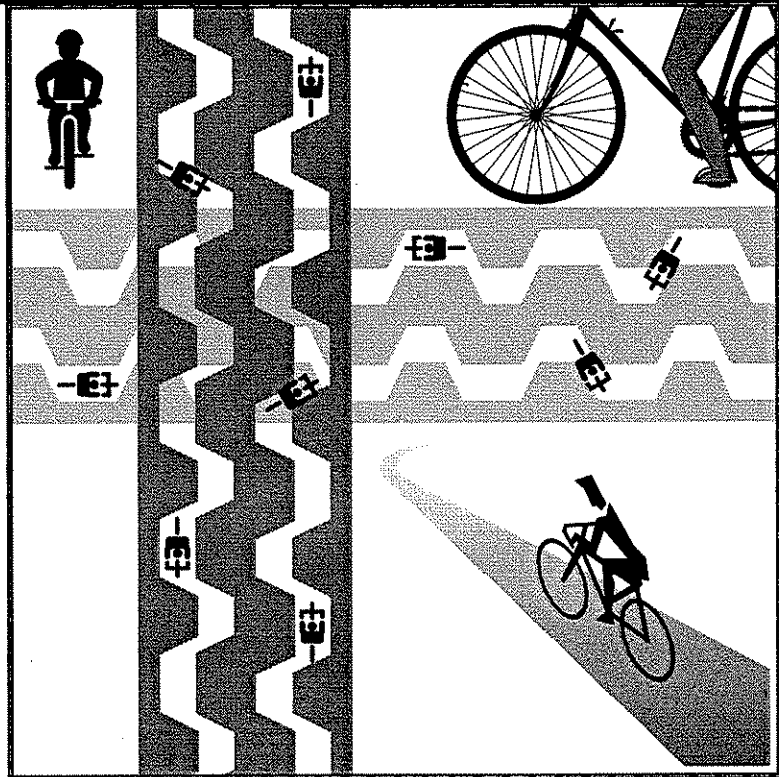


# CLACKAMAS COUNTY TRANSPORTATION SYSTEM PLAN

ROADS	TRANSIT	<b>BICYCLING</b>	PEDWAYS	TRANSPORTATION DEMAND MANAGEMENT	FREIGHT	AIR
					FINANCING	CAPITAL IMPROVEMENT PROGRAM

## Bicycle Master Plan 2003



CLACKAMAS COUNTY DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT  
DECEMBER 2003

# **BICYCLE MASTER PLAN**

Adopted May 23, 1996  
Updated December 2003

CLACKAMAS COUNTY  
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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 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

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## INTRODUCTION

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### PURPOSE

This plan updates the County's Bikeway Master Plan completed in 1996. It is 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 is the bicycle element of the County's Transportation System Plan (TSP). It updates the County's Comprehensive Plan and the County's Capital Improvements Plan (CIP). These plans provide policy, planning, and implementation direction for all modes of transportation in unincorporated Clackamas County.

### CHAPTER SUMMARY

Chapter 1, *County Overview*, describes Clackamas County's current Pedestrian and Bikeway Advisory Committee. It also identifies the existing conditions of bikeways throughout the County.

Chapter 2, *Vision, Goals, Objectives, and Strategies*, outlines the vision, goals, objectives and strategies that will guide bicycle planning in the County.

Chapters 3-7 provide a detailed discussion of the goals, objectives and strategies outlined in Chapter 2.

### 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<sup>1</sup>. While recreational cycling has been gaining steadily in popularity,

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<sup>1</sup> "The National Bicycling and Walking Study, Final Report," U.S. Department of Transportation, Federal Highway Administration

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."<sup>2</sup> 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. In general, cities with more bikeways per roadway mile experienced higher bicycle commuting rates. The presence of on-road bikeways also significantly increases bicycle commute rates.

The current share of automobile trips that could potentially be replaced by bicycle trips 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 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 that does not have access to an automobile. Approximately 16% of Oregon's population above the age of 18 do not have a valid driver's license, and 25% of Oregon's population above the age of 7 cannot drive or does not have access to an automobile.<sup>3</sup> The young, 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 limits 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.

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<sup>2</sup> The National Bicycling and Walking Study, Final Report," U.S. Department of Transportation, Federal Highway Administration, p. VII.

<sup>3</sup> "Oregon Drivers," Oregon Department of Transportation, Department of Motor Vehicles, 1991.

## **PUBLIC AND INTERAGENCY INVOLVEMENT**

The preparation of this plan was coordinated with the transportation plan updates of other counties and cities in the Portland region. The County has also adopted the bikeway policies, guidelines and designs in the *Oregon Bicycle and Pedestrian Plan* and its updates.

Public involvement has been an integral part of this planning process. The Clackamas County Pedestrian and Bikeway Advisory Committee, has acted as the Citizen's Advisory Committee for this plan, and has overseen this plan's development and updates. The committee has met once or more monthly throughout the plan update process to provide guidance to staff. These meetings have been open to the public and have incorporated additional citizen input. The final draft plan updates were made available to the public for comment.

## **THE LAWS RELATING TO BICYCLING**

Bicycles, according to Oregon State law, are considered vehicles and 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 have bikeway plan elements in their transportation system plans (TSPs).

### **Federal**

**The Intermodal Surface Transportation Efficiency Act (ISTEA)** was passed by Congress in 1991 and updated in 1998. It recognizes bicycling as a viable mode of transportation and provides opportunities to increase 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 was re-authorized on June 9, 1998 for six years expiring on September 30, 2003. Congress is currently working on another 6-year authorization of ISTEA and draft bills maintain the intermodal goals and funding of the previous authorizations.

ISTEA requires that each State appoint a bicycle and pedestrian coordinator. It also provides funding opportunities through the following funded programs: National Highway System program (NHS); Surface Transportation Program (STP) Funds; Transportation Enhancement Activities (TE); Congestion Mitigation and Air Quality Improvement Program (CMAQ); Scenic Byways; Federal Lands Highway (FLHP); and National Recreational Trails. Bicycle safety is also a priority, subject to congressional authorizations for Section 402 Highway Safety Program Funding. ISTEA has created 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 IV, 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 (LCDC) 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.* The goal 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.

**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 ½ mile of a mix of stores and services, transit, parks and services, and open spaces.*

*21. Percentage of existing development where occupants are within ½ 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 motor vehicle.*

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

**1995: Oregon Bicycle and Pedestrian Plan.** This plan is an adopted element of the Oregon Transportation Plan. The Oregon Bicycle and Pedestrian Plan includes bikeway policies, standards, and guidelines for design, maintenance and safety. The County has adopted the policies and design standards from this plan.

## **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 first adopted a Bikeway Plan.

The County's Comprehensive Plan adopted in 1980 further refined the bikeway network, as did the amended Comprehensive Plans of 1989, 1992 and 1996. Since then, the County's Comprehensive Plan and Zoning and Development Ordinances, County TSPs, and the Oregon Bicycle and Pedestrian Plan have guided construction of

bikeways along newly constructed, reconstructed, or relocated roads, and along existing streets.

The long-standing policies in these Plans and Ordinances are responsible for creating the network 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 Plans (TSPs) 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 portions of it have been adopted into the Comprehensive Plan.

In September, 1994 the Zoning and Development Ordinance (ZDO) was amended to implement requirements contained in the State's Transportation Planning Rule. These included:

- New development is required 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.

## CHAPTER 1 COUNTY OVERVIEW

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### PEDESTRIAN AND BIKEWAY ADVISORY COMMITTEE

The Clackamas County Pedestrian / 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 strategies for bicycle and pedestrian projects.

Working with staff, 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.

### 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 bikeway connections include bicycle lanes on River Road, Oatfield Road, Webster Road, the I-205 Bike Path, Bob Schumacher Road, and the bikelanes on Highway 43 from Oswego Creek through West Linn.

Notable exceptions to the north/south grid are McLoughlin Boulevard, 82<sup>nd</sup> Avenue and north-south connections through Lake Oswego, Milwaukie and from Clackamas to Happy Valley into Portland. McLoughlin Boulevard is also a missing north-south connection in Oregon City.

Three north-south connections into Portland currently exist. They include the Terwilliger multi-use path, 17<sup>th</sup> Avenue and the I-205 multi-use path.

By 2003, the urban bikeway system increased to include Courtney Ave., Oak Grove Blvd., Concord Ave, Johnson/Lake Rd, Clackamas Rd., Cason Rd., Strawberry Lane and portions of Roethe Road.

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. Vital connections that are still missing include Jennings Avenue, Hill Road, and Thiessen Road. Even if these additional bikeways were constructed, east/west connections across the urban area would 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 are Sunnyside Road and Highway 212/224. Bikelanes are currently being constructed on Sunnyside from I-205 to SE 132<sup>nd</sup> Ave. and on parallel Sunnybrook Blvd. between I-205 and SE 108<sup>th</sup> Ave. The Highway 212 Beautification Project constructed bikelanes between I-205 and SE 135<sup>th</sup> Ave. East of SE 135<sup>th</sup>, cyclists use a wide, striped shoulder area which ends at Carver Junction. Highway 212 has no bike connections across I-205. Due to the high volume of automobile traffic, high vehicle speeds, and few bikeway connections to other roads and across I-205, bicycle travel on Sunnyside Rd. and Highway 212/224 is currently limited.

Summers Lane provides a new east-west connection from Mather Rd. to SE 132<sup>nd</sup> Ave. Improvements to Mather Road, between 122<sup>nd</sup> Ave and 97<sup>th</sup> would help complete lower traffic east-west connection with Summers Lane.

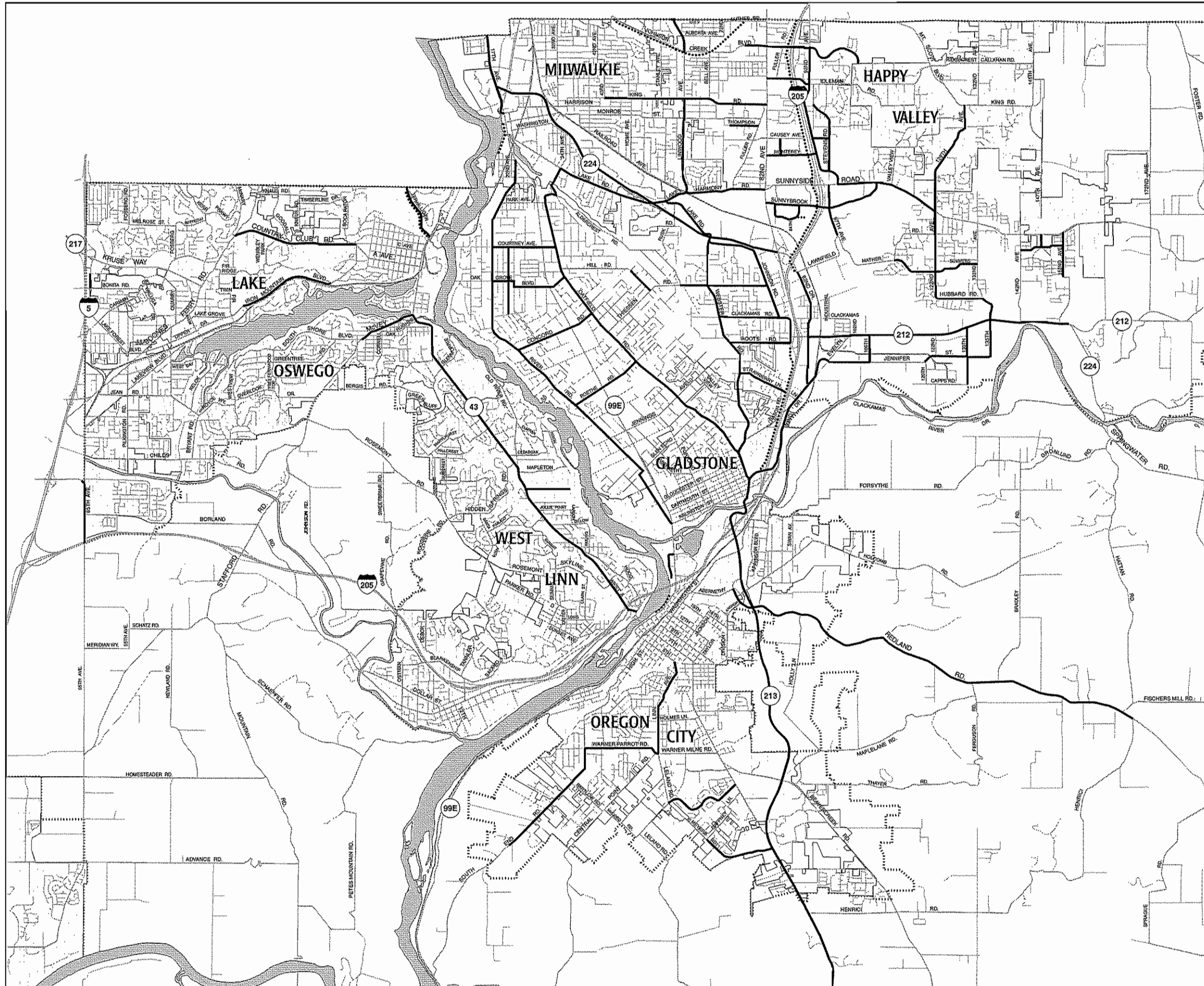
Bikeways providing access across I-205 are very limited. Bikeway crossings currently exist on Johnson Creek Boulevard, 82<sup>nd</sup> Drive in Gladstone, and Hwy. 213. However, each of these bikeways has obstacles to bicycle travel such as high speed automobiles entering or exiting the freeway. Of particular concern are free right-hand turns off freeway ramps from I-205. These free turns pose extreme hazards for cyclists. Motorists traveling at high rates of speed have little time to react to cyclists in their path. Slower moving bicyclists are not able to maneuver out of the way quickly.

Safe bikeway connections across I-205 at various points need to be completed. Both the Otty Rd. and Monterey Rd. overpasses have bikelanes, but the bikelanes terminate between I-205 and SE 82<sup>nd</sup> Ave. Bikelanes on Strawberry Lane terminate at the narrow I-205 overpass. All modes (bicyclists, pedestrians, Tri-Met buses, and motorists) must share the two twelve-foot travel lanes on the narrow Strawberry overpass.

East of I-205, between Highway 212/224 and Sunnyside Road, north/south bikeways exist on 122<sup>nd</sup> Ave and on 132<sup>nd</sup> Ave. Other needed north-south connections include 142<sup>nd</sup> Ave and 152<sup>nd</sup> Ave.

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.

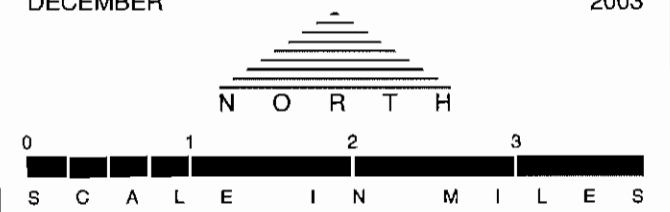
The South County area, with a more dispersed population, is also lacking in bikeways. Many of the roads in this area are very narrow. There is a need in this area to widen roads and provide shoulders not only for bicycles, but also for increased safety for automobiles. As the population in the outlying areas increase, shoulders will become more important.



## Existing Urban Bikeway Network



- EXISTING BIKEWAY
- ..... EXISTING MULTI-USE TRAIL
- URBAN GROWTH BOUNDARY

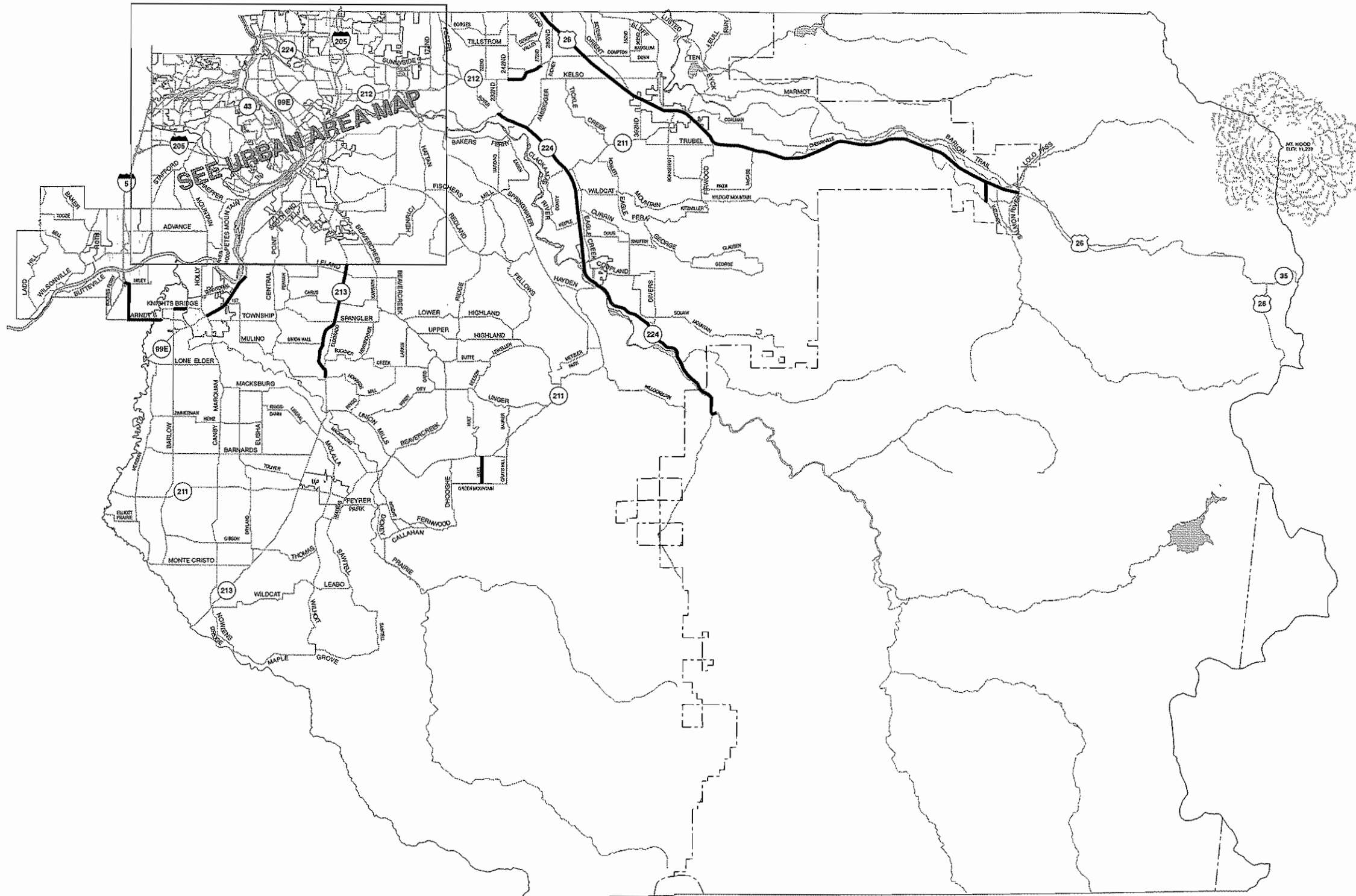
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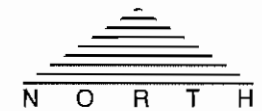
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# Existing Rural Bikeway Network

-  EXISTING BIKEWAY
-  EXISTING MULTI-USE TRAIL



DECEMBER 2003



DEPARTMENT OF TRANSPORTATION & DEVELOPMENT  
9101 SUNNYBROOK BLVD. • CLACKAMAS, OR 97015

CLACKAMAS COUNTY BICYCLE MASTER PLAN  **MAP 2**

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 recreation areas are Highways 26 and 224. Highway 26 heads east from the City of Sandy toward Mt. Hood. Highway 224 traverses the Mt. Hood National Forest through the eastern third of the County accessing many miles of trails used by mountain bicyclists.

### **Recreational versus Commuter/Utility Routes**

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

New bicyclists and some recreational cyclists prefer to be completely separated from automobile traffic. The I-205 pathway is used for recreational purposes. 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 extension of the Springwater Corridor (from Boring to Estacada, also known as the Cazadero Trail), the Molalla River Pathway and the Portland Traction Line (also known as the Trolley Trail) are all planned multi-use trails which will provide important non-motorized corridor access through Clackamas County. Both recreational and commuting bicyclists would utilize these linear multi-use accessways. Recreational cyclists, particularly less experienced cyclists, would utilize the paths to sharpen their bicycling skills away from motorized transportation. Commuters would use them for a more relaxed ride away from high-speed roadways.

### **Bicycle Parking**

The County passed a bicycle parking ordinance (updated 03-14-02) requiring adequate bike parking based on the size and type of new development. This ordinance does not require the retrofit of existing development. 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 82<sup>nd</sup> 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 unincorporated 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 has completed its own Transportation System Plan, including a bicycle element. In addition, Lake Oswego, West Linn, Oregon City and Milwaukie plan for bicycle facilities within the unincorporated areas assigned for “active planning” under their UGMA.

Coordination with the cities and all public agencies take place on various levels for the 1996 Bicycle Master Plan.

- 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 liaisons to their agencies.
- Draft plan updates are circulated between staff members of the various agencies for comments. All agencies receive copies of the Draft Bicycle Plan.
- County staff members attend public meetings hosted by neighboring jurisdictions as needed.
- County staff coordinates with all agencies involved with specific bikeway projects either directly and/or through project-level technical advisory committees.
- Metro’s Regional Bicycle Program Work Team also fulfills a major role of coordination at the regional level.

## CHAPTER 2

### VISION, GOALS, OBJECTIVES, AND STRATEGIES

---

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

#### VISION

Create an environment that 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:A Objective

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

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

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

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

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

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

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

**1:B Objective:** Provide more bikeways.

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

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

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

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

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

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

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

**1:C:4 Strategy:** Review dedicated funding sources every two years as a part of the 5 year County-wide CIP update process to ensure that funding is adequate to address improvement needs identified in the Clackamas County Bicycle Plan.

## **GOAL 2**

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

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

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

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

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

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

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

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

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

**2:C: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:A Objective:** Keep bikeways free of debris and in good repair

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

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

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

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

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

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

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

**3:A: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:A Objective:** Provide information to assist and encourage people to use bicycles for transportation and recreation.

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

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

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

**4:A: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:A:5 Strategy:** Regularly update the Clackamas County Bicycle Map and website.

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

**4:B:1 Strategy:** Continue to provide adequate staff levels to administer the bicycle program and the Pedestrian and Bikeway Advisory Committee.

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

## **GOAL 5**

To promote bicyclist's safety, increase the awareness of the rights and responsibilities of bicyclists, motorists and pedestrians when sharing of both on-road and off-road bikeways.

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

**5:A: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:A: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:B Objective:** Increase security for bicycles and bicyclists.

**5:B: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:B: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:A Objective:** conduct 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:A:1 Strategy:** Update the bikeway system inventory for the County every 2 years during the 5-year CIP update process.

**6:A:2 Strategy:** Collect bicycle usage data to measure how an important area or facility is actually being used.

**6:A:3 Strategy:** Review bicycle accident data in the project priority evaluation of the Capital Improvement Plan.

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

**6:A:5 Strategy:** Review annually the priorities in the 5 year Capital Improvement Program and the 20 year Capital Improvement Plan.

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

## CHAPTER 3

### RECOMMENDED BICYCLE NETWORK AND ITS IMPLEMENTATION

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As an element of the Transportation System Plan, the bicycle plan is based on a comprehensive analysis of the roadway system and roadway cross-sections to provide a safe and convenient place for bikeway facilities. A well-designed and interconnected bikeway system will increase the attractiveness of bicycling as a viable transportation option.

On-road bikeways fall into 3 basic categories.

1. Bike lanes – a portion of the roadway that 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.

Chapter 3 addresses each bikeway goal, objective, and strategy with a concrete program, set of facilities, or proposed ordinance language to achieve the vision.

#### GOAL 1

Provide a Countywide safe and convenient network of accessible bikeways integrated with other transportation modes.

#### PLANNING THE BIKEWAY NETWORK

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

**1:A: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.

A network of planned bikeways meeting Objective 1:A 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. The Comprehensive Plan and Section 1007.05 of the Zoning and Development Ordinance calls for the provision of bikeways as indicated by this map. The design of this long-range network has been

coordinated with other jurisdictions in Clackamas County, adjacent counties, Metro, and ODOT.

Periodic updates to the Bikeway Network map (maps 3 and 4) should be amended in the County's Comprehensive Plan.

## **IMPLEMENTATION OF THE BIKEWAY NETWORK**

**1:A:2 Strategy:** Construct all bikeways designated in this Plan and any bikeway improvements required for safety 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:A:3 Strategy:** Require that new development provide bikeway connections within and between adjacent developments to increase non-motorized mobility.

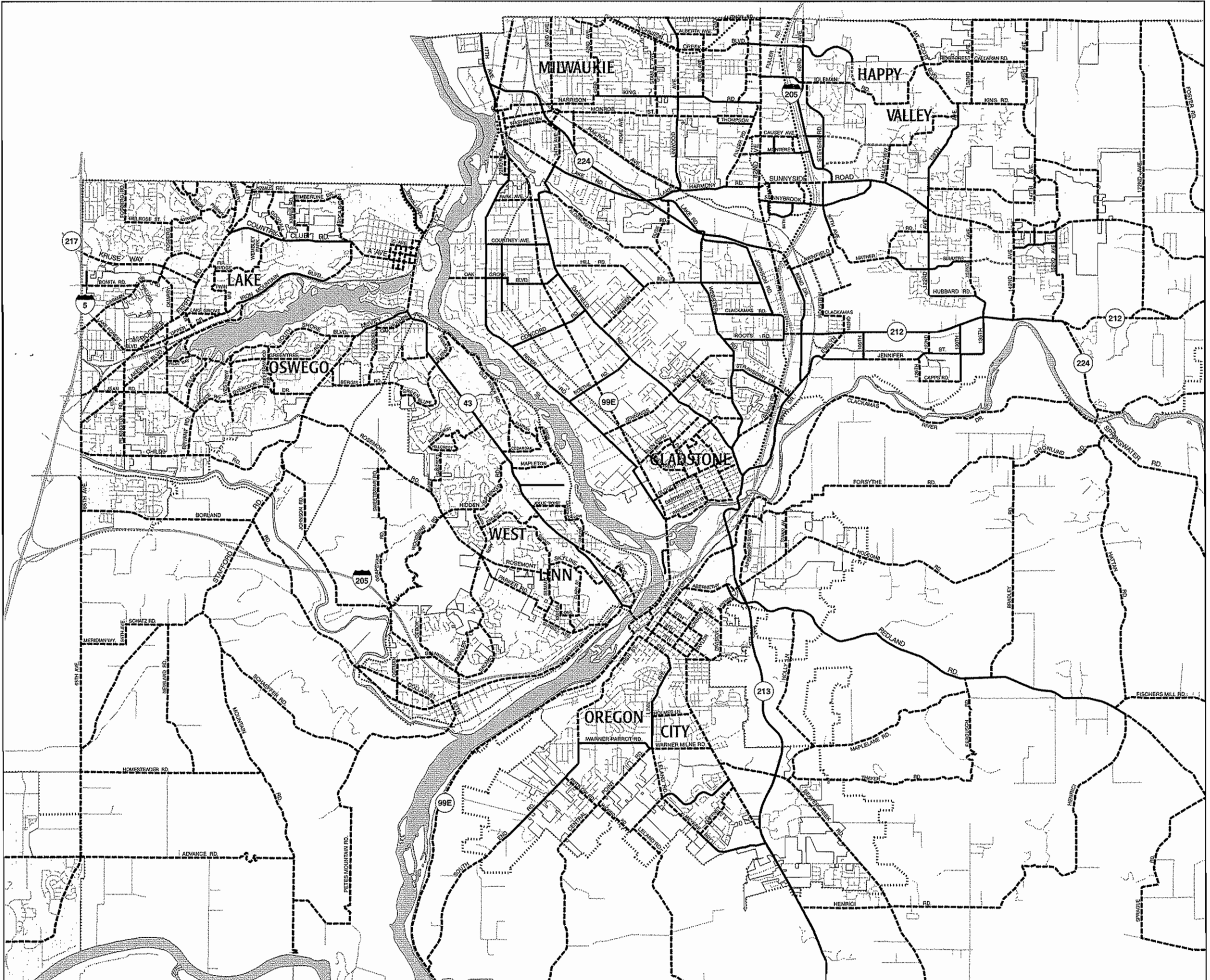
As stated in 1007.05 of the Zoning and Development Ordinance accessways for use by pedestrians and bicyclists shall be required when topography allows and when necessary to provide direct routes not otherwise provided by the road system. These connections are important to encourage and facilitate bicycle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

**1:A:4 Strategy:** Support the continuation of the "Bikes on Transit" program for all public transit routes through coordination with TriMet and transportation oriented public education programs.







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.

**1:A:5 Strategy:** Promote grid-street development patterns to provide direct and convenient transportation system connections.

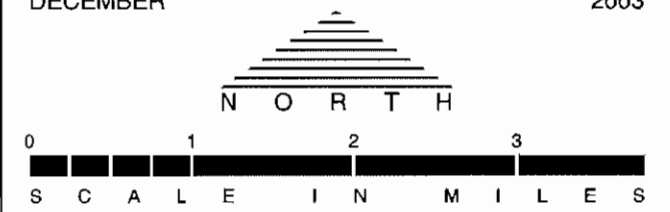
**1:A:6 Strategy:** Encourage plans to support compact, mixed land use development.



## Planned Urban Bikeway Network

-  EXISTING BIKEWAY
-  PROPOSED BIKEWAY
-  EXISTING MULTI-USE TRAIL
-  PROPOSED MULTI-USE TRAIL
-  PLANNED NEW ROADS (WILL INCLUDE BIKEWAY)
-  URBAN GROWTH BOUNDARY

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**Connectivity** – Two categories relating to connectivity were identified for ranking; completing an existing network of bikeways, and connecting to an existing bikeway network. In order to provide a continuous network of bikeways that is connective to destinations these categories were identified as important.

**Completing the existing network** awards twenty (20) points if the proposed bikeway complete an missing link in the existing network of bikeways.

If a bikeway would **link to or extend** an existing bikeway network, it was awarded 10 points.

### **Other Factors**

Other factors were also taken into consideration when ranking the projects. These factors include:

Other Funding Source – Projects with a potential for outside funding source such as urban renewal, City funds or recreational trail funds were awarded an additional point. These projects allow the County to “stretch “ its available funds.

Coordinated with a planned roadway project – One point was awarded if there a high priority roadway project also identified for the segment. This increases efficiency in achieving bikeways and decreases the cost of the project.

Community Support – Projects that have community support, such as endorsement by a CPO or other recognized group of citizens were given additional 5 points.

Rural roads commonly used by recreational cyclists – These roads were given additional 6 points. Often these roads did not score highly in the other categories. This criterion acknowledges that there are some rural roads that are more likely to be used than others. Members of the Canby Pedestrian / Bicycle Committee and the Portland Wheelman Touring Club help to identify these segments.

Priority Project on the RTP – If the project has been identified as a regional priority, the segment was given 1 additional point.

**APPENDIX III**  
**2003 BIKEWAY PROJECT EVALUATION CRITERIA DESCRIPTION**

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In order to help determine which of the many important bikeway projects should be included into the 20 year Capital Improvement Plan, 2003 Bikeway Project Evaluation Criteria were created. The two most important considerations were connectivity and safety. A category that bridged both considerations was "access to destinations."

**Access to Destinations** - Increasing connectivity to commonly used destinations helps create a safer environment for people of all ages. Specific destinations were identified, and then the missing bikeway segments were allocated a set number of points depending upon the destination type. Safety for school children is always a high priority; therefore segments near school were given 10 points. There is also an interest to support economic development and providing access within the Clackamas Regional Center and in the employment / industrial areas. Segments in these areas were given 6 points. The total number of Destination points that a segment could receive was capped at 16 points.

<u>Destination Type</u>	<u>Number of Points</u>
▪ Schools	10 pts
▪ Within 1/4 mile of Parks, Public Buildings Bus Stops, Place of Worship, Community Centers	2 pts per type
▪ On a busline, In a commercially zoned area Or in a High Density Residential area	2 pts. per type
▪ Regional Center, Industrial or Employment area	6 pts





**Safety** – Proposed bikeways on roads with higher traffic volume and safety factors such as narrow shoulders and high speeds were given additional points.

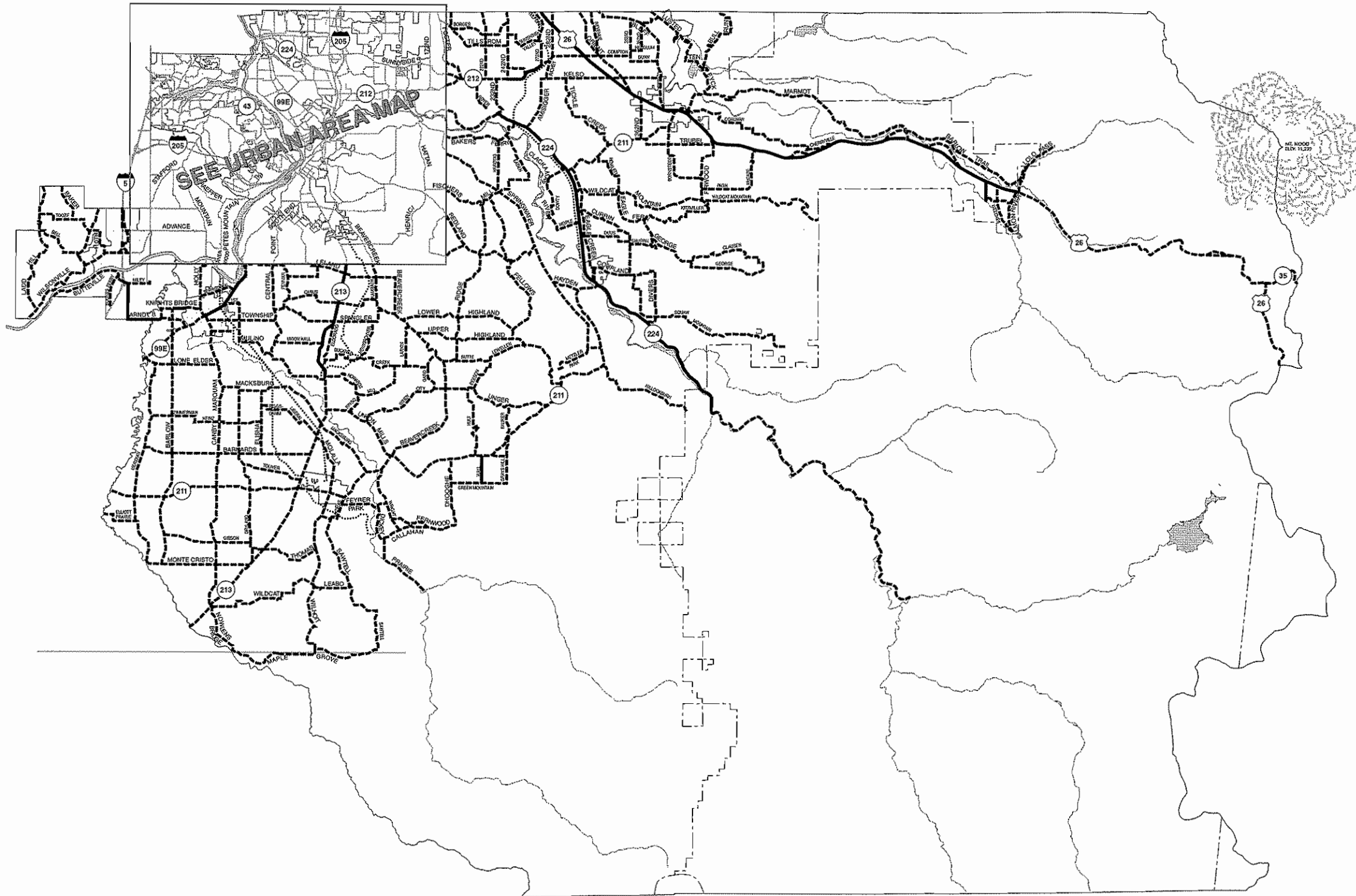
Traffic volume is given on points per 1000 vehicles hat used the road per day, for example, a road with an average traffic volume of 8575 cars per day received a score of nine in the evaluation criteria with a maximum score of 10.

Other Safety Factors were awarded points for each factor identified on the roadway. The list of safety factors included narrow shoulders or no shoulders, high automobile traffic speeds, and car/bicycle accident occurrences.

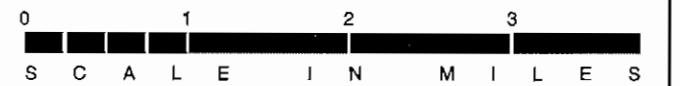
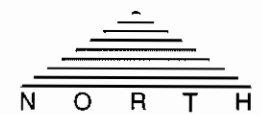
<u>Safety Factor</u>	<u>Points</u>
Narrow Shoulder Width (1 –2 feet)	3 pnts
No Shoulder	5 pnts
Moderate Speed (30-40 mph)	5 pnts
High Speed (more than 40 mph)	10 pnts
Bike / Car Accident Locations	2 pnts

# Planned Rural Bikeway Network

-  EXISTING BIKEWAY
-  PROPOSED BIKEWAY
-  EXISTING MULTI-USE TRAIL
-  PROPOSED MULTI-USE TRAIL



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CLACKAMAS COUNTY BICYCLE MASTER PLAN ● MAP 4

Bicyclists prefer the direct routes provided a road system with a compact grid pattern. 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 public accessways need to be dedicated during the platting of subdivisions and development of property, or easements and right-of-way acquired with public funds to ensure direct routes.

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:B Objectives:** Provide more bikeways.

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

**1:B:1 Strategy:** Provide bikeways 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:A:3, will encourage bicycle usage. Providing trip-end facilities for cyclists will also increase bicycle usage. 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:B:2 Strategy:** Work with the Oregon Department of Transportation, the U.S. 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:B: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 area, 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.

To implement strategy 1:B:2, the county shall actively work with ODOT, the U.S. Forest Service and other agencies to acquire the right-of-way needed for off-road path systems. The County shall have to depend upon outside revenue sources to acquire path right-of-way because County Road funds are prohibited from purchasing right-of-way by 1980 State Constitutional Amendment (Article IX, section 3a).

**1:B: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 are the Sellwood Bridge in Multnomah County and the old bridge in Oregon City leaving an eight-mile crossing gap between Lake Oswego and West Linn on the west-side, and Milwaukie, Oak Grove, and Gladstone on the east-side. 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 strategic east-west link to the County bikeway network.

## **FUNDING**

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

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

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

**1:C:3 Strategy:** Support the passage of a County Maintenance Fee to maintain County road facilities including the frequent cleaning and repair of bikeway facilities.

To implement strategies 1:C:1 - 3 the County should:

- Accumulate the annual allocation of 1% set-aside Road Funds to build identified, stand-alone bicycle facility projects as prioritized through the Capital Improvement Program (CIP).

- Coordinate with and support Metro in securing ISTEAs funds (Federal Transportation dollars from Federal gas tax) for "Regionally Significant" bike projects.
- Actively seek additional funding sources to provide and maintain 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.

#### **Transportation Enhancement (TE)**

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 TE 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 air quality non-attainment and maintenance areas for projects and programs that reduce emissions. The Portland Metro area has a maintenance program for ozone and carbon monoxide emissions.

### OTHER 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.
- Include bikeways on all County/State/Federal road improvement (reconstruction, widening and new road) projects.

- Provide bikeways through road maintenance project such as minor widening or re-striping. These projects are provided through the Bike and Pedway Program.
- Development Review – Require bicycle facilities with all new development as applicable under ordinance and Comprehensive Plan policy.
- 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 are willing to pay for needed facilities. 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.

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**

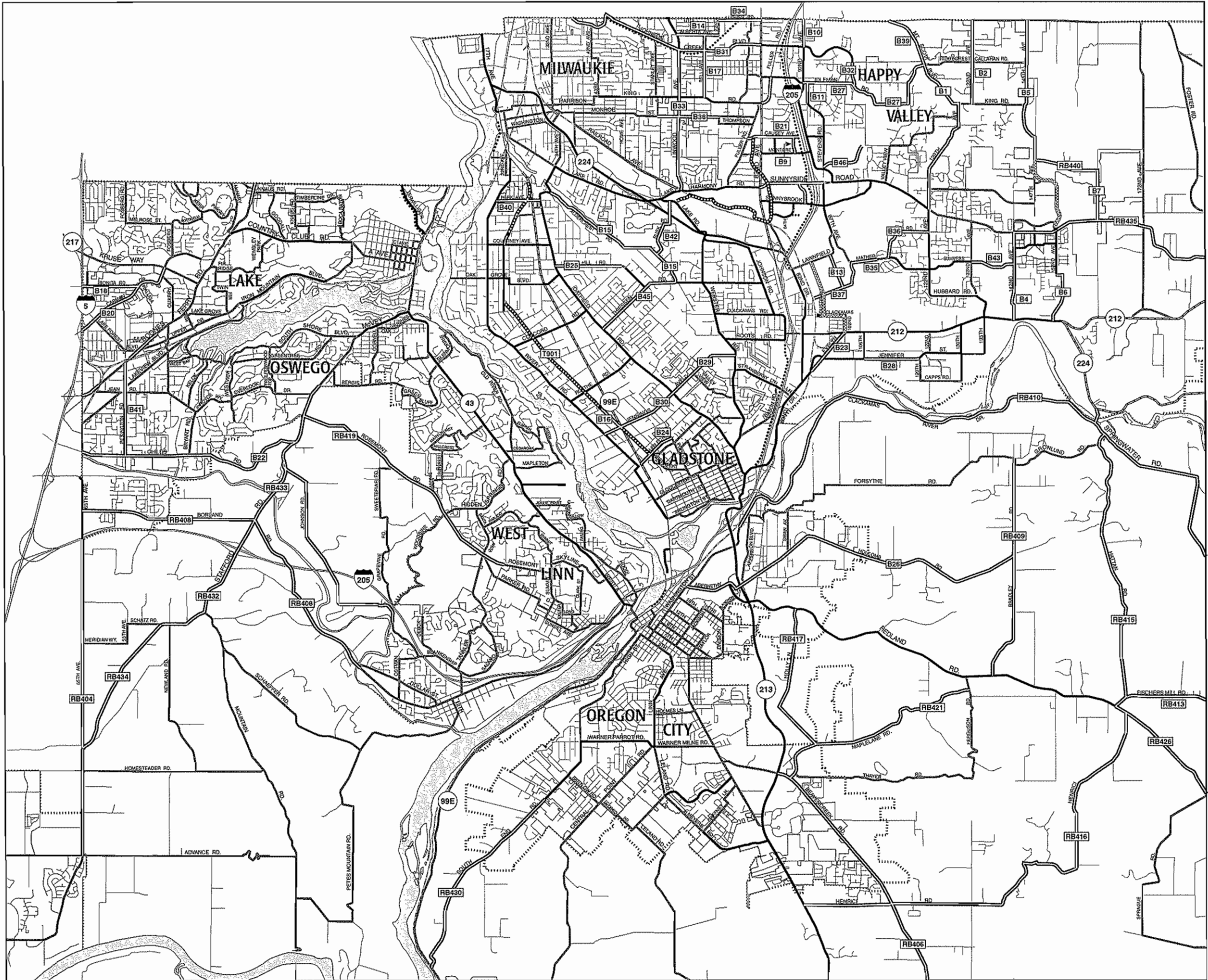
**1:C:3 Strategy:** Prepare a list of reasonably fundable bikeway projects using this Plan’s prioritization system. This fundable project list is the “financially constrained bikeway network.”

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 the priority projects on the Financially Constrained Bikeway Network. Given budget limitations, the priority projects selected are intended to:









- Provide a base network for future expansion
- Fill gaps between existing bikeways

The Financially Constrained Bicycle Project List in Appendix II contains all projects that appear on the Financially Constrained Network Maps 5 and 6. The “Project Number” column corresponds to the numbers appearing next to the projects shown on the maps.

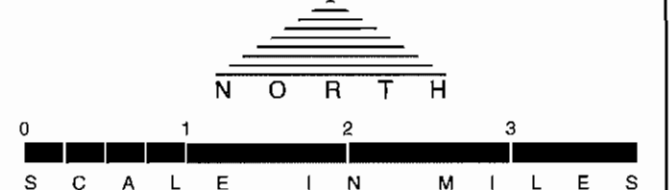
Construction of the priority projects will be achieved through grants, new road construction, road reconstruction and the 1% set-aside pedestrian and bikeway facility gas tax revenue.



# Financially Constrained Urban Bikeway Network

-  PRIORITY PROPOSED BIKEWAY
-  PRIORITY PROPOSED MULTI-USE TRAIL
-  PROJECTS NOT INCLUDED IN PRIORITY SYSTEM
-  EXISTING BIKEWAY
-  FUNDED BIKEWAY
-  EXISTING MULTI-USE TRAIL
-  STATE FACILITY
-  URBAN GROWTH BOUNDARY

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CLACKAMAS COUNTY BICYCLE MASTER PLAN ● MAP 5



When the Bicycle Master Plan was originally adopted in 1996, the County had anticipated approximately \$360,000 annually in grant funding. At that time the Board of County Commissioners allocated approximately \$1,000,000 annually for the bikeway and pedway project construction.

Since 1996, the County's Road Fund revenues have declined leaving only the 1% set-aside (approximately \$140,000 per year) and state and federal grants available to fund stand-alone pedestrian and bikeway facilities. There has also been a reduction in revenues anticipated through grant programs. Completion of the projects on the Financially Constrained Network will require coordination with other road improvement projects, continual application for grant funds and careful identification of projects funded with the 1% set-aside money.

All projects on the Financially Constrained Bikeway Network were prioritized using the Bikeway Project Evaluation Criteria in Table 1. The scoring for the projects is included in Appendix II.

The bikeway projects are selected for construction using the priorities set by the Bicycle Project Evaluation Criteria developed in this plan.

**1:C:4 Strategy:** 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:C:5 Strategy:** Review dedicated funding sources every two years as a part of the CIP update to ensure that funding is adequate to address improvement needs identified in the Clackamas County Bicycle Plan.

Over the past seven years there has been a significant decline in funding dedicated specifically for bikeway and pedestrian facilities. Countywide 20 year Capital Improvement Program is the first step in linking the funding to the priority projects. Many of these priority bikeway projects will be built by coordinating with other planned roadway improvement projects. Any road on the Bikeway plan that is constructed or reconstructed will be required to include bikeway facilities.

Funding and construction of the stand-alone bikeway facilities (those not associated with a planned road project) will occur through the 5-year Capital Improvement Plan and through pursuing grant opportunities. The policies for allocating Bikeway and Pedestrian stand-alone projects will be reviewed and updated during the countywide 5-year CIP update process.

**1:C:6 Strategy:** Adopt the Bikeway Capital Improvement Plan as an element of the County's Transportation Capital Improvement Plan.

**TABLE 1  
BIKEWAY PRIORITY PROJECT SELECTION CRITERIA**

PROJECT DESIGNATION	TOTAL POSSIBLE POINTS	100
		<b>Points</b>
<b>A. Destinations</b>		<b>26</b>
<b>1. Schools</b>		
School Route	Identified by school as route or needed facility	10
<b>1. Schools Maximum Total Points</b>		<b>10</b>
<b>2. Other Destinations</b>		<b>2</b>
With in 1/4 Mile of Parks, Public Buildings, Bus Stops, Places of Worship or Community Centers		
On Busline, In Commercially Zoned Area, In High Density Residential Area		2
In the Clackamas Regional Center or in Employment or Industrial Area		6
<b>2. Other Destinations Maximum Total Points</b>		<b>16</b>
		<b>Points</b>
<b>B. Safety</b>		<b>30</b>
<b>1. Traffic Volume</b>	Point(s) Per thousand ADT to maximum	1
<b>1. Traffic Volume Maximum Total Points</b>		<b>10</b>
<b>2. Shoulder Width</b>		
Narrow Shoulder	Shoulder width (Feet) is between 1 and 2	3
No Shoulders	or, Shoulder width (Feet) is Zero	5
<b>3. Speed</b>		
Moderate Speed	Speed is between 30 and 40	5
High Speed	Speed is greater than 40	10
<b>4. Accident Data</b>		
Data between May 1999 and May 2002	points per Accident	2
		<b>Points</b>
<b>C. Connectivity</b>		<b>30</b>
<b>1. Completes Existing Network</b>	Segment has existing disconnected bikeway or sidewalks (GAPS)	20
<b>2. Connects to Existing Network</b>	Segment connects to another segment that has an existing sidewalk	10
		<b>Points</b>
<b>D. Other Factors</b>		<b>14</b>
<b>1. Coordinated with a planned Roadway project</b>	"High Priority" project on the 20 CIP or a Maintenance Project	1
<b>2. Other Funding Source</b>	Eligible for other funding source such as Urban Renewal, City Funds, Recreational Trails Funds	1
<b>3. Community Support</b>	Has community support, such as endorsement by CPO or other recognized group or citizens	5
<b>4. Rural road commonly used by recreational cyclists</b>		<b>6</b>
<b>5. Priority Project on RTP</b>		<b>1</b>

## CHAPTER 4 BICYCLE FACILITY PLANNING, DESIGN , AND CONSTRUCTION

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### GOAL 2

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

### BIKEWAY DESIGN AND ENGINEERING STANDARDS

**2:A Objective:** Adopt bikeway policies and design standards which safely accommodate bicyclists on roads of all functional classes along both urban and rural roadways.

**2:A:1 Strategy:** Adopt and apply the roadway design policies and standards in the Oregon Bicycle and Pedestrian Plan, and applicable AASHTO and MUTCD standards and their updates, to safely accommodate bicyclists on roads of all functional classes along both urban and rural roadways.

**2:A: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:A:3 Strategy:** Sign existing and new bikeways according to the Oregon Department of Transportation Bicycle and Pedestrian Plan to clearly inform the public of their intended use.

The standards in the Oregon Bicycle and Pedestrian Plan have been adopted in County Comprehensive Plan Transportation Policies 7 and 8.

When additional bikeway project right-of-way is prohibitively expensive and compromises must be made, the bikeway 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. Where "minimum width" cannot be achieved, removal of on-street parking or alternate routes should also be considered.

The County shall require bicycle actuated signals at all demand-actuated signals using the following guidelines from the Oregon Bicycle and Pedestrian Plan:

- Install bike-sensitive loop detectors in bike lanes or travel lanes where shared at demand-actuated signals.
- 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 provide pavement markings to indicate to cyclists the most sensitive area of the loop. This should also be done for both shared lanes and bike lanes.
- Pedestrian-actuated buttons may be used as an alternative to loop detectors, provided the button is readily accessible to the bicyclist.

## **BICYCLE FACILITY PLANNING COORDINATION**

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

**2:B:1 Strategy:** Provide properly designed and constructed bicycle racks and/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.

**2:B: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 6 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:C Objective:** Ensure a continuing, comprehensive, and cooperative planning process that provides for the efficient and timely implementation of the County Bicycle Plan.

**2:C: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.

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

**2:C:3 Strategy:** The County shall incorporate the Financially Constrained Bikeway Project List into the County Transportation Improvement Program and the County Capital Improvement Plan.

**2:C:4 Strategy:** Coordinate recommended bicycle system needs with roadway improvement and maintenance 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 re-striping. 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 occur. Communication between the Road Department, Engineering, and the Bikeway coordinator is essential at all stages of roadway improvement.

**2:C:5 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 5 MAINTENANCE NEEDS AND RECOMMENDATIONS

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### 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:A Objective:** Keep bikeways free of debris and in good repair.

**3:A: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:A: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:

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 re-stripped 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 strip, provided no abrupt hazard remains.
- As part of the overlay process, raise inlet grates, manholes, and valve covers to within ¼" (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 ¼" (6mm) 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. The drainage grates should be perpendicular to the direction of travel.

### **Chip Seals:**

Recommendations:

- On roadways with paved shoulders or bike lane 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 that 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 required the responsibility for the maintenance of bike and pedestrian accessways in new developments to be determined in the development approval process.

The County Road Department typically does not choose to maintain newly constructed accessways and does not maintain accessways constructed prior to Ordinance 1007.05. One maintenance issue has been the narrow width of many existing accessways. New accessways must be 15 feet wide, with at least 8 feet of hard surface. The County needs a clear maintenance program for the new and existing accessways that are the County's responsibility. The County should continue to explore maintenance options for all accessways that are not currently being maintained.

**3:A:3 Strategy:** Develop routine maintenance standards and practices for accessway maintenance where the County is the responsible party and develop a means of notifying other property owners when necessary of their maintenance responsibility.

## **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 and pavement markings may degrade and become less visible, especially at night. It is very important that signs and pavement legends be kept in a clear and legible 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 paths.

Recommendations:

- Inspect bikeway signs and legends regularly.
- Replace defective signs as soon as possible.
- Remove warning and regulatory signs when they are no longer needed.
- Retrace legends and other pavement markings 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.

**3:A:4 Strategy:** The County shall remove all dagmires and replace non-standard drainage grates with bicycle-safe grates on all County roadways.

**3:A:5 Strategy:** 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**

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

**3:A:6 Strategy:** Respond promptly to reports by the public and others, of potentially unsafe conditions for bicyclists on County roads and bikeways.

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 being currently limited to the City of Portland.

**3:A:7 Strategy:** 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:A:8 Strategy:** Promote the ongoing education of bikeway maintenance needs for all staff who maintain the transportation system.

Staff responsible for bikeway maintenance should be provided with an ongoing education of bicyclists unique needs, and an understanding of maintenance related bikeway hazards

The County will support and coordinate with groups such as the Scouts, the Bicycle Transportation Alliance (BTA), and Portland United Mountain Peddlers (PUMP), who are willing to provide volunteer maintenance activities on the County Bicycle System. Volunteer groups could provide additional litter control, sweeping, and other maintenance activities in areas such as separate 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:A:9 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.

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:A:10 Strategy:** Promote the education of utility districts/companies and their repair personnel regarding bicyclists needs through an informational pamphlet or appropriate materials.

The County shall acquire or develop an informational pamphlet and/or presentation and distribute them to utility companies and their personnel to provide education as to the unique characteristics and needs of bicyclists.

## CHAPTER 6 ENCOURAGEMENT AND EDUCATION

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### Goal 4

Increase the use of bicycles as a mode of transportation

### ENCOURAGEMENT

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

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

A goal of TDM is to reduce reliance on SOVs, by increasing the use of other travel modes. Bicycling is fun and has the potential to become an even more popular alternative to the SOV.

**4:A:2 Strategy:** Work with various organizations, such as the BTA or the Clackamas Regional Center Transportation Management Association to develop and implement a public information program to encourage individuals and businesses to use bicycles for transportation and recreation.

**4:A:3 Strategy:** Encourage citizen participation of citizens in, and coordinate with other County jurisdictions to promote a Bike-To-Work Week.

Fun special events such as Bike-to-Work Week will introduce the public to this attractive mode of transportation, and for some, start new habits for their commute to work.

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

**4:A: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.

To encourage employers and businesses to give their employees and customers incentives to use bicycles, the County should research the availability or development of informational brochures. The brochures should encourage employers and businesses to provide necessary bicycle facilities on-site such as bicycle parking, bicycle storage lockers, and shower facilities.

The County should develop or acquire two informational brochures; one addressing the benefits and common concerns of bicycle commuting, the other explaining 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:A: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.

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

**4:B:1 Strategy:** Provide adequate planning staff to administer the bicycle program and the Pedestrian and Bikeway Advisory Committee.

Adequate staffing will ensure communication between the Pedestrian and Bikeway Committee and the Department of Transportation and Development, and throughout other County Departments on issues regarding bikeway funding and development.

An Annual Status Report should be presented the Board of County Commissioners on the activities of the Pedestrian / Bikeway Advisory Committee. It should cover accomplishments as well as areas needing additional attention to continue improving conditions for bicyclists in Clackamas County.

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

The County Pedestrian / Bikeway Advisory Committee shall continue to function as an advisory committee to County staff and the Board of County Commissioners. They shall meet up to once a month, but at least 4 times a year, to discuss all bicycling issues and provide a forum for citizen input on bicycling matters.

## **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:A Objective:** Implement bicycle safety education programs to inform cyclists and drivers of their rights and responsibilities, improve bike handling skills, traffic skills and observance of traffic laws, and promote safety for bicyclists of all ages.

The traffic conflicts between motorists and bicyclists need to be reduced in order to diminish crashes. 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 conflicts could be alleviated through education.

Children should be taught early about the rules of the road and a bicyclist's legal responsibilities. 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, 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.

The County should acquire or 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, police precincts and bike shops.

**5:A:1 Strategy:** Seek sources of funding and support to conduct bicycle safety education and training programs.

**5:A: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 available for use in elementary school classrooms.

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:A: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 bicycle safety and education programs 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:B Objective:** Increase security for bicycles and bicyclists.

**5:B: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:B:2 Strategy:** Work with businesses, schools, and Clackamas County Service District No. 5 to encourage the provision of street and bike parking area lighting to increase the visibility and personal security of bicyclists.

## CHAPTER 7 BICYCLE PLAN IMPLEMENTATION AND REVIEW

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### GOAL 6

Monitor and update the bicycle plan.

**6:A Objective:** Conduct 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:A:1 Strategy:** Update the bikeway system inventory for the County every two years.

**6:A:2 Strategy:** Collect bicycle travel data for the County to periodically measure how a critical area or facility is actually being used.

**6:A:3 Strategy:** Collect and analyze bicycle accident data for the project priority evaluation of the Capital Improvement Plan.

**6:A:4 Strategy:** Review Capital Improvement Plan priorities in relation to the impacts of recent land use development and make revisions as needed.

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

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

## APPENDIX I GLOSSARY

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**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 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 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 A  
2003 HIGH PRIORITY URBAN BIKEWAY PROJECT LIST (30+ Points)**

<b>2003 HIGH PRIORITY URBAN BIKEWAY PROJECT LIST (30+ Points)</b>								
<b>Bike Number</b>	<b>Street Name</b>	<b>Section Description</b>	<b>Project Elements</b>	<b>Point Total</b>	<b>Total Destination Points</b>	<b>Total Safety Points *extra points for segments with accidents</b>	<b>Total Connectivity Points</b>	<b>Total Other</b>
B1	122ND / 129TH	Happy Valley -Sunnyside North to Happy Valley	Bikelanes, Reconstruction and Widening	51	22	22	0	7
B2	132ND	Happy Valley - King to County Line	Bikelanes, Reconstruction and Widening	44	22	10	0	12
B3	13TH	Ivy St. to Molalla Forest Road	Widen, Bikelanes	42	2	9	30	1
B4	142ND	Sunnyside south to Hwy 212	Bikelanes, Reconstruction and Widening	46	4	12	30	0
B5	145TH / 147TH	Happy Valley - 147th to County Line	Bikelanes	41	16	18	0	7
B6	152ND	Curve in road to Hwy 212	Bikelanes	66	16	19	30	1
B7	162ND	Sunnyside to Monner Rd	Urban Fringe. Bikelanes, Reconstruction and Widening.	30	4	14	10	2
B8	1ST	Sequoia Parkway to Mulino Rd Canby	Bikelanes	38	2	19	10	7
B9	90TH	Monterey Ave to Causey Ave.	Bikelanes	35	16	17	0	2
B10	92ND	Johnson Creek Blvd to City of Portland	Bikelanes	69	4	28	30	7
B11	92ND	Stevens to Idleman	Bikelanes	62	18	8	30	6
B12	93RD	Sunnyside to Sunnybrook Blvd	Restripe for Bikelanes	42	14	17	10	1
B13	98TH / Ext of 98TH	Lawnfield to Mather Rd	Sunrise Corridor / Employment. Bikelanes, Reconstruction and Widening.	38	8	18	10	2
B14	ALBERTA	Linwood to 72nd Ave	Bikelanes	39	16	13	10	0
B15	ALDERCREST	Thiessen to Oatfield	Bikelanes, Reconstruction and Widening	33	10	13	10	0
B16	ARISTA TROLLEY TRAIL (On Street)	On Street Portions	Bikelanes / Sidewalks	34	10	7	10	7
B17	BELL	King Rd to Johnson Creek	Bikelanes	74	16	28	30	0
B18	BONITA	Carman Drive to I-5	Bikelanes	38	8	20	10	0

**APPENDIX II A  
2003 HIGH PRIORITY URBAN BIKEWAY PROJECT LIST (30+ Points)**

Bike Number	Street Name	Section Description	Project Elements	Point Total	Total Destination Points	Total Safety Points *extra points for segments with accidents	Total Connectivity Points	Total Other
B19	BOONES FERRY	Portions maintained by County	Bikelanes. Striping possibly in Tualatin / Lake Oswego Jurisdiction.	74	8	28	30	8
B20	CARMAN	Kruse Way to I-5	Bikelanes, Reconstruction and Widening	31	6	25	0	0
B21	CAUSEY	Fuller Rd to I-205	Restripe for Bikelanes	55	18	25	10	2
B22	CHILDS	65th to Stafford Road	Bikelanes	61	8	15	30	8
B23	EVELYN	82nd to Managan	Bikelanes	44	16	18	10	0
B24	GLEN ECHO	Portland Ave to 99E	Bikelanes	58	12	15	30	1
B25	HILL	View Acres to Oatfield Rd	Bikelanes	66	16	18	30	2
B26	HOLCOMB	Washington Street to Bradley	Bikelanes	58	10	17	30	1
B27	IDLEMAN	Stevens to Mt. Scott Blvd.	Bikelanes, Reconstruction and Widening	69	14	25	30	0
B28	JENNIFER	106th to Capps	Bikelanes	68	8	30	30	0
B29	JENNINGS	Oatfield to Webster	Bikelanes, Reconstruction and Widening	71	18	21	30	2
B30	JENNINGS	River to Oatfield	Bikelanes	62	10	22	30	0
B31	JOHNSON CREEK	Bell Ave to 82nd	Bikelanes, Reconstruction and Widening	80	16	28	30	6
B32	JOHNSON CREEK	Extension to Idelman	New Road with Bikelanes and Sidewalks	35	4	0	30	1
B33	LINWOOD	Harmony north to County Line	Bikelanes	68	14	22	30	2
B34	LUTHER	72nd Ave to 82nd Ave	Bikelanes	35	10	15	10	0
B35	MATHER	Cranberry Loop to 97th	Bikelanes, Reconstruction and Widening	68	18	20	30	0
B36	MATHER	122nd to Summers Lane	Bikelanes, Reconstruction and Widening	39	10	18	10	1
B37	MATHER	97th to Industrial Area	Bikelanes, Reconstruction and Widening	37	14	12	10	1

**APPENDIX II A  
2003 HIGH PRIORITY URBAN BIKEWAY PROJECT LIST (30+ Points)**

<b>Bike Number</b>	<b>Street Name</b>	<b>Section Description</b>	<b>Project Elements</b>	<b>Point Total</b>	<b>Total Destination Points</b>	<b>Total Safety Points *extra points for segments with accidents</b>	<b>Total Connectivity Points</b>	<b>Total Other</b>
B38	MONROE	Linwood to Thompson	Bikelanes	68	22	16	30	0
B39	MT SCOTT	Happy Valley King to County Line	Bikelanes, Reconstruction and Widening	37	20	10	0	7
B40	PARK	99E to River Rd	Bikelanes	69	22	17	30	0
B41	PILKINGTON	Boones Ferry to Childs Road	Bikelanes	45	20	17	0	8
B42	RUSK	Hwy 224 South to Aldercrest	Bikelanes	33	10	13	10	0
B43	SUMMER EXT	132nd to 142nd Ave	New Road with Bikelanes and Sidewalk Need for connection.	33	2	0	30	1
B44	SUNNYSIDE	82nd Ave to 97th	Restripe for Bikelanes	53	16	29	0	8
B45	THIESSEN	Aldercrest Rd to Oatfield Rd	Bikelanes	68	18	20	30	0
B46	WILLAM OTTY EXT	Extension of Willam Otty Rd	New Road with Bikelanes and Sidewalk. Need for connection.	41	10	0	30	1
B 47	Bicycle Parking and Promotion Project							
B 48	Education and promotional brochures and Slide Shows							
<b>Road Number</b>	<b>Street Name</b>	<b>Description</b>						
SB 101	82ND	Sunnyside north to County Line	Restripe for Bikelanes	103	18	54	30	1
SB 102	82ND	I-205 North to Sunnyside Road	Restripe for Bikelanes	74	18	24	30	2
SB 103	MCCLOUGHLIN	Milwaukie to Gladstone	Restripe for Bikelanes	90	18	50	20	2

**APPENDIX II B  
2003 HIGH PRIORITY RURAL BIKEWAY PROJECT LIST (35+ Points)**

<b>POTENTIAL RURAL BIKEWAY LIST (35+ points)</b>							
<b>Reference Number</b>	<b>Street Name</b>	<b>Section Description</b>	<b>Point Total</b>	<b>Total Destination Points</b>	<b>Total Safety Points *extra points for segments with accidents</b>	<b>Total Connectivity Points</b>	<b>Total Other</b>
RB 401	13TH	Redwood to Molalla Forest Road	40	0	9	30	1
RB 402	242ND	County Line to Hwy 212	49	6	22	20	1
RB 403	282ND	Hwy 212 to County Line	43	10	23	10	0
RB 404	65TH	Stafford Rd to Tualatin	40	4	20	10	6
RB 405	BARLOW	Knight Bridge to 99E	38	2	20	10	6
RB 406	BEAVERCREEK	Oregon City to Hwy 211	36	8	26	0	2
RB 407	BORLAND	Tualatin to Stafford	69	8	25	30	6
RB 408	BORLAND	Stafford to West Linn	35	6	23	0	6
RB 409	BRADLEY	Gronlund to Redland	35	2	23	10	0
RB 410	CLACKAMAS RIVER	Hwy 213 to Springwater	35	8	20	0	7
RB 411	COMPTON	Hwy 26 to 352nd Ave	41	6	19	10	6
RB 412	EAGLE CREEK	Hwy 211 to Rivermill Rd	57	12	19	20	6
RB 413	FISCHERS MILL		43	8	19	10	6
RB 414	GRAYS HILL	Green Mountain Road to Hwy 211	45	2	17	20	6
RB 415	HATTAN	Springwater to Fischers Mill	34	8	19	0	7
RB 416	HENRICI	Hwy 213 to Redland Rd	42	6	19	10	7
RB 417	HOLLY	Maplelane Rd to Redland Rd	35	4	21	10	0
RB 418	HOLLY/37th	Territorial to 37th Canby	41	8	17	10	6
RB 419	JOHNSON	Stafford Rd to West Linn	48	4	18	20	6
RB 420	KELSO	Amisigger Rd to Sandy City Limits	34	8	19	0	7
RB 421	MAPLELANE	Beavercreek Rd to Ferguson Rd	55	4	21	30	0

**APPENDIX II B**  
**2003 HIGH PRIORITY RURAL BIKEWAY PROJECT LIST (35+ Points)**

Reference Number	Street Name	Section Description	Point Total	Total Destination Points	Total Safety Points *extra points for segments with accidents	Total Connectivity Points	Total Other
RB 422	MILEY	Airport Rd to Eilers Rd	38	2	25	10	1
RB 423	MOLALLA	Hwy 213 thru Molalla	35	12	23	0	0
RB 425	MULINO	SE 1st St to Hwy 213	34	8	20	0	6
RB 426	REDLAND	Oregon City to Fischer Mill	35	10	19	0	6
RB 427	RICHEY	Kelso Rd to 282nd Rd	37	10	21	0	6
RB 428	ROSEMONT	Stafford Road to Summit	37	8	22	0	7
RB 429	SALMON RIVER	Hwy 26 to Welches Rd	43	6	17	20	0
RB 430	SOUTH END	Oregon City limits to 99E	45	6	19	20	0
RB 431	SPRINGWATER	Hattan to Hwy 211	36	8	22	0	6
RB 432	STAFFORD	Lake Oswego to Borland	47	6	23	10	8
RB 433	STAFFORD	Borland to Mountain	44	8	19	10	7
RB 434	STAFFORD	Mountain to Boeckman	36	4	25	0	7
RB 435	SUNNYSIDE	172nd to Hwy 212	33	6	21	0	6
RB 436	TEN EYCK	Lusted Rd to Sandy City Limits	36	8	22	0	6
RB 437	TOLIVER	Dryland to Hwy 213	45	2	17	20	6
RB 438	TOWNSHIP	Canby to Central Point Rd	38	4	18	10	6
RB 439	WELCHES	Hwy 26 to Salmon River Rd	46	6	20	20	0
<b>Projects on State Roads</b>							
SRB 501	HWY 211	Mollala to Estacada	43	12	15	10	6
SRB 502	HWY 212	135th Ave to Hwy 26	50	10	24	10	6
SRB 503	HWY 213	Oregon City to Marion County	59	10	18	20	11
SRB 504	HWY 224	Hwy 212 to Estacada	63	10	26	20	7

**APPENDIX II C**

<b>2003 MULTI-USE PATH PRIORITY LIST</b>			
<b>Reference Number</b>	<b>Street Name</b>	<b>Description</b>	<b>Comments</b>
901	TROLLEY TRAIL	Trolley Trail Multi Use Path	See Trolley Trail Master Plan for Trail description
902	PHILLIPS CREEK GREENWAY	Regional Center Path	Very difficult because north of 82nd there is no/little space between sewer pipe and bridge. See Clackamas Regional Center Plan for location
903	N CLACKAMAS PARK TRAIL	Trail in North Clackamas Park	See Pedestrian project Map for Location
904	INDUSTRIAL AREA	Pedestrian Connector	Connects Industrial Way to Regional Center (see Pedestrian Project Map)
905	CLACKAMAS REGIONAL CENTER PED LINKAGE	Various Ped Linkage in Clackamas Regional Center	See Clackamas Regional Center Plan for Locations
906	CAZADERO MULTI USE TRAIL	MultiUse Trail from County Line through Boring to Estacada	Portion from County Line to Boring part of Springwater Corridor. Remainder owned by Oregon State Parks and Rec
907	OC TO MULINO TRAIL	OC to Mulino on Old RR ROW	ROW in private ownership. Will be difficult
908	MOLLALA RIVER BIKE PATH	13th Street to Macksburg	Could potentially get ROW for \$1. 3/1/2 miles
909	CANBY - MOLLALA RR TRAIL	Canby to Mollala Rails with Trails / Union Pacific	

**APPENDIX III  
2003 BIKEWAY PROJECT EVALUATION CRITERIA DESCRIPTION**

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In order to help determine which of the many important bikeway projects should be included into the 20 year Capital Improvement Plan, 2003 Bikeway Project Evaluation Criteria were created. The two most important considerations were connectivity and safety. A category that bridged both considerations was "access to destinations."

**Access to Destinations** - Increasing connectivity to commonly used destinations helps create a safer environment for people of all ages. Specific destinations were identified, and then the missing bikeway segments were allocated a set number of points depending upon the destination type. Safety for school children is always a high priority; therefore segments near school were given 10 points. There is also an interest to support economic development and providing access within the Clackamas Regional Center and in the employment / industrial areas. Segments in these areas were given 6 points. The total number of Destination points that a segment could receive was capped at 16 points.

<u>Destination Type</u>	<u>Number of Points</u>
▪ Schools	10 pts
▪ Within 1/4 mile of Parks, Public Buildings Bus Stops, Place of Worship, Community Centers	2 pts per type
▪ On a busline, In a commercially zoned area Or in a High Density Residential area	2 pts. per type
▪ Regional Center, Industrial or Employment area	6 pts

**Safety** – Proposed bikeways on roads with higher traffic volume and safety factors such as narrow shoulders and high speeds were given additional points.

Traffic volume is given on points 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 points for each factor identified on the roadway. The list of safety factors included narrow shoulders or no shoulders, high automobile traffic speeds, and car/bicycle accident occurrences.

<u>Safety Factor</u>	<u>Points</u>
Narrow Shoulder Width (1 –2 feet)	3 pnts
No Shoulder	5 pnts
Moderate Speed (30-40 mph)	5 pnts
High Speed (more than 40 mph)	10 pnts
Bike / Car Accident Locations	2 pnts

**Connectivity** – Two categories relating to connectivity were identified for ranking; completing an existing network of bikeways, and connecting to an existing bikeway network. In order to provide a continuous network of bikeways that is connective to destinations these categories were identified as important.

**Completing the existing network** awards twenty (20) points if the proposed bikeway complete an missing link in the existing network of bikeways.

If a bikeway would **link to or extend** an existing bikeway network, it was awarded 10 points.

### **Other Factors**

Other factors were also taken into consideration when ranking the projects. These factors include:

Other Funding Source – Projects with a potential for outside funding source such as urban renewal, City funds or recreational trail funds were awarded an additional point. These projects allow the County to “stretch “ its available funds.

Coordinated with a planned roadway project – One point was awarded if there a high priority roadway project also identified for the segment. This increases efficiency in achieving bikeways and decreases the cost of the project.

Community Support – Projects that have community support, such as endorsement by a CPO or other recognized group of citizens were given additional 5 points.

Rural roads commonly used by recreational cyclists – These roads were given additional 6 points. Often these roads did not score highly in the other categories. This criterion acknowledges that there are some rural roads that are more likely to be used than others. Members of the Canby Pedestrian / Bicycle Committee and the Portland Wheelman Touring Club help to identify these segments.

Priority Project on the RTP – If the project has been identified as a regional priority, the segment was given 1 additional point.