-of-ways or easements.

To further enhance bicycling as a mode of transportation in the County, street connections decreasing out-of-direction travel, zoning for higher densities, and zoning provisions encouraging mixed land use development should be adopted.

1:2 Objective: *Provide more bikeways.*

Bikeways will be provided according to the Bikeway Network shown on Maps 3 and 4. These will be acquired either through the development process (see section 1007.05 D. of the Zoning and Development Ordinance) or the current Capital Improvement Plan or a future Capital Improvement Plan.

1:2:1 Strategy: *Provide bikeways which ~~to~~ encourage a reduction in the number of motorized vehicle trips and increase bicycle usage.*

Bikeways built to current standards as stated in Strategy 1:1:2 will encourage bicycle usage. Also necessary to increase bicycle usage is the adequate provision of trip end facilities. Bicycle parking will be provided through implementation of Section 1007.07 in the Zoning and Development Ordinance (see Bicycle Facility Planning Coordination in Chapter 5). Proper maintenance of bikeways is also necessary to encourage usage. This is addressed in Chapter 6, Maintenance Needs and Recommendations.

1:2:2 Strategy: *Work with the Oregon Department of Transportation, the Forest Service, Metro, Parks Districts, and City Parks Departments to achieve a safe and convenient off-road trail system connecting to the on-road bikeway network.*

1:2:3 Strategy: *Support acquisition and development of multi-use paths on abandoned public and private right-of-ways.*

Multi-use paths along abandoned public and private rights-of-way are essential routes for both recreational and commuter bicycling. Linear paths are used for commuter purposes as well as recreational travel. Loop paths not intersecting commercial or destination areas, perform mostly a recreational function and should be supported because they increase overall bicycle use and potential as a mode of transportation.

Multi-use paths provided by the Oregon Department of Transportation, the Forest Service, Parks Districts, and City Parks Departments are important additions to the bikeway network providing access to a broader skill level of bicyclists. Abandoned rail rights-of-way, because of their length and because they connect cities to one another, are usually regional facilities and should be developed as through connections between communities.

ACTION
The County will work with the Oregon Department of Transportation, the Forest Service, Metro, the Cities, and Parks Districts in acquiring and improving public and private rights-of-way for bicycle use.

Note: The 1980 Constitutional Amendment (Article IX, section 3a) now prohibits the expenditure of road funds outside the road right-of-way.

1:2:4 Strategy: Encourage increased bicycle access across the Willamette River.

An important missing link to areas within the County is access across the Willamette River. The only current crossings in the urban area ~~which currently exist~~ are the Sellwood Bridge in Multnomah County and the old bridge in Oregon City leaving an eight mile gap in access between Lake Oswego and West Linn, and Milwaukie, Oak Grove, and Gladstone. An old railroad crossing currently spans the river between Lake Oswego and Oak Grove near River Villa Park on the east side. One to two trains a day use this crossing. The crossing is not designed for other modes and is **not** a safe bicycle crossing. Improving the railroad crossing to include bicycle and pedestrian access or providing an alternate crossing would provide an important link in the overall County bikeway network.

FUNDING

1:3 Objective: Ensure funding for the construction of bikeways and supporting facilities necessary to complete the planned County Bicycle System in a timely manner.

1:3:1 Strategy: *Support continuation of current (or equivalent) federal, state, and local funding mechanisms to construct County bicycle facilities.*

1:3:2 Strategy: *Develop dedicated funding sources to implement the Clackamas County Bicycle Plan.*

To implement strategies 1:3:1 and 1:3:2 the County should:

- Continue to apply up to $1 million/year from the County Road Fund earmarked by the Board of County Commissioners to build identified, stand-alone bicycle facility projects as prioritized through the Capital Improvement Program (CIP). This policy was adopted in 1993. Currently this program's priority is toward building improvements near schools.
- Coordinate with and support Metro in securing ISTEA funds (Federal Transportation dollars from Federal gas tax) for "Regionally Significant" bike projects.
- Actively seek funding sources to provide needed bicycle facilities in the County.

FUNDING SOURCES

ISTEA PROGRAMS:

Surface Transportation Program (STP)
STP is a block grant program that may be used by the states and localities for any roads that are not functionally classified as locals or rural minor collectors. These funds may be used for nearly anything related to transit, highways, and bridges including bikeways. The funds are distributed as follows:

10% safety improvements (State Control)
10% Transportation Enhancement (State control)
50% Split between areas over 200,000 population and other areas of the State (State and Metropolitan Planning Organizations control)
30% anywhere in the State (State control)

Transportation Enhancement (TEA)
10% of the STP funds must be set aside for Transportation Enhancement or environmentally related activities. This fund would encompass a broad range of projects. The bicycle facility related projects that are eligible for TEA funding include:

- Facilities for pedestrians and bicycles.
- Preservation of abandoned railway corridors (including the conversion and use for walking or bike trails).

Congestion Mitigation Air Quality (CMAQ)
These funds are limited to projects in non-attainment areas for ozone and carbon monoxide (our current status) and must be shown to result in cleaner air. Bike lanes are eligible.

FEDERAL FUNDING:

- Community Development Block Grant (CDBG) - These funds are limited to projects in low income neighborhoods and can be used for bicycle and pedestrian projects.

STATE AND LOCAL FUNDING

- Oregon Department of Transportation Bike and Pedestrian Program Construction Grants.
- ~~Build~~ Include bikeways on all County/State/Federal road improvement (reconstruction, widening and new road) projects.
- Provide bikeways through road maintenance projects such as minor widening or restriping. These projects are provided through the Bike and Pedway Program.
- Development Review - Require bicycle facilities with all new development.
- Local Improvement District (LID) formation - LIDs are formed by property owners interested in funding roadway improvements in their area. These improvements could include bikeways. This method is limited to places where property owners want facilities enough to pay for them themselves. The County could offer "matching funds" to LIDs from the County Road fund to leverage commitments from property owners who want bicycle facilities. Criteria could be established for the percentage match.
- Urban Renewal District - Urban renewal district funds may be used for capital improvements for bikeways within urban renewal district boundaries.

- County Gas Tax - A tax would require a vote in Clackamas County. A portion of the revenue could be used for bikeway improvements.

ACTION
The County shall actively seek funding for bicycle facility improvements.

As jurisdictions apply for transportation funds the County should support efforts by cities pursuing funding for bikeway projects within the County. The County should in turn seek support from Cities benefiting from County proposed bikeways.

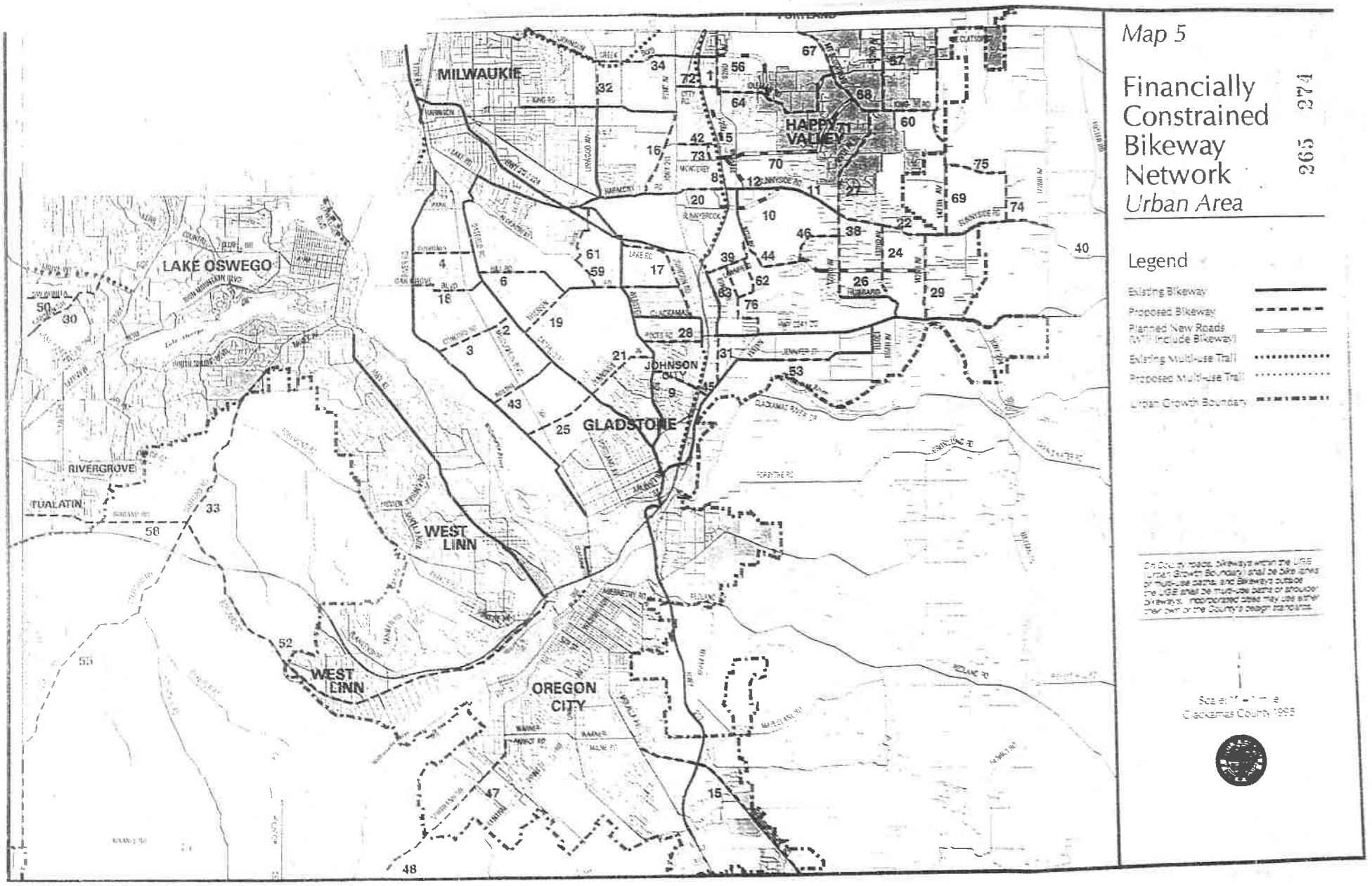
FINANCIALLY CONSTRAINED BIKEWAY NETWORK

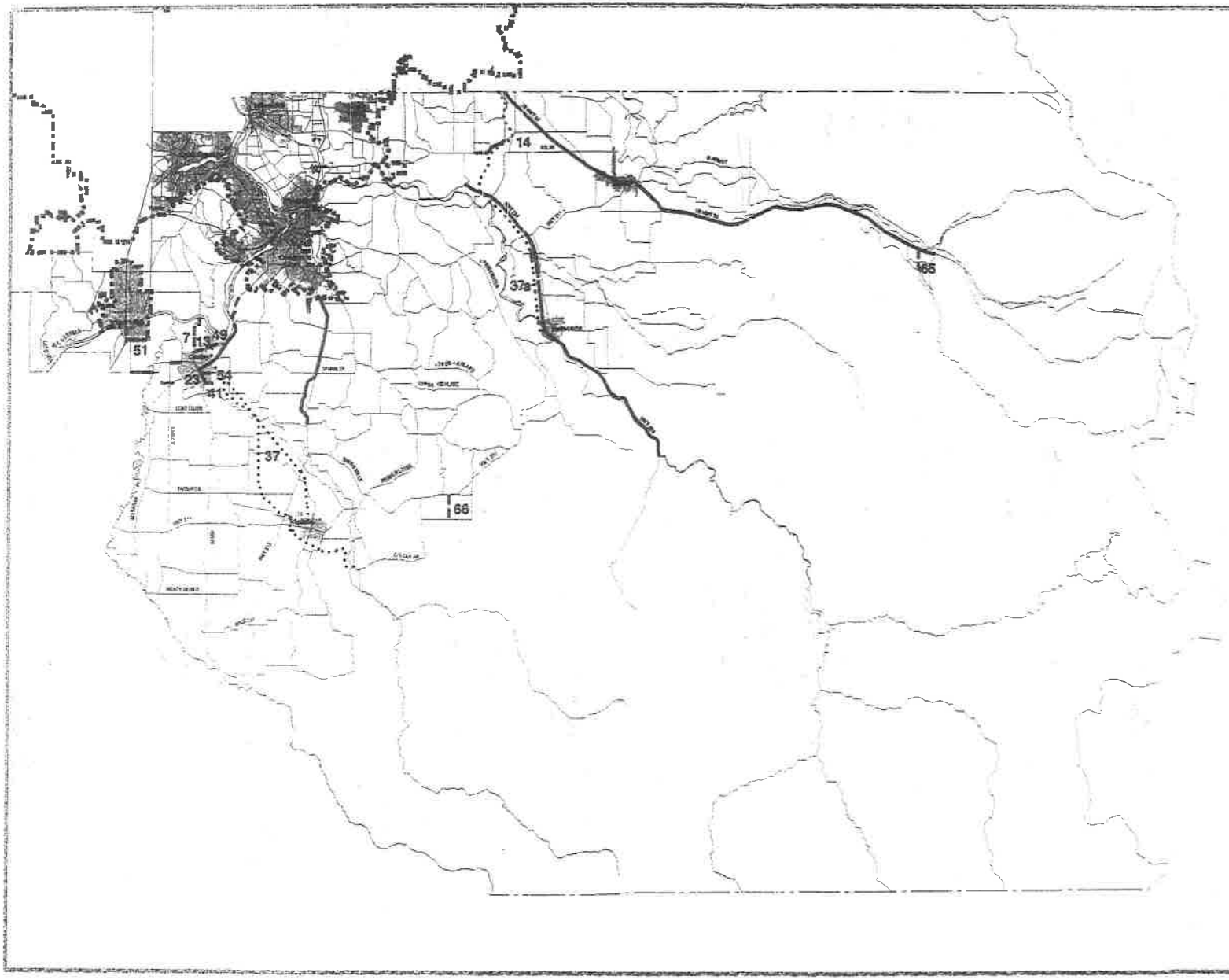
1:3:3 Strategy: *Provide bikeway improvements based on the priority system established in the plan with flexibility to allow for outside opportunities.*

The cost of the improvements necessary to complete the Planned Bikeway Network proposed in Maps 3 and 4 far exceeds the predicted availability of funds over the next 20 years. Maps 5 and 6 show a Financially Constrained Bikeway Network programmed for completion over the next twenty years. Given budget limitations, it would provide some connections between the existing bikeways, establishing a base network to build on over the long term.

The Draft Financially Constrained Bicycle Project List on pages 28 and 29 lists all projects that appear on the Financially Constrained Network Maps 5 and 6. The "Project Numbers" column corresponds to the numbers appearing next to the projects shown on the maps. The "Project Description" column identifies how each project is to be achieved, either through a stand-alone bikeway project, or through road reconstruction, widening, or relocation, and new road projects. The number in parenthesis in the "Project Description" column indicates the project's rank in the adopted 1992 - 2010 Capital Improvement Plan, (1) indicating the highest ranking, (4) indicating the lowest ranking.

Stand-alone bikeway projects totaling $14,638,700 have been identified as part of the Financially Constrained Network. These projects will be achieved through grants and the Bike and Pedway Program funding. Potential funding sources have been identified for each project and are listed in the "Potential Funding Sources" column on pages 28


MILWAUKIE
LAKE OSWEGO
HAPPY VALLEY
JOHNSON CITY
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
WEST LINN
OREGON CITY
Map 5
Financially Constrained Bikeway Network
Urban Area
265 274
Legend
Existing Bikeway
Proposed Bikeway
Planned New Roads (Will Include Bikeway)
Existing Multi-use Trail
Proposed Multi-use Trail
Urban Growth Boundary
On County roads, bikeways within the UGB (Urban Growth Boundary) shall be bike lanes or multi-use paths, and bikeways outside the UGB shall be multi-use paths or shoulder bikeways, incorporated bike rally use either one or the County's design standards.
Clackamas County 1995



Map 6

Financially Constrained Bikeway Network

Rural Area

265 275

Legend

- Existing Bikeway
- Proposed Bikeway
- Existing Multi-use Trail
- Proposed Multi-use Trail
- Urban Growth Boundary

On County roads, bikeways within the UGB (Urban Growth Boundary) shall be bike lanes or multi-use paths, and Bikeways outside the UGB shall be multi-use paths or shoulder bikeways. Incorporated cities may use either their own or the County's design standards.

Clackamas County 1995

and 29. Based on the grant funding that has been secured over the pasted five years, the County can expect approximately $250,000 annually in grant funding. This will amount to approximately $5,000,000 over the next 20 years. The Board of County Commissioners currently allocates approximately $1,000,000 annually for bike and pedway project construction. Over the next twenty years approximately $10,000,000 of the Bike and Pedway Program funding should be spent specifically on stand-alone bikeway projects. The total expected funding for bikeway projects is estimated at $15,000,000.

All projects on the Financially Constrained Bikeway Network were prioritized using the Bikeway Project Evaluation Criteria shown on page 30. The projects with their scoring for each criteria are shown in Appendix III. The Financially Constrained Project

Draft Bicycle Plan
Financially Constrained Project List

Project Number	Road Name or Project	Section	Project Description (numbers 1-4 indicate rank in 1992-2010 Adopted CIP)	Cost	Potential Funding Sources
FUNDED PROJECTS					
1	92nd	Idleman to County Line	(1)Part of road widening to include bike lanes	Funded	SDC, Urban Renewal Funds
2	CONCORD	99E to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	State Bike Grant & County Bike/Ped Program Match
3	CONCORD	River Road to 99E	Bike lanes TO BE BUILT 95/96	Funded	State Bike Grant & County Bike/Ped Program Match
4	COURTNEY	River Road to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	CMAQ Grant
5	FRONTAGE ROAD	Idleman to Sunnyside	(1)New road to include bike lanes	Funded	TAD, Urban Renewal - 1998
6	HILL	Weeks to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	Bike/Ped Program Funding
7	HOLLY	Willamette R. to NW Territorial	Stand-alone/widening to include bike lanes	Funded	Bike/Ped Program Funding
8	MONTEREY OVERPASS	Extend Monterey over I-205	(1)New road to include bike lanes	Funded	TAD, Urban Renewal - 1998
9	STRAWBERRY	Webster to bridge	Bike lanes TO BE BUILT 95/96	Funded	CMAQ Grant
10	SUNNYBROOK EXTENSION	I-205 to Sunnyside at 108th	(1)New road to include bike lanes	Funded	Urban Renewal Funds
11	SUNNYSIDE ROAD	Sunnybrook to 122nd	(1)Part of road widening to include bike lanes	Funded	STP, SDC - 1999
12	SUNNYSIDE ROAD	Stevens to Sunnybrook	(3)Part of road widening to include bike lanes	Funded	STP - 1999
13	TERRITORIAL ROAD	Holly to the Molalla River Forest Rd	Stand-alone/widening to include bike lanes	Funded	Federal Grant/Transportation Enhancement Funds
14	SPRINGWATER CORRIDOR	1/2 mile in Boring	Land Acquisition	Funded	ISTEA & Clackamas County
HIGH PRIORITY PROJECTS					
15	BEAVERCREEK	Molalla Ave to Henrici	(3)Part of road widening to include bike lanes		Road Project Funding
16	FULLER	King Road to Harmony Road	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
17	JOHNSON/LAKE	Webster to Clackamas	(3)Part of road widening to include bike lanes		Road Project Funding
18	OAK GROVE	99E to River Road	Stand-alone/widening to include bike lanes	$195,000	Bike/Ped Program Funding & Regional Funding
19	THIESSEN	Oatfield to Webster	Stand-alone/widening to include bike lanes	$500,000	Bike/Ped Program Funding & Regional Funding
20	SUNNYSIDE	82nd to I-205	Stand-alone/restriping to include bike lanes	$5,000	Bike/Ped Program Funding, State Bike Grant
21	JENNINGS	Oatfield to Webster	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
22	SUNNYSIDE ROAD	122nd to 172nd	(3)Part of road widening to include bike lanes		Road Project Funding
23	IVY	99E to 13th	Stand-alone/widening to include bike lanes	$150,000	Bike/Ped Program Funding
24	132nd	Sunnyside to Hubbard	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding
25	JENNINGS	River Rd E. to Oatfield	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
26	SUMMERS LANE EXTENSION	Mather to 152nd	(4)New road to include bike lanes		Road Project Funding
27	122nd/129th	Sunnyside to King	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
28	ROOTS	Webster to McKinley	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
29	142nd	Sunnyside to Hwy 212/224	(4)Part of road widening to include bike lanes		Road Project Funding
30	CARMEN	I-5 overpass to Quarry R	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
31	82nd	Jennifer to Fred Meyer	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding & Regional Funding
32	LINWOOD	King to Johnson Creek	Stand-alone/widening to include bike lanes	$222,000	Bike/Ped Program Funding & Regional Funding
33	STAFFORD	Lake Oswego City limits to I-205	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
34	JOHNSON CREEK BLV	County line to 82nd Ave	(2)Part of road widening to include bike lanes		Road Project Funding
35	Bicycle Parking and Promotion Program			$20,000	Bike/Ped Program, Federal & State Grants
36	Education and Promotional Brochures and Slide Shows			$60,000	Bike/Ped Program, Federal & State Grants
37	MOLALLA RIVER PATHWAY	Canby to Molalla	Stand-alone/land purchase & trail improvements	$3,440,700	Bike/Ped Program - Grants and TE funds
37a	SPRINGWATER CORRIDOR	Boring to Estacada	Pathway improvements	$1,500,000	Oregon State Parks & Clackamas County
MEDIUM PRIORITY PROJECTS					

263 277

Draft Bicycle Plan
Financially Constrained Project List

Project Number	Road Name or Project	Section	Project Description (numbers 1-4 indicate rank in 1992-2010 Adopted CIP)	Cost	Potential Funding Sources
38	122nd	Hubbard to Sunnyside	(1)Part of road widening to include bike lanes		Road Project Funding
39	LAWNFIELD	82nd Drive to 97th	Stand-alone/widening to include bike lanes	$90,000	Bike/Ped Program Funding, State Bike Grant
40	SUNNYSIDE ROAD	172nd to Hwy 212	(1)Part of road widening to include bike lanes		Road Project Funding
41	13th (Canby)	Ivy to Redwood	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding
42	CAUSEY	I-205 Path to Fuller	Stand-alone/restriping to include bike lanes	$2,000	Bike/Ped Program Funding, State Bike Grant
43	ROETHE	River Road to 99E	Stand-alone/widening to include bike lanes	$150,000	Bike/Ped Program Funding
44	97th	Lawnfield to Mather	Stand-alone/restriping to include bike lanes	$10,000	Bike/Ped Program Funding, State Bike Grant
45	STRAWBERRY	E. edge of Bridge to 82nd Drive	Stand-alone/widening to include bike lanes	$75,000	Bike/Ped Program Funding, State Bike Grant
46	MATHER	97th to 122nd	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
47	SOUTH END ROAD	Glacier Ct. to UGB	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
48	SOUTH END ROAD	UGB to 99E	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
49	TERRITORIAL	Molalla Forest Road to 99E	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
50	BONITA	Bangy to Carmen	Stand-alone/widening to include bike lanes	$112,000	Bike/Ped Program Funding
51	MILEY ROAD	I-5 to Eilers	Stand-alone/widening to include bike lanes	$75,000	Bike/Ped Program Funding, State Bike Grant
52	BORLAND/WILLAMETTE FALL	Stafford to Hwy 43	Stand-alone/widening to include bike lanes	$2,250,000	Bike/Ped Program Funding & Regional Funding
53	JENNIFER	106th to 120th	Stand-alone/widening to include bike lanes	$248,000	Bike/Ped Program Funding & Regional Funding
54	TOWNSHIP	Ivy Street to Molalla River Pathway	Stand-alone/widening to include bike lanes	$375,000	Bike/Ped Program Funding
55	STAFFORD	I-205 to Wilsonville	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
56	JOHNSONCREEK EXTENSION	92nd to Idleman	(4)New road to include bike lanes		Road Project Funding
LOW PRIORITY PROJECTS					
57	132nd	King to Clatsop	(4)Part of road widening to include bike lanes		Road Project Funding
58	BORLAND	65th to Stafford	Stand-alone/widening to include bike lanes	$1,500,000	Bike/Ped Program Funding & Regional Funding
59	ALDERCREST	Rusk to Thiessen	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
60	KING	145th to 129th	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
61	RUSK	Lake Road to Aldercrest	Stand-alone/widening to include bike lanes	$435,000	Bike/Ped Program Funding
62	98th	Lawnfield to Mather	(4)Part of road widening to include bike lanes		Road Project Funding
63	102nd/Industrial Way	Hwy 212 to Lawnfield	(4)Part of road widening to include bike lanes		Road Project Funding
64	IDLEMAN	92nd to Mt. Scott	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
65	WELCHES ROAD	Hwy 26 to Elk Park Road	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
66	WALL	Hwy 211 to Green Mtn Road	Stand-alone/widening to include bike lanes	$655,000	Bike/Ped Program Funding
67	MT SCOTT BLVD	County line to Idleman	Stand-alone/widening to include bike lanes	$315,000	Bike/Ped Program Funding & Regional Funding
68	MT SCOTT BLVD	Idleman to King Road	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
69	145th/147th	Clatsop to Monner	Stand-alone/widening to include bike lanes	$840,000	Bike/Ped Program Funding
70	Monterey Extension	Stevens Rd to Valley View	(4)New road to include bike lanes		Road Project Funding
71	HAPPY VALLEY ACCESS RD	Valley View Terrace to Mt Scott	(4)New road to include bike lanes		Road Project Funding
72	OTTY ROAD	82nd to 92nd	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
73	90th	Causey to Monterey	Stand-alone/widening to include bike lanes	$77,000	Bike/Ped Program Funding, State Bike Grant
74	162nd	Monner to Sunnyside	Stand-alone/widening to include bike lanes	$320,000	Bike/Ped Program Funding
75	MONNER	147th to 162nd	Stand-alone/widening to include bike lanes	$317,000	Bike/Ped Program Funding
76	MATHER	Industrial Way to 98th	(4)Part of road widening to include bike lanes		Road Project Funding

263 278

DRAFT BICYCLE PROJECT EVALUATION CRITERIA

POTENTIAL RIDERSHIP

Low (0).....High (10) _____

SAFETY

Traffic volume

1000 (1), 2000 (2), 3000 (3), 4000 (4), 5000 (5), 6000 (6), ~~etc.~~...10,000 (10) _____

Other safety factors:
(short sight distance, narrow/no shoulder, high speed, many turning movements)

(0).....(10) _____

CONNECTIVITY

Connectivity to existing network:

Provides a link in the existing network (10)
Extends the existing network (5)
Isolated project (0) _____

Connectivity to destination: (Maximum 20 points)

School or major bike destination (10)
Commercial area (5)
Park, libraries, churches (5)
Employment areas (5)
Transit center (5)
Other (5) _____

COST EFFECTIVENESS

Cost per mile compared to project of similar nature

Low ≤ $50 (10) Average $50-$85 (5) High > $85 (0) _____

ADDITIONAL CONSIDERATIONS

Outside funding source

Yes (10) No (0) _____

Coordinated with planned road project (maintenance or capital)

Yes (10) No (0) _____

Community support

+25.....-25 _____

TOTAL _____

List divides the projects into four categories, funded, high priority, medium priority and low priority projects. These categories provide general guidelines for choosing which projects to achieve first. This ranking will be used in assessing the ranking of all road projects in the Capital Improvements Plan during the next update.

A ranking of stand-alone bikeway projects separated from road reconstruction/new road projects is shown in appendix IV.

ACTION
The County will build stand-alone bicycle projects with priorities set by the Bicycle Project Evaluation Criteria developed in this plan.

ACTION
The County will consider the priorities of the bicycle evaluation criteria in setting priorities for road reconstruction, widening, or relocation projects in the Capital Improvement Plan.

1:3:4 *Strategy:* *Review dedicated funding sources every three years to ensure that funding is adequate to address improvement needs identified in the Clackamas County Bike Plan.*

This will be done with each County Capital Improvement Plan.

ACTION
Adopt the Bikeway Capital Improvement Plan as an element of the County's Transportation Capital Improvement Plan.

Chapter 5
BICYCLE FACILITY PLANNING, DESIGN, AND CONSTRUCTION

GOAL 2

Integrate bicycle facilities into all planning, design, and construction activities.

BIKEWAY STANDARDS, SIGNING AND MARKING

2:1 Objective: Adopt policies and design standards that provide for safe, convenient and enjoyable bikeways.

2:1:1 Strategy: Adopt roadway design standards which safely accommodate bicyclists on roads of all functional classes along both urban and rural roadways.

2:1:2 Strategy: Adopt standards to include bicycle-sensitive traffic control devices, appropriately identified with road markings and signage, in all signalized intersection improvement projects and new construction.

2:1:3 Strategy: Sign existing and new bikeways according the Oregon Department of Transportation Bicycle and Pedestrian Plan to indicate their intended use.

For some roads, standards can be met within the existing right-of-way; however, for many existing roads the improvement to ideal standards for separated auto, bicycle, and pedestrian travel would require the acquisition of additional right-of-way. In those cases where there is too little existing right-of-way and it is judged that purchase of additional right-of-way would be prohibitively expensive, compromises must be made.

Compromises to any of the road "standard dimensions", including lane width for motor vehicles, bike lanes, or sidewalks, may be considered. Constructed widths for capital construction, however, should in no case be less than the specified "minimum width" in the State's Bicycle/Pedestrian Plan. Along the length of a project "standard width" should be achieved wherever possible for all of the bikeways, i.e., travel lanes, turn refuge, bike lanes, and sidewalk. If "standard width" cannot be achieved for a given

section, reduction to less than standard is an option for any of the bikeways, so long as they are not reduced below the "minimum width". Where "minimum width" cannot be achieved, removal of on-street parking or alternate routes should also be considered.

The Oregon Department of Transportation's Bikeway Standards should be adopted for all County bikeways. These adopted standards shall be incorporated into the County's Road Standards during the next update.

ACTION
The County should amend the County Road Standards and Design Manual to include bikeway design standards consistent with the Oregon Bicycle and Pedestrian Plan and AASHTO.

The County Road Standards should also include standards for bicycle-sensitive traffic control devices (loop detectors). Several improvements can be made to benefit cyclists.

Recommendations:

- Placing loop detectors in bike lanes on side street to trip the signal.
- Placing loop detectors in bike lanes on primary street to prolong green phase when a bicyclist is passing through (the upcoming yellow phase may not allow enough time for a cyclist to cross a wide intersection).
- Increasing sensitivity of existing loop detectors in bike lanes, and painting symbols to indicate to cyclists the most sensitive area of the loop. This should also be done for loop detectors in travel lanes where no bike lanes are present or where loops are not present in the bike lane.
- Pedestrian-actuated buttons may be used as an alternative to loop detectors, provided the button is readily accessible to the bicyclist.

ACTION
The County shall amend the County Road Standards and Design Manual to include bicycle-sensitive traffic control devices (loop detectors) as part of intersection design standards.

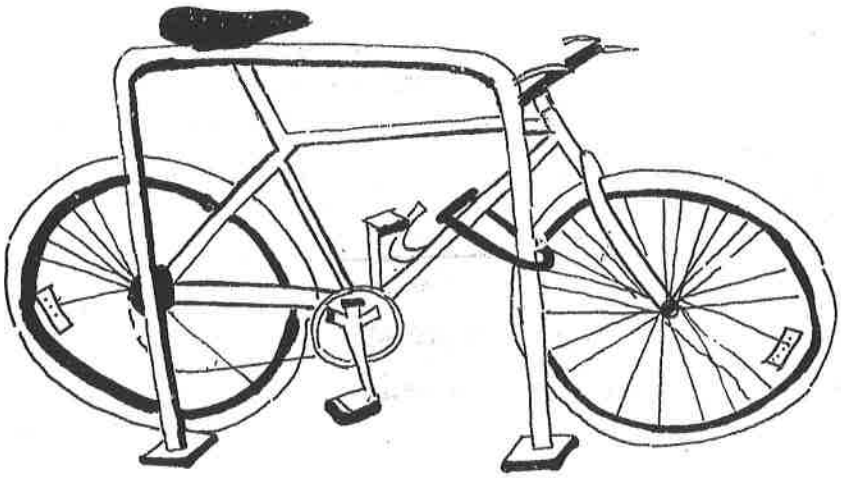
BICYCLE FACILITY PLANNING COORDINATION

2:2 Objective: Encourage the provision of adequate trip end facilities.

2:2:1 Strategy: Provide ~~bike lockers and/or~~ properly designed and constructed bicycle racks or lockers at major destinations (i.e., business districts, parks, schools, libraries, commercial areas) and major transit connections.

New developments shall provide bicycle parking facilities as required by the Zoning and Development Ordinance Section 1007.07. To remedy the shortage of facilities at existing developments, a bicycle parking project should be put into the next Capital Improvement Plan. The project would work with businesses to provide bicycle parking and installation by those requesting it.

ACTION
The County shall i Include a project for the provision of bicycle parking in the next Capital Improvement Plan.



2:2:2 *Strategy:* *Support the provision of appropriate supportive facilities and services for bicyclists, including showers, lockers, bike racks on buses, commuter centers, bike repair and maintenance, information/clinics, and secure bicycle parking.*

The County should encourage employers to provide appropriate supportive facilities and services for bicyclists. The brochures proposed in Chapter 7 in the action item under strategy 4:1:4 will help to encourage employers and businesses to provide appropriate facilities such as adequate parking, showers and lockers. The bike racks on buses program will continue to be supported by the County. The County would encourage and support anyone interested in the provision of a bicycle commuter center in the County.

2:3 *Objective:* *Ensure a continuing, comprehensive, and cooperative planning process that provides for the efficient and timely implementation of the County Bicycle Plan.*

2:3:1 *Strategy:* *Promote the ongoing education of bicyclists' needs for all staff who plan, engineer, build, and inspect transportation facilities.*

Although the development and funding of bikeways has been required for over 20 years, a full understanding of the many obstacles encountered on bikeways has yet to be incorporated into bikeway planning, engineering, construction, and inspection. A large portion of these obstacles can be eliminated through the education of those involved in all parts of roadway development.

The County should continue to encourage staff to attend workshops and seminars on bikeway planning, design, and development.

ACTION
The County shall create and present an informational slide show on bikeways to all staff who plan, engineer, construct, and inspect transportation facilities.

2:3:2 *Strategy:* *Incorporate an inventory of needed bikeway improvements, prioritized according to the process developed in this Plan, into the annual County Transportation Improvement Program and the County's Capital Improvements Plan.*

The bikeway improvement needs identified in this planning process will be prioritized and incorporated into the annual County Transportation Improvement Program and the County Capital Improvements Plan with its next update.

ACTION
The County shall iIncorporate the Financially Constrained Bikeway Project List into the annual County Transportation Improvement Program and the County Capital Improvement Plan.

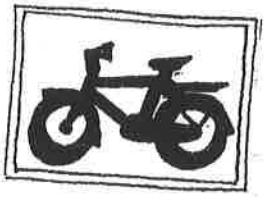
2:3:3 Strategy: Coordinate recommended bicycle system needs with roadway improvement projects to take advantage of cost-sharing opportunities.

Though not mandated by law, maintenance projects are good opportunities to provide bikeways through minor widening or restriping. The County shall continue to coordinate bicycle system needs with roadway improvement projects. Though this is normally done through the annual County Transportation Improvement Plan, if the project list changes over the course of the season, immediate communication between the road department and the Bike and Pedway Coordinator must happen. Communication between the road department, engineering, and the bikeway coordinator is essential at all stages of roadway improvement.

2:3:4 Strategy: Coordinate the implementation of bikeways with neighboring jurisdictions and jurisdictions within the County.

The Regional Bicycle Program Work Team, meeting monthly at Metro, provides a forum for ongoing bicycle coordination within the Region. In addition, the monthly meetings of the Clackamas County Transportation Coordinating Committee, attended by representatives from the cities within the County, ODOT and Tri-Met, provide an opportunity to coordinate bicycle issues and bikeway projects.

Chapter 6
MAINTENANCE NEEDS AND RECOMMENDATIONS



GOAL 3

Maintain bikeways to ensure safety and encourage use.

The planning and development of bikeways is only one part of encouraging the use of cycling as a mode of transportation. A frequently-cited concern of cyclists is the need for proper maintenance of bikeways. Poorly maintained facilities are unusable and are a legal liability. To increase the use of bicycling as a mode of transportation, bikeways must be properly maintained.

3:1 Objective: Keep bikeways free of debris and in good repair ~~in order to accommodate bicycling conveniently and safely~~.

3:1:1 Strategy: Integrate the maintenance of bikeways into all roadway maintenance activities.

All County maintenance activities which include sweeping, surface repairs, pavement overlays, vegetation control, drainage improvements, and signs, stripes, and legend maintenance shall address the needs of bicycling as a mode of transportation.

3:1:2 Strategy: Develop routine maintenance standards and practices for on-road and off-road bikeways including traffic control devices.

ON-ROAD BIKEWAY MAINTENANCE

SWEEPING:

Bicyclists may not be able to use bike lanes and shoulders that are not clear of sanding materials, gravel, broken glass, and other debris. They will often ride or need to swerve into the travel lane to avoid these hazards, causing conflicts with automobiles.

Recommendations:

- A seasonal sweeping schedule to remove debris after major winter storms in high-use areas should be developed with the County Roads Department.
- In curbed sections, sweepers should pick up debris; on open shoulders, it is acceptable to sweep onto the gravel shoulders.
- Provide extra sweeping in the fall in areas where leaves accumulate in bike lanes.

SURFACE REPAIRS:

~~Bike lanes must be kept as smooth as possible and free of potholes and large bumps.~~ Bicyclists travel on two narrow, high pressure tires. A surface with potholes, etc., presents hazards for bicyclists. Potholes and other surface irregularities can cause a cyclist to be thrown from his or her bike or may cause a cyclist to swerve unpredictably into the travel lane. Bike lanes must be kept as smooth as possible and free of potholes and large bumps.

Recommendations:

- Inspect bikeways regularly for surface irregularities.
- Repair potentially hazardous conditions immediately.

Patching Recommendations:

- If a patch must extend onto a paved shoulder or bike lane, the patch should cover the entire shoulder or bike lane.
- Excess asphalt-coated gravel should be swept off immediately to prevent it from sticking to the bikeway surface.
- Graders should be equipped with smooth tires and paved shoulders should be rolled after the final pass.

PAVEMENT OVERLAYS:

Pavement overlays provide opportunities to improve conditions for cyclists. Many overlay projects offer the chance to widen the roadway and some can be restriped with bike lanes. Overlays can also worsen conditions for cyclists if a ridge is left on the outer edge of the pavement or in the bike lane.

Recommendations:

- Extend road overlays over the entire surface of the roadway to avoid leaving an abrupt edge between the travel lane and bikeway.
- If this is not possible, and there is adequate shoulder or bike lane width, it may be appropriate to feather the edge at the shoulder or bike lane stripe, provided no abrupt hazard remains.
- As part of the overlay process, raise inlet grates, manholes, and valve covers to within 1/4" (6mm) of the pavement.

Drainage Grates, Manholes and Utility Covers:

Recommendations:

- After pavement overlays, drainage grates, manholes and utility covers should be raised to within 1/4" (6 mm) or less of final surface grade. If this is not feasible, the final surface grade should be tapered into grates and lids to attain a smooth, lip-free transition.

Chip Seals:

Recommendations:

- On roadways with paved shoulders or bike lanes four feet wide or greater, the chip seal should be limited to motor vehicle travel lanes only. Excess material should be swept off the shoulder area.
- If the shoulder or bike lane must be chip sealed, cover the entire shoulder area with a well-rolled, fine-textured material: 3/8" or finer, for a single pass, 1/4"-10 for a second pass. Excess material should be swept off paved shoulder area.

VEGETATION REMOVAL:

Vegetation encroaching on bikeways is a nuisance and a hazard. Overgrown shrubs and trees reduce sight distance which is especially critical at intersections. Roots should be controlled to prevent premature break-up of the surface. Encroaching thorny vegetation such as blackberry bushes need to be controlled. Blackberry runners lying on bikeways can cause flat tires and unpredictable riding movements by bicyclists swerving to avoid them.

Recommendation:

- Inspect bikeways regularly for encroaching vegetation.
- Cut back vegetation encroaching on bikeways beyond the required minimum clearance to prevent future encroachment.
- Perform preventative maintenance operations such as cutting back intrusive tree roots.
- Inform landowners that they are required to control vegetation or any obstruction which may cause danger to the public in its use of the bikeway. This should include dangerous vegetation, such as blackberry runners, in bikeways.

OFF-ROAD BIKEWAY MAINTENANCE

Since September, 1994, the County Zoning and Development Ordinance Section 1007.05 has provided for maintenance of bike and pedestrian accessways in new developments to be determined in the development approval process.

Accessways are not currently maintained by the County Road Department. One issue here is the narrow width of some existing accessways. New accessways must be 15 feet wide, eight of which must have a hard surface. Narrowness aside, the County needs to program maintenance for existing and new accessways where it is responsible. The County is now exploring options for accessways not currently being maintained.

ACTION
The County shall program accessway maintenance where it is the responsible party and develop a means of notifying other property owners when necessary of their maintenance responsibility.

ACTION
The County Pedestrian and Bikeway Committee shall provide input on the 1995 Road Use Impediments Ordinance amendments.

SIGNS , STRIPES AND LEGENDS:

When first constructed, bikeways are usually well signed and marked with new signs and freshly painted legends. Over time, the signs may fall into disrepair and the legends may become hard to see, especially at night. It is very important that signs and legends be kept in a readable condition.

It is important to maintain signs and pavement markings directed at motorists. Pedestrians and bicyclists rely on motorists observing the signs and legends that regulate their movements.

Recommendations:

- Inspect bikeway signs and legends regularly.
- Replace defective signs as soon as possible;.
- rRemove warning and regulatory signs when they are no longer needed.
- Retrace legends and other pavement marking early in the spring; in high-use areas, these may require another paint application in the fall.

Even before an arterial or collector is improved to bikeway standards, hazards for bicyclists should be removed. Bicyclists ride on all County roadways.

ACTION
The County shall remove all dagmires and replace non-standard drainage grates with bicycle-safe grates on all County roadways.

ACTION
The County should adopt maintenance practices for sweeping, surface repairs, pavement overlays, vegetation control, drainage improvements, and signs, stripes and legend maintenance which respond to the needs of travelers by all modes.

OTHER MAINTENANCE STRATEGIES

3:1:3 Strategy: *Respond promptly to reports by the public and others, of potentially unsafe conditions for bicyclists on County roads and bikeways.*

ACTION
The County will respond promptly to reports of debris on bikeways, and bikeways will be swept whenever there is accumulation of debris.

In 1994, the City of Portland Bicycle Program initiated the Bicycle Facility Improvement Program which responds to citizens' requests for maintenance of bikeways. Postcard-sized maintenance request forms are provided at local bicycle shops for concerned citizens to fill out to assist in identifying obstacles to bicyclists. Requests include low-cost, small scale improvements such as sweeping of glass and debris, fixing potholes, replacing gratings, fine-tuning signal sensitivity, and others.

The Portland Bicycle Program currently forwards requests for maintenance on non-Portland roads to the responsible jurisdiction. Clackamas County has received only a few of these requests to date. This is largely due to the card's circulation which is currently limited to the City of Portland.

ACTION
The County should develop a citizen feed-back program similar to, or in conjunction with, the City of Portland's Bicycle Facility Improvement Program.

3:1:4 Strategy: *Promote the ongoing education of bikeway maintenance needs for all staff who maintain the transportation system.*

Staff who maintain bikeways will be provided with an ongoing education of bicyclists' unique characteristics and needs.

ACTION
The County shall create and present an informational slide show on bikeway hazards to all staff who maintain bikeways.

3:1:5 Strategy: *Support programs and volunteer community services that assist in maintaining the County Bicycle System.*

The County will support and coordinate with groups such as the Scouts, the Bicycle Transportation Alliance (BTA), and Portland United Mountain Pedalers (PUMP), who are willing to provide volunteer community service in the form of maintenance activities on the County Bicycle System. These groups could provide additional litter control, sweeping, and other maintenance activities in areas such as separated pathways and accessways that can be difficult to maintain. This would also help establish community support and encourage use of the facility.

An adopt-an-accessway/pathway program similar to the adopt a roadway program could be established for interested groups. A sign identifying the group volunteering their efforts would be posted along the bikeway.

3:1:6 Strategy: *Coordinate utility installation/repair with maintenance of the County Bicycle System.*

Coordination of utility installation/repair with roadway maintenance of the County Bicycle System will help to ensure a road surface free of bumps.

ACTION
The County shall annually contact utility districts to determine which roads they plan to dig up and coordinate any roadway maintenance activities to occur after the utility district activity.

3:1:7 Strategy: *Promote the education of utility companies and their repair personnel regarding bicyclists' needs through an informational pamphlet or appropriate materials.*

ACTION
The County shall develop an informational pamphlet and slide show and distribute them to utility companies and their personnel to provide education as to the unique characteristics and needs of bicyclists.

3:1:8 Strategy: *Enforce use of traffic control safety devices during construction and maintenance activities.*

ACTION
The County shall develop an informational pamphlet and slide show to guide construction and maintenance workers in safe routing of bicycle traffic through and around construction and maintenance activities.

Chapter 7
ENCOURAGEMENT AND EDUCATION

Goal 4

Increase the use of bicycles as a mode of transportation

ENCOURAGEMENT

4:1 Objective: Provide information to assist and encourage people to use bicycles for transportation and recreation.

4:1:1 Strategy: Recognize bicycling as a means to achieve Transportation Demand Management (TDM) and achieve reduced reliance on single occupancy vehicles (SOVs).

TDM, while reducing reliance on SOVs, is a means to increase other mode choices. ~~While some TDMs are controversial as potentially limiting the mode choices we face today in order to reduce congestion in the future,~~ Bbicycling is fun and can become an even more popular alternative mode to the SOV.

4:1:2 Strategy: Develop and implement a public information program to encourage individuals and businesses to use bicycles for transportation and recreation.

4:1:3 Strategy: Encourage participation of citizens in, and coordinate with jurisdictions throughout the County, to promote a Bike To Work Week.

The demonstration that bicycling is fun during a special event, such as Bike to Work Week, will introduce people to this attractive mode of transportation, and for some, start new habits for their commute to work.

ACTION
The County should encourage activist groups such as the Bicycle Transportation Alliance, the Portland Wheelmen, and Portland United Mountain Pedalers to organize activities which promote bicycling as a viable transportation option within the County.

4:1:4 Strategy: *Educate the public as to the benefits of bicycling including those benefits related to improving air quality, reducing energy consumption, reducing congestion, stimulating the economy, and promoting health and physical fitness.*

In order to encourage employers and business to give employees and customers incentives to use their bicycles, the County should develop informational brochures and distribute them to business in the County. The brochures should encourage employers and businesses to provide necessary bicycle facilities on-site such as bicycle parking, bicycle storage lockers, and shower facilities.

ACTION
The County should develop two informational brochures; one addressing the benefits and common concerns of bicycle commuting, the other on how bikes are good for business and what businesses can do to promote bicycling. These brochures should be provided to businesses or circulated through the Chambers of Commerce and local jurisdictions.

4:1:5 Strategy: *Regularly update the Clackamas County Bicycle Map.*

The Clackamas County Bike Map provides a means to promote bicycling as both a commuting and recreational transportation mode. It also serves to educate the public regarding safe riding habits. It is important to regularly update the Bike Map to reflect new bikeways as they are developed.

ACTION
Clackamas County shall regularly update the Clackamas County Bike Map.

4:2 Objective: *Increase the effectiveness and extent of the County's Bike and Pedway Program.*

4:2:1 Strategy: *Continue to fund a full-time program coordinator to administer the bicycle program and staff the Pedestrian and Bikeway Advisory Committee.*

A minimum of one full-time staff person should administer the bicycle program and coordinate the efforts of the Pedestrian and Bikeway Advisory Committee. This position will ensure communication regarding bikeway funding and development between the Pedestrian and Bikeway Committee and the Department of Transportation and Development, and throughout other County Departments.

ACTION
The County should continue to fund a full-time staff person to administer the bicycle program and coordinate the efforts of the Pedestrian and Bikeway Advisory Committee.

An Annual Status Report should be presented the Board of County Commissioners on the progress of the Bike and Pedway Program. It should cover accomplishments as well as areas needing additional attention to continue improving conditions for bicyclists in Clackamas County.

ACTION
The County, with assistance from the County Pedestrian and Bikeway Committee, shall present an Annual Status Report to the Board of County Commissioners on the Bike and Pedway Program.

4:2:2 Strategy: *Ensure an opportunity for representative citizen involvement in the County bicycle planning process by sponsoring the County Pedestrian and Bikewaycycle Advisory Committee as a forum for public input.*

The County Pedestrian and Bikewaycycle Advisory Committee shall continue to function as an advisory committee to County staff and the Board of County Commissioners. They shall meet monthly on bicycling issues and provide a forum for citizen input on bicycling matters.

ACTION
The County should ensure the continuation of the County Pedestrian and Bikewaycycle Committee as an advisory committee on all issues relating to bicycling.

GOAL 5

Heighten the awareness of bicyclists, motorists and pedestrians of their rights and responsibilities for bicyclists' safety, and for sharing both on-road and off-road bikeways.

EDUCATION

5:1 Objective: Implement bicycle safety education programs to improve bike handling skills, traffic skills, and observance of traffic laws, and to promote safety for bicyclists of all ages.

Both crash and non-crash conflicts between motorists and bicyclists need to be reduced. Many conflicts occur due to poor bike handling skills or a lack of knowledge and/or awareness of a bicyclist's rules of, and rights to, the road. These could be alleviated through education.

Children should be taught early about the rules of the road and a bicyclist's responsibilities within them. This will increase their safety both as pedestrians and bicyclists.

There is also a need for both motorists and bicyclists to learn to share the road. Many near misses occur between motorists and bicyclists due to thoughtless and careless use of the roadway. Both motorists and bicyclists must learn to share the road responsibly.

As the County's population continues to grow, the need to share the road will become an even larger issue. Enforcement of the rules of the road on both bicyclists and motorists will aid in promoting sharing of the roadway, ~~and~~ will encourage bicycling and increase safety.

The County Sheriff's Office is in the process of training citizen volunteers to help out in the precincts answering citizen's questions. This would provide an excellent means of distributing information on bicycle safety, rules of the road and sharing the road.

ACTION
The County should develop an informational brochure on bicycle safety, rules of the road and sharing the road. This brochure should be circulated through the Chambers of Commerce, local jurisdictions, the County Sheriff's Office, and police precincts.

5:1:1 Strategy: Seek sources of funding and support in providing bicycle safety education and training.

ACTION
The County should include a project on bicycle safety and education in the next Capital Improvement Plan.

5:1:2 Strategy: *Develop and provide bicycle safety and education information for adults and children and encourage community organizations to participate in bicycle/traffic safety education.*

Several bicycle safety and education curricula have been developed for use in elementary school classrooms.

ACTION
Clackamas County should ensure that a bicycle safety and education curriculum is available for use by teachers at every school. A flyer with a brief description of the curriculum and ways to incorporate it into classroom activities should be made and distributed to all schools and school district curriculum directors.

5:1:3 Strategy: *Coordinate with local jurisdictions and school districts in the County to establish a bicycle safety education program for elementary-school age children, offered on a regular basis, which provides both classroom and on-bicycle training.*

To be effective, bicycle safety and education programs should be coordinated with school districts and be offered on a regular, on-going basis. These efforts have been coordinated on the state level elsewhere and have been very effective, particularly in drastic reductions in the number of crashes involving school-age children.

Given current funding limitations, full implementation of this type of program within County school districts may not be achievable. The County should support this strategy and strive to achieve it in any incremental way possible.

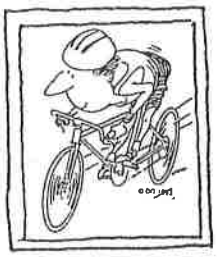
5:2 Objective: *Increase security for bicycles and bicyclists.*

5:2:1 Strategy: *Encourage law enforcement agencies and neighborhood watch groups to emphasize the patrol of bike rack areas as part of their crime prevention efforts.*

ACTION
The County should include a watch of bike racks in areas where County sheriff deputies patrol.

5:2:2 *Strategy:* *Encourage the provision of street lighting to increase the visibility and personal security of bicyclists.*

ACTION
Encourage Service District #5 or alternative method to illuminate all collectors and arterials.



Chapter 8
BICYCLE PLAN IMPLEMENTATION AND REVIEW

GOAL 6

Monitor and update the bicycle plan.

6:1 Objective: Provide the data collection, evaluation, and review activities necessary to maintain and expand the programs established in this Plan and to respond to the changing needs of the bicycling public of Clackamas County.

ACTION

6:1:1	Strategy:	Update the bikeway inventory for the County every three years.
6:1:2	Strategy:	Collect bicycle travel data for the County every two years to measure how an area or facility is actually being used.
6:1:3	Strategy:	Review bicycle accident data in the project priorities evaluation of the Capital Improvement Plan.
6:1:4	Strategy:	Review now land use development to determine impacts on plan priorities as part of Capital Improvement Plan updates.
6:1:5	Strategy:	Review annually the priorities in the Capital Improvement Plan.
6:1:6	Strategy:	Review and revise as necessary the Bicycle Plan as a part of periodic review.

APPENDIX I
GLOSSARY

AASHTO: American Association of State Highway and Transportation Officials.

ADA: The Americans with Disabilities Act; civil rights legislation passed in 1990, effective July, 1992.

ADT: Average Daily Traffic. The measurement of the average number of vehicles passing a certain point each day on a highway, road or street.

Bicycle: A vehicle having two tandem wheels, minimum of 14" (35 cm) in diameter, propelled solely by human power, upon which a person or persons may ride. An adult three-wheeled tricycle is also considered a bicycle for the purposes of this plan.

Bicycle facilities: A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities, bike racks on buses, all bikeways, and shared roadways not specifically designated for bicycle use.

Bicycle lane (Bike lane): A portion of a roadway which has been designated by striping and pavement markings for the preferential or exclusive use of bicyclists.

Bicycle locker: Enclosed weather tight boxes that provide high security in which bicycles are placed.

Bicycle network: A system of connected bicycle ways that provide access to and from local and regional destinations and to adjacent bicycle networks.

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

Collector street: A street designed as a principle traffic carrier within neighborhoods which links neighborhoods with major activity centers and arterials.

Cross section, or "Typical cross section": Diagrammatic presentation of the roadway profile which is at right angles to the centerline at a given location.

Dagmire: A raised disk about four to eight inches in diameter generally used in a series to separate a motor vehicle travel lane from a bike lane.

Frontage road: A road designated and designed to serve local traffic parallel and adjacent to a highway or arterial street.

Goal 12: Oregon's goal to reduce automobile use by planning for other modes. The Transportation Planning Rule requires local governments to plan for bicyclists in various ways.

Grade: A measurement of the steepness of a roadway, bikeway, or walkway, expressed in a ratio of vertical rise per horizontal distance, usually in percent. For example, a 5% grade equals 5 meters of rise over a 100 meter horizontal distance.

ISTEA: The Intermodal Surface Transportation Efficiency Act.

Legend: Words, phrases, or numbers appearing on all or part of a traffic control device; also the symbols that appear on maps.

Local street: A street designated to provide access to and from residences or businesses.

Major arterial street: A street designated to carry local and through traffic to and from destinations outside the local community and connecting cities and rural centers.

Minor arterial Street: A street designated to connect collectors to higher-order roadways.

Multi-use path: A path 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, for use by bicyclists, pedestrians, joggers, skaters, and other means of non-motorized transportation.

MUTCD: The "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.

ODOT: Oregon Department of Transportation.

ORS: Oregon Revised Statute. Oregon Revised Statutes 366.514, ~~the "Oregon Bicycle Bill,"~~ is the law describing State funding and development of bikeways and walkways. Requires cities and counties to spend at least 1% of their gas-tax revenues on bicycle and pedestrian projects.

Pavement markings: Painted or applied lines or legends placed on a roadway surface for regulating, guiding, or warning traffic.

Right-of-way: A general term denoting publicly-owned land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Right of way: The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian.

Roadway: The paved portion of the right-of-way.

Rules of the road: That portion of a motor vehicle law that contains regulations governing the operation of vehicular and pedestrian traffic.

Shared roadway: A type of bikeway where bicyclists and motor vehicles share a travel lane.

Shoulder: The portion of a highway that is contiguous to the travel lanes provided for emergency use by vehicles, pedestrians, and bicyclists, and for lateral support of base and surface courses.

Shoulder bikeway: A type of bikeway where bicyclists travel on a paved shoulder.

Sight distance: The distance a person can see along an unobstructed line of sight.

TPR: Transportation Planning Rule.

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). See ADT.

TSP: Transportation System Plan: the overall plan for all transportation modes for a given area (usually city, county or MPO).

UGB: Urban Growth Boundary;

Vehicle: Any device in, upon, or by which any person or property is or may be transported or drawn upon a highway, including vehicles that are self-propelled or powered by any means.

Wide outside lane: A wider-than-normal curbside travel lane that is provided for ease of bicycle operation where there is insufficient room for a bike lane or shoulder bikeway.

Appendix II
ACTION ITEM SUMMARY

1. **ACTION**
   The Planned Bikeway Network maps 3 and 4 should be adopted in the County's Comprehensive Plan in place of maps V-6 and V-7.

2. **ACTION**
   As opportunities arise, the County should coordinate with Tri-Met to promote the "Bikes on Transit" program. County events promoting and educating the public on bicycling, such as the 1994 Soft Traffic Open house, present such opportunities.

3. **ACTION**
   The County will work with the Oregon Department of Transportation, the Forest Service, Metro, the Cities, and Parks Districts in acquiring and improving public and private rights-of-way for bicycle use.

4. **ACTION**
   The County shall actively seek funding for bicycle facility improvements.

5. **ACTION**
   The County will build stand-alone bicycle projects with priorities set by the Bicycle Project Evaluation Criteria developed in this plan.

6. **ACTION**
   The County will consider the priorities of the bicycle evaluation criteria in setting priorities for road reconstruction, widening, or relocation projects in the Capital Improvement Plan.

7. **ACTION**
Adopt the Bikeway Capital Improvement Plan as an element of the County's Transportation Capital Improvement Plan.

8. **ACTION**
The County should amend the County Road Standards and Design Manual to include bikeway design standards consistent with the Oregon Bicycle and Pedestrian Plan and AASHTO.

9. **ACTION**
The County shall amend the County Road Standards and Design Manual to include bicycle-sensitive traffic control devices (loop detectors) as part of intersection design standards.

10. **ACTION**
The County shall include a project for the provision of bicycle parking in the next Capital Improvement Plan.

11. **ACTION**
The County shall create and present an informational slide show on bikeways to all staff who plan, engineer, construct, and inspect transportation facilities.

12. **ACTION**
The County shall incorporate the Financially Constrained Bikeway Project List into the annual County Transportation Improvement Program and the County Capital Improvement Plan.

13. **ACTION**
The County shall program accessway maintenance where it is the responsible party and develop a means of notifying other property owners when necessary of their maintenance responsibility.

14. **ACTION**
The County Pedestrian and Bikeway Committee shall provide input on the 1995 Road Use Impediments Ordinance amendments.

15. **ACTION**
The County shall remove all dagmires and replace non-standard drainage grates with bicycle-safe grates on all County roadways.

16. **ACTION**
The County should adopt maintenance practices practices for sweeping, surface repairs, pavement overlays, vegetation control, drainage improvements, and signs, stripes and legend maintenance which respond to the needs of travelers by all modes.

17. **ACTION**
The County will respond promptly to reports of debris on bikeways, and bikeways will be swept whenever there is accumulation of debris.

18. **ACTION**
The County should develop a citizen feed-back program similar to, or in conjunction with, the City of Portland's Bicycle Facility Improvement Program.

19. **ACTION**
The County shall create and present an informational slide show on bikeway hazards to all staff who maintain bikeways.

20. **ACTION**
The County shall annually contact utility districts to determine which roads they plan to dig up and coordinate any roadway maintenance activities to occur after the utility district activity.

21. **ACTION**
The County shall develop an informational pamphlet and slide show and distribute them to utilities and their personnel to provide education as to the unique characteristics and needs of bicyclists.

22. **ACTION**
The County should develop an informational pamphlet and slide show to guide construction and maintenance workers in safe routing of bicycle traffic through and around construction and maintenance activities.

23. **ACTION**
The County should encourage activist groups such as the Bicycle Transportation Alliance, the Portland Wheelmen, and Portland United Mountain Pedalers to organize activities which promote bicycling as a viable transportation option within the County.

24. **ACTION**
The County should develop two informational brochures; one addressing the benefits and common concerns of bicycle commuting, the other on how bikes are good for business and what businesses can do to promote bicycling. These brochures should be provided to businesses or circulated through the Chambers of Commerce.

25. **ACTION**
Clackamas County shall regularly update the Clackamas County Bike Map.

26. **ACTION**
The County should continue to fund a full-time staff person to administer the bicycle program and coordinate the efforts of the Pedestrian and Bikeway Advisory Committee.

27. **ACTION**
The County, with assistance from the County Pedestrian and Bikeway Committee, shall present an Annual Status Report to the Board of County Commissioners on the Bike and Pedway Program.

28. **ACTION**
The County should ensure the continuation of the County Pedestrian and Bikeway cycle Committee as an advisory committee on all issues relating to bicycling.

29. **ACTION**
The County should develop an informational brochure on bicycle safety, rules of the road and sharing the road. This brochure should be circulated through the Chambers of Commerce, the County Sheriff's Office, and police precincts.

30. **ACTION**
The County should include a project on bicycle safety and education in the next Capital Improvement Plan.

31. **ACTION**
Clackamas County should ensure that a bicycle safety and education curriculum is available for use by teachers at every school. A flyer with a brief description of the curriculum and ways to incorporate it into classroom activities should be made and distributed to all schools and school district curriculum directors.

32. **ACTION**
The County should include a watch of bike racks in areas where County sheriff deputies patrol.

33. **ACTION**
Encourage Service District #5 or alternative method to illuminate all collectors and arterials.

34. **ACTION**

The County shall:

Update the bikeway inventory for the County on every three years.

Collect bicycle travel data for the County every two years to measure how an area or facility is actually being used.

Review bicycle accident data in the project priorities evaluation of the Capital Improvement Plan.

Review new land use development to determine impacts on plan priorities as part of Capital Improvement Plan update.

Review annually the priorities in the Capital Improvement Program.

Review and revise as necessary the Bicycle Plan as a part of periodic review.

APPENDIX III
DRAFT BIKEWAY PROJECT PRIORITIES LIST

S=Stand-alone bikeway projects						2 point for each: Short sight distance; Narrow/no shoulder; High speed traffic; Turning Movements					
R=New road							Links = 10	Schools & major bike destinations =10	< 50 = 10		
1-4=Ranking in CIP (1=highest, 4=lowest)				Low (2) - High (10)	Low (0) - High (10)	0 - 10	Extends = 5	Others = 5	50 - 85 = 5		
							Isolated = 0	(Max. 25 pts)	> 85 = 0		
Project Category	Project Number	Road Name	Description	Potential Ridership	Traffic Volume	Other Safety Factors	Connectivity to Network	Connectivity to Destination	Cost per Foot	Total Score*	
		HIGH PRIORITY PROJECTS									
3	15	BEAVERCREEK	Molalla Ave to Henrici	10	10	10	5	15	10	60	
3	16	FULLER	King Road to Harmony Road	8	6	6	10	20	10	60	
3	17	JOHNSON/LAKE	Webster to Clackamas	8	9	4	10	15	9	55	
S	18	OAK GROVE	99E to River Road	10	7	6	10	15	5	53	
S	19	THIESSEN	Oatfield to Webster	9	10	8	10	5	0	52	
S	20	SUNNYSIDE	82nd to I-205	10	10	6	10	10	10	51	
3	21	JENNINGS	Oatfield to Webster	5	7	10	10	10	8	50	
3	22	SUNNYSIDE ROAD	122nd to 172nd	9	10	8	5	10	8	50	
S	23	IVY	99E to 13th	5	10	4	5	15	10	49	
S	24	132nd	Sunnyside to Hubbard	10	3	4	5	15	10	47	
S	25	JENNINGS	River Rd E. to Oatfield	6	7	6	10	10	8	47	
3	26	SUMMERS LANE EXT	Mather to 152nd	7	7	7	0	15	7	43	
N	27	122nd/129th	Sunnyside to SE King	6	4	10	5	10	7	42	
4	28	ROOTS	Webster to McKinley	6	8	6	10	5	7	42	
3	29	142nd	Sunnyside to Hwy 212/224	10	1	8	5	10	7	41	
4	30	CARMEN	I-5 overpass to Quarry R	8	8	8	5	5	7	41	
3	31	82nd	Jennifer to Fred Meyer	3	8	4	10	5	10	40	
S	32	LINWOOD	King to Johnson Creek	10	6	4	10	5	5	40	
S	33	STAFFORD	Lake Oswego City limits to I-205	3	10	10	0	10	7	40	
3	34	JOHNSON/CREEK BLVD	County line to 82nd Ave	5	10	8	5	5	7	40	
2	35	Bicycle Parking and Promotion Project**									
S	36	Education and Promotional Brochures and Slide Shows**									
S	37	Molalla River Pathway**									
S	37a	Springwater Corridor**	Boring to Estacada								
		MEDIUM PRIORITY PROJECTS									
1	38	122nd	Hubbard to Sunnyside	7	8	6	5	5	6	37	
S	39	LAWNFIELD	82nd Drive to 97th	3	10	4	5	5	10	37	
1	40	SUNNYSIDE ROAD	172nd to Hwy 212	8	7	10	0	5	8	36	
S	41	13th	Ivy to Redwood	10	1	4	0	10	10	35	
S	42	CAUSEY	I-205 Path to Fuller	5	8	4	0	10	10	35	
S	43	ROETHE	River Road to 99E	8	5	4	5	5	5	34	
S	44	97th	Lawnfield to Mather	4	8	4	10	5	10	33	
S	45	STRAWBERRY	E. edge of bridge to 82nd Drive	4	4	10	10	5	0	33	
S	46	MATHER	97th to 122nd	4	8	8	0	10	5	32	
4	47	SOUTH END	Glacier Ct. to UGB	3	6	6	0	10	5	32	
4	48	SOUTH END	UGB to 99E	5	3	10	5	10	5	32	
4	49	TERRITORIAL	Molalla Forest Road to 99E	4	3	6	0	5	10	32	
4	50	BONITA	Bangy to Carmen	8	3	6	0	5	10	32	
S	51	MILEY ROAD	I-5 to Elligsen	3	10	4	0	10	5	31	
S	52	BORLAND	Stafford to Hwy 43	5	3	8	5	10	5	31	
S	53	JENNIFER	108th to 120th	5	4	4	0	15	5	33	
S	54	TOWNSHIP	Ivy Street to Molalla River Pathway	3	4	4	0	5	5	30	
S	55	STAFFORD	I-205 to Wilsonville	3	7	10	0	5	5	30	
3	56	JOHNSON/CREEK EXT	92nd to Idleman	5	5	5	5		5	30	
N											

265 310

APPENDIX III
DRAFT BIKEWAY PROJECT PRIORITIES LIST

S=Stand-alone bikeway projects N=New road 1-4=Ranking in CIP (1=highest, 4=lowest)						2 pts for each: Short sight distance, Narrow/no shoulder, High speed traffic, Turning Movements	Links = 10, Extends = 5, Isolated = 0	Schools & major bike destinations = 10, Others = 5 (Max. 20 pts)	< 50 = 10, 50 - 35 = 5, > 35 = 0	
				Low (0) - High (10)	Low (0) - High (10)	0 - 10				
Project Category	**Project Number**	**Road Name**	**Description**	**Potential Ridership**	**Traffic Volume**	**Other Safety Factors**	**Connectivity to Network**	**Connectivity to Destination**	**Cost per Foot**	**Total Score***
		LOW PRIORITY PROJECTS								
S	57	132nd	King to Clatsop	3	5	6	0	10	5	29
S	58	BORLAND/WILLAMETTE	65th to Stafford	4	8	10	0	5	0	27
4	59	ALDERCREST	Rusk to Thiessen	5	3	8	0	5	4	25
4	60	KING	145th to 129th	4	3	4	0	10	4	25
S	61	RUSK	Lake Road to Aldercrest	4	3	8	5	5	0	25
4	62	98th	Lawnfield to Mather	3	4	4	5	5	4	24
4	63	102nd/Industrial Way	Hwy 212 to Lawnfield	2	4	4	5	5	4	24
3	64	IDLEMAN	92nd to Mt. Scott	4	2	6	0	5	4	23
3	65	WELCHES ROAD	Hwy 26 to Elk Park Road	3	3	4	0	10	4	23
S	66	WALL	Hwy 211 to Green Mtn Road	2	1	4	0	15	0	22
S	67	MT SCOTT BLVD	County line to Idleman	2	3	6	0	5	5	21
4	68	MT SCOTT BLVD	Idleman to King Road	3	3	6	0	5	3	20
S	69	145th/147th	Clatsop to Monner	3	1	0	0	10	0	20
N	70	Monterey Extension	Stevens Rd to Valley View	4	3	3	0	5	3	18
N	71	Happy Valley Access Rd	Valley View Terrace to Mt Scott	4	3	3	0	5	3	18
3	72	OTTY ROAD	82nd to 92nd	4	3	4	0	5	3	19
S	73	90th	Causey to Monterey	3	2	4	0	5	5	19
S	74	162nd	Monner to Sunnyside	2	1	4	0	5	5	17
S	75	MONNER	147th to 162nd	2	1	4	0	5	5	17
4	76	Mather	Industrial Way to 98th	2	2	2	0	5	2	13

* Total Score: Data was unavailable for the highlighted cells. Scores appearing in these cells were estimated based on available data.
**These projects do not fit the criteria for ranking amongst roadway construction projects but are high priority projects according to the bicycle plan.

* Total Score: Data was unavailable for the highlighted cells. In order to estimate scoring for projects with missing data, the average of the project's available data was entered for the missing data. Total scores next to rows with highlighted cells reflect the addition of these averages.

265 311

APPENDIX IV
DRAFT STAND-ALONE BIKEWAY PROJECT PRIORITIES LIST

						2 point for each: Short sight distance; Narrow/no shoulder; High speed traffic; Turning Movements 0 - 10	Links = 10; Extends = 5; Isolated = 0	Schools & major bike destinations =10; Others = 5 (Max. 20 pts)	< 50 = 10; 50 - 85 = 5; > 85 = 0	
				Low (0) - High (10)	Low (0) - High (10)					
Project Number	Road Name	Description	Total Score	Potential Ridership	Traffic Volume	Other Safety Factors	Connectivity to Network	Connectivity to Destination	Cost per Foot	Total Score*
18	OAK GROVE	99E to River Road	53	10	7	6	10	15	5	53
19	THIESSEN	Oatfield to Webster	52	9	10	8	10	15	0	52
20	SUNNYSIDE	82nd to I-205	51	10	10	6	10	5	10	51
23	IVY	99E to 13th	49	5	10	4	5	15	10	49
24	132nd	Sunnyside to Hubbard	47	10	3	4	5	15	10	47
31	82nd	Jennifer to Fred Meyer	40	3	8	4	10	5	10	40
32	LINWOOD	King to Johnson Creek	40	10	6	4	10	5	5	40
35	Bicycle Parking and Promotion Project**									
36	Education and Promotional Brochures and Slide Shows**									
37	Molalla River Pathway**									
37a	Springwater Corridor**	Boring to Estacada								
39	LAWNFIELD	82nd Drive to Mather	37	3	10	4	5	5	10	37
41	13th	Ivy to Redwood	35	10	1	4	0	10	10	35
42	CAUSEY	I-205 Path to Fuller	35	5	6	4	0	10	10	35
43	ROETHE	River Road to 99E	35	6	5	4	10	5	5	35
44	97th	Lawnfield to Mather	34	4	6	4	5	5	10	34
45	STRAWBERRY	E. edge of bridge to 82nd Drive	33	4	4	10	10	5	0	33
50	BONITA	Bangy to Carmen	32	8	3	6	0	5	10	32
51	MILEY ROAD	I-5 to Eilers	32	3	10	4	0	5	10	32
52	BORLAND	Stafford to Hwy 43	31	5	3	8	0	10	5	31
53	JENNIFER	Existing lanes to 130th	31	3	4	4	5	10	5	31
54	TOWNSHIP	Ivy Street to Molalla River Pathway	31	3	4	4	0	15	5	31
58	BORLAND/WILLAMETTE	65th to Stafford	27	4	8	10	0	5	0	27
61	RUSK	Lake Road to Aldercrest	25	4	3	8	5	5	0	25
66	WALL	Hwy 211 to Green Mtn Road	22	2	1	4	0	15	0	22
67	MT SCOTT BLVD	County line to Idleman	21	2	3	6	0	5	5	21
69	145th/147th	Clatsop to Monner	20	3	1	6	0	10	0	20
73	90th	Causey to Monterey	19	3	2	4	0	5	5	19
74	162nd	Monner to Sunnyside	17	2	1	4	0	5	5	17
75	MONNER	147th to 162nd	17	2	1	4	0	5	5	17

* Total Score: Data was unavailable for the highlighted cells. Scores appearing in these cells were estimated based on available data.

**These projects do not fit the criteria for ranking amongst roadway construction projects but are high priority projects according to the bicycle plan.

Appendix V
BIKEWAY PROJECT EVALUATION CRITERIA DESCRIPTION

In order to help determine which of the many important bikeway projects should be constructed first, Bikeway Project Evaluation Criteria were created. Four main areas for ranking bikeway projects were identified; potential ridership, safety, connectivity, and cost effectiveness. A description of each criteria follows.

Potential Ridership - This is often difficult to determine but should be a factor in considering which projects to build first. Data collected on Clackamas County roads in the Spring and Summer of 1995 was used to estimate ridership. Projects were ranked from 0 to 10 according to their potential bicycle use. One point was awarded for each 10 potential bicyclists. For further details on the data collected and the method used for estimating potential ridership see Appendix VI.

Safety - Proposed bikeways on roads with higher traffic volumes and safety factors such as narrow shoulders and high speeds were given higher scores.

Traffic volume was given one point per 1000 vehicles that used the road per day, for example, a road with an average traffic volume of 8575 cars per day received a score of nine in the evaluation criteria with a maximum score of 10.

Other Safety Factors were awarded two points for each factor identified on the roadway. The list of safety factors included short sight distance, narrow shoulders or no shoulders, high automobile traffic speeds, and multiple turning movements.

Connectivity - Two categories on connectivity were identified for ranking; connectivity to the existing network of bikeways, and connectivity to destinations. In order to provide a continuous network of bikeways that is connective to destinations these categories were identified as important.

Connectivity to the existing network awards ten points if the proposed bikeway provides a link in the existing network of bikeways, five points if it extends the existing network, and zero points if it is an isolated bikeway project.

Connectivity to destinations awards ten points if the bikeway provides access to a school or major bike destinations. Five points are awarded if the bikeway provides access to other destinations such as shopping centers, parks, libraries, churches, employment areas, transit centers, etc.. A maximum of 20 points can be awarded in this category.

Cost Effectiveness - In order to achieve the most miles of bikeways possible with the limited funds available, additional points were given to projects that cost less per foot to build, however, this should not be an overriding factor. Projects that cost less than $50 per foot to build were given ten points. Projects with a cost between $50 and $85 per foot were awarded five points, and zero points were give to projects with a cost higher than $85.

The criteria to be used on an annual basis for project evaluation of stand-alone bikeway projects will be the above bikeway project evaluation criteria and will include the "Additional Considerations" described below.

Additional Considerations

Outside Funding Source - Projects with an outside funding source such as a grant will be awarded an additional ten points. These projects allow the County to "stretch" its available funds.

Coordinated with Planned Road Project - Ten points will be awarded to projects that are coordinated with planned road projects. This increases efficiency in achieving bikeways and decreases the cost of the project.

Community Support - Projects that are sought by a community can receive as many as 25 additional points depending on the level of support within the community. Projects the community opposes may have as many as 25 points taken away from the project depending on the level of opposition.

Appendix VI
METHOD FOR ESTIMATING POTENTIAL RIDERSHIP

In the Spring/Summer of 1995, staff created a data base of existing bicycle traffic counts on 35 road segments (See appendix VIII). These counts were along roads of all types, some with improved bikeways, some without. Some basic trends were revealed. Roadways with bikeways averaged double the bicycle traffic compared to similar roadways without bikeway improvements. Locations with bikeways extending in only one direction had 50% more bicycle traffic than similar locations without bikeways.

Potential ridership estimates were made for roads on the Bicycle Project List by doubling the existing bicycle traffic count for the unimproved road if a count was taken, or adding 50% more bicycle traffic if a bikeway is proposed to be extended. If no existing bicycle counts were made along a proposed bicycle project, a similar road was used to provide a base for the estimate. Similarities include functional class, ADT, rural/urban character, surrounding land uses, and proximity to schools.

The Potential Ridership estimates include those people who bicycle the route already and would do so under safer conditions as a bikeway, as well as those induced to ride the route either by mode shift or shifting from an unimproved roadway. Some will ride only a segment of a route. Segments near intersections with other bikeways would be expected to have higher bicycle traffic volumes than segments between intersections of bikeways. Clear, dry, comfortably warm weather is assumed during weekdays. Connectivity provided by other bikeways along proposed road projects included in the CIP is also assumed. The potential ridership is based on empirical data; thus, changed lifestyle that may result from increased bicycling popularity or avoidance of vehicle congestion is not necessary for these projections to come true.

One point was assigned to each proposed project for each 10 potential riders, up to a maximum of 10 points (100 riders or more).

Appendix VII
OBSERVATIONS FROM BIKE COUNTS

Considering arterials and collectors in the urban area, the average road without bike lanes had about 40 bikes a day. Some of our locations were at intersections where bike lanes were extended one direction along a road, but not in the opposite direction, i.e., Linwood at King. Such locations had about 50% more bike traffic (60) bikes a day. Locations with improved bike facilities in both directions had about 100% more bike traffic or (80) bikes a day.

From being on site and getting the "feel" of these locations, the presence of a corner store, 7-11 or equivalent, generated a lot of pedestrian traffic, and seemed to generate a little more bike traffic. Actually, a breakdown of the data by functional class does not support the observation about the corner store always increasing bike traffic. Where there seems to be a slight trend on locals and collectors, 61 bikes (with store) compared to 52 without; this trend washes out on minor arterials, 58 bikes (with store) compared to 77 without.

All arterials studied, whether improved with bikeways or not, averaged 64 daily riders, while collectors averaged 53. Arterials probably meet the needs of commuters better than collectors do.

While some arterials had the highest percentage of bicycle helmet use, there was enough variability to result in not much overall difference in helmet usage by functional class.

Based on inferences drawn from clothing, speed, and time of day, the number of bike commuters wearing safety helmets is near 100%. Essentially all serious bikers wear them. Perhaps half of the children do. However, few adults on short recreational trips do. In general the most dangerous bike traffic violations are committed by late teens or young adults on short neighborhood trips. Next year it would be interesting to methodically count bikers riding the right direction and the wrong direction on bikeways.

APPENDIX VIII
PEDESTRIAN AND BICYCLE COUNTS

Road	Location	Year	Daily Pedestrian	Daily Bike	Percent w/helmets	Functional Class	ADT Motor Vh.	Improvements Ped.	Bike	Land Use	start time
John.Ck.B (includes Spg.Water Corr.)	at Linwood/F	95	40	132	42%	minor art.	10500	none	none	industrial	4:00
River Rd.	at Courtney	95	44	128	72%	minor art.	10000	none	b.l. both	residential	4:00
King	at Linwood	95	168	112	46%	minor art.	12450	s.w. east	b.l. both	conven. store	4:00
82nd Ave.	at John.Ck.B	95	136	112	21%	major art.	26600	s.w. both	none	comm. some attract.	4:00
Springwater	at Linwood/F	95	28	108	48%	multi-use trail		unimproved		industrial	4:00
Courtney	at River Rd	95	32	104	69%	collector	N.A.	none	none	residential	4:00
82nd	at King	95	324	104	11%	major art.	26600	s.w. both	none	busy comm. strip	4:00
Linwood	at RR Harmony N-S	95	204	96	54%	minor art.	12500	s.w. both	b.l. both	conven. store	4:00
Arista	at Oak Grove Blvd	95	180	92	17%	local	N.A.	s.w. north	b.l. north	school conven. store	2:00
King	at 82nd	95	160	92	26%	minor art.	17050	s.w. west	b.l. west	busy comm. strip	4:00
McLoughlin	at Concord	95	188	80	45%	major art.	35800	some	none	comm. some attract.	4:00
Harmony	at RR Linwood E-W	95	112	80	45%	major art.	11000	s.w. east	b.l. east	conven. store	4:00
McLoughlin	at Jennings	95	176	72	11%	major art.	31600	none	none	comm. some attract.	4:00
Linwood	at King	95	192	68	41%	minor art.	12050	s.w. south	b.l. south	conven. store	4:00
Oatfield	at Roethe	95	52	64	81%	minor art.	14000	none	b.l. both	school close	4:00
Oak Grove Blvd	at Arista	95	488	60	47%	collector	10050	s.w. both	none	school, conven. store	2:00
132nd	at Sunnyside	95	104	60	60%	collector	2000	s.w. both	none	school close	4:00
John. Ck. Blvd	at 82nd Ave.	95	72	60	20%	minor art.	9650	s.w. both	b.l. east	comm. some attract.	4:00
Webster	at Thiessen	95	88	56	36%	minor art.	16750	none	b.l. both	conven. store	4:00
Oak Grove B	at McLoughlin	95	176	56	64%	collector	10050	s.w. east	b.l. east	comm. some attract.	4:00
McLoughlin	at Oak Grove B	95	244	48	58%	major art.	35800	s.w. both	none	comm. some attract.	4:00
Thiessen	at Webster	95	76	44	27%	minor art.	8800	s.w. east	none	conven. store	4:00
Sunnyside	at 122nd	95	56	44	36%	major art.	20000	none	none co	mm. (not attract)	4:00
Harmony	at Fuller	95	84	44	54%	major art.	24400	s.w. both	b.l. both	park, swim ctr.	3:45
Johnson Road	at Clackamas	95	80	40	30%	minor art.	6550	none	none	residential	3:35
Sunnyside	at 132nd	95	88	40	50%	major art.	12200	none	none	school close	4:00
Jennings	at McLoughlin	95	116	40	30%	minor art.	6350	none	b.l. east	comm. some attract.	4:00
Fuller	at Harmony	95	40	40	20%	collector	9200	s.w. part	none	park, swim ctr.	3:45
122nd	at Sunnyside	95	68	36	11%	minor art.	8900	s.w. south	none co	mm. (not attract)	4:00
Concord	at McLoughlin	95	160	32	37%	minor art.	5250	s.w. east	none	comm. some attract.	4:00
Clackamas	at Johnson Rd.	95	36	28	14%	collector	9250	s.w. west	none	residential	3:35
Linwood/F	at John.Ck.B	95	16	28	14%	minor art.	7650	none	none	residential	4:00
Roethe	at Oatfield	95	44	24	50%	collector	6100	s.w west	none	school close	4:00
82nd Drive	at HWY 212/224	95	140	12	67%	minor art.	17500	s.w. both	none	comm. (not attract)	7:15
HWY 212/224	at 82nd Drive	95	96	4	100%	major art.	45000	s.w. both	none	comm. (not attract)	7:15

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