FINAL
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CLACKAMAS COUNTY PEDESTRIAN MASTER PLAN
April 18, 1996

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Chapter 1
INTRODUCTION

PURPOSE

The purpose of this plan is to focus on promoting walking for transportation purposes in Clackamas County. As the county seeks to reduce the number of automobile trips to reduce traffic congestion and associated problems, walking will be an important component of the County Transportation Plan.

The Pedestrian Plan describes the tasks necessary to accomplish the vision of the plan, which is to **CREATE AN ENVIRONMENT WHICH ENCOURAGES PEOPLE TO WALK IN A NETWORKED SYSTEM THAT FACILITATES AND PROMOTES THE ENJOYMENT OF WALKING AS A SAFE AND CONVENIENT TRANSPORTATION MODE**. Plan elements will be incorporated into the County Transportation Plan, Comprehensive Plan and the Zoning and Development Ordinance as necessary.

BACKGROUND

Walking is the oldest form of transportation. Walking is a low cost, easy on the infrastructure, quiet, healthy,energy efficient, nonpolluting means of transportation. Walking can be a viable transportation option for short trips to local destinations such as schools and parks, local restaurants, convenience stores, and to the local and regional public transit system. For some, particularly children, the elderly, disabled, and low income residents, walking is a primary means of travel.

Walking has great potential as a transportation option. In Oregon, feet outnumber motor vehicles 6.1 million to 2.9 million. The National Bicycling and Walking Study, conducted in 1990, collected data from 48,000 individuals in approximately 23,000 households. According to the study, walking presently accounts for 7 percent of all transportation trips. Study data shows that forty (40) percent of all travel trips are less than 2 miles, and 25 percent are less than 1 mile. These are distances that can be walked in a short period of time. Nationally, only 21percent of all travel trips are for commuting to work. Most trips are for utility purposes such as school functions, playing at the park, socializing, recreation and fitness, and shopping. In Clackamas County maps show that there is a large population within 1/2 mile of these major pedestrian destinations. This represents great potential to increase the number of people who choose to walk .

One of the biggest obstacles to pedestrian travel is lack of adequate and safe facilities. "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."[1] Much of the focus of the Clackamas County Pedestrian Plan will be on overcoming this obstacle by programming sidewalk improvements to provide a network of safe and convenient pedways.

LEGISLATION PERTAINING TO PEDESTRIAN PLANNING

Legislation enacted in recent years at the State and Federal level promotes alternative transportation modes such as walking to reduce the dependency on automobiles.

State

The Transportation Planning Rule (Oregon Administrative Rules 660-12) was adopted by the Oregon Land Conservation and Development Commission in 1991 to implement Goal 12 of the State Planning Goals. Goal 12 requires that a County Transportation Plan consider all modes of transportation, avoid reliance on one mode of transportation, and conserve energy.

The State Transportation Planning Rule requires each county to adopt a Transportation Systems Plan (TSP)as part of the Comprehensive Plan by 1997. Under the rule, all counties in the Portland Metropolitan area must adopt plans to reduce vehicle miles traveled per capita by 20 percent over the next 30 years. The local transportation plan must include a pedestrian component that establishes a network of pedestrian facilities. This Pedestrian Plan will be part of the TSP, and parts of it will be adopted into the Comprehensive Plan.

The Transportation Planning Rule also requires the State Department of Transportation and Metro to prepare transportation plans. The Oregon Bicycle and Pedestrian Plan has been adopted by the Oregon Department of Transportation(1995). The plan includes policies, design standards, priorities for statewide pedestrian projects, and consideration of maintenance and safety of walkways.

Metro is preparing a Regional Transportation Plan(RTP) for the Portland Metropolitan area. This plan will establish a regional pedestrian system focusing on making the region's major activity centers more walkable. The Plan will also promote improvements that make it easier to walk from homes to bus stops and

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[1] **1 The National Bicycling and Walking Study, Final Report. US Department of Transportation, Federal Highway Administration, pVII.**

transit stations. Projects requiring Intermodal surface Transportation **Efficiency Act (ISTEA)** funding will be evaluated against the regional system.

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

The benchmark that applies directly to this plan is:

> *31b. Percentage of streets in urban areas that have adequate pedestrian and bicycle facilities.*
>
> Other benchmarks also relating to this plan are:
>
> *20. Percentage of new development where occupants are within 1/2 mile of a mix of stores and services, transit, parks and services, and open spaces.*
>
> *21. Percentage of existing development where occupants are within 1/2 mile of a mix of stores and services, transit, parks and open spaces.*
>
> *32. Percentage of Oregonians who commute to and from work during peak hours by means other than a single-occupancy vehicle.*
>
> *33. Vehicle miles traveled per capita in Oregon metropolitan areas (per year).*

The Oregon Bike Bill, described in Oregon Revised Statutes 366.514, requires walkways be provided where warranted on all new road construction, reconstruction or relocation projects. The statute also requires a minimum of 1 percent of the State gas Tax funds distributed to local government be used specifically for pedestrian and bicycle improvements. A recent court case determined this was a minimum, not a maximum.

Federal

At the Federal level, the most significant legislation affecting pedestrian planning is the Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA broadens the focus of national surface transportation policy from the automobile to include alternative modes that are more cost effective and environmentally sound. Most importantly, ISTEA provides funding for alternative transportation projects such as pedestrian facilities that reduce traffic congestion and help air quality. ISTEA requires all states and metropolitan planning organizations (Metro in **Clackamas**

County) to develop transportation plans that incorporate programs and facilities for pedestrians. The Plan must have a pedestrian component to qualify for ISTEA funding.

Chapter II
FRAMEWORK

To respond to the changing focus in transportation policy, this plan will institutionalize pedestrian planning and facility construction in Clackamas County. The emphasis will be on a pedestrian network that improves mobility for walkers and reduces reliance on one mode of transportation. The Plan will also bring the County into compliance with part of the Transportation Planning Rule.

The County - Pedestrian and Bikeway Citizens Advisory Committee and the public has defined a **VISION** for the Plan. The **VISION** serves as the guiding principle of the Plan. The vision is:

CREATE AN ENVIRONMENT WHICH ENCOURAGES PEOPLE TO WALK IN A NETWORKED SYSTEM THAT FACILITATES AND PROMOTES THE ENJOYMENT OF WALKING AS A SAFE AND CONVENIENT TRANSPORTATION MODE

To guide the actions necessary to accomplish the VISION, **Goals, Objectives**, and Strategies have been identified for the Plan. Goals, Objectives and Strategies for the Clackamas County Pedestrian Plan are:

GOAL 1

PROVIDE A COUNTY-WIDE SAFE AND CONVENIENT NETWORK OF PEDESTRIAN ROUTES AND ACCESS INTEGRATED WITH OTHER TRANSPORTATION MODES

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

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

1:1:2 Strategy: Construct all pedestrian facilities designated in this plan and any others proposed according to the current County Design

Standards, the American Association of State Highway and Transportation Officials (AASHTO) standards, and the Americans with Disabilities Act (ADA).

1:1:3 Strategy: Incorporate Design considerations which take into account the needs of potential users and surrounding land uses for all pedestrian facilities designated in the plan.

1:1:4 Strategy: Promote grid street development patterns to provide connections to transportation facilities.

1:1:5 Strategy: Encourage plans to support compact, mixed land use development.

1:1:6 Strategy: Require that new development provide pedestrian connections within and between adjacent developments to increase the non-motorized mobility.

1:2 OBJECTIVE: Provide more pedestrianways.

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

1:2:2 Strategy: Coordinate - with Metro, parks districts and cities - to achieve a safe and convenient off-road trail system.

1:2:3 Strategy: Support acquisition and development of multi-use paths on abandoned public and private rights-of-way

1:2:4 Strategy: Encourage pedestrian access across rivers and other natural barriers in the County.

1:3 Objective: Ensure funding for the construction of the pedestrian facilities necessary to complete the planned County Pedestrian System in a timely manner.

1:3:1 Strategy: Support continuation of current (or equivalent) federal, state, and local funding mechanisms to construct County pedestrian facilities and amenities that comprise the County Pedestrian System.

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

1:3:3 Strategy: Provide pedestrian -improvements based on the priority system established in the Plan with the flexibility to take advantage of outside funding opportunities.

1:3:4 Strategy: Review dedicated funding sources every three years as part of the Capital Improvements Plan update to ensure funding is adequate to address improvement needs identified in the Clackamas County Pedestrian Plan.

GOAL 2

INTEGRATE PEDESTRIAN FACILITIES INTO ALL PLANNING, DESIGN, AND CONSTRUCTION ACTIVITIES.

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

2:1:1 Strategy: Revise existing standards to include pedestrian facilities to safely accommodate pedestrians as part of the typical functional classification section design standard for both urban and rural roadways.

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

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

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

2:2:3 Strategy: Coordinate recommended pedestrian system needs with roadway improvement projects to takeadvantage of cost sharing opportunities (i.e., Resurfacing, widening, upgrading, etc.).

2:2:4 Strategy: Coordinate pedestrian planning and improvements with neighboring jurisdictions

GOAL 3

Maintain pedestrian facilities to ensure safety and encourage use.

3:1 OBJECTIVE: Keep walkways free of debris and in good repair in order to accommodate pedestrians conveniently and safely.

3:1:1 Strategy: Develop routine maintenance standards and practices for pedestrian facilities including traffic control devices.

3:1:2 Strategy: Respond promptly to reports by the public and others, of potentially unsafe conditions for pedestrians on County roads and walkways.

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

3:1:4 Strategy: Coordinate utility installation/repair with maintenance of the County Pedestrian System.

3:1:5 Strategy: Promote the education of utilities and their repair personnel regarding pedestrian's needs through an informational pamphlet or appropriate materials.

3:1:6 Strategy: Enforce use of traffic control and safety devices during roadway and pedestrian construction and maintenance activities.

3:1:7 Strategy: Inform the public of their responsibilities for sidewalk maintenance

GOAL 4

INCREASE THE USE OF WALKING AS A MODE OF TRANSPORTATION.

4:1 OBJECTIVE: Provide a safe, convenient walking environment.

4:1:1 Strategy: Recognize walking as a means to achieve Transportation Demand Management and achieve reduced reliance on single occupancy vehicles.

4:2 OBJECTIVE: Provide information to assist and encourage people to use walking for transportation and recreation.

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

4:2:2 Strategy: Educate the public as to the benefits of walking including those benefits related to improving air quality, reducing energy consumption, reducing congestion, and promoting health and physical fitness.

4:2:3: Strategy: Coordinate with cities to provide pedestrian encouragement information

4:3 OBJECTIVE: Increase the effectiveness and extent of the County's current Pedway Program.

4:3:1 Strategy: Continue to fund a full-time program Coordinator to staff the Pedestrian and Bikeway Advisory Committee and administer the pedestrian program.

4:3:2 Strategy: Ensure an opportunity for representative citizen involvement in the County pedestrian planning process by sponsoring the County Pedestrian and -Bikeway Advisory Committee as a forum for public input.

4:3:3: Strategy: Coordinate with adjacent jurisdictions, Metro, and the Oregon Department of Transportation to implement the Pedway Program.

GOAL 5

HEIGHTEN THE AWARENESS OF PEDESTRIANS AND MOTORISTS AND BICYCLISTS OF THEIR RIGHTS AND RESPONSIBILITIES FOR PEDESTRIAN'S SAFETY, AND FOR SHARING BOTH ON-ROAD AND OFF-ROAD FACILITIES.

5:1 OBJECTIVE: Implement pedestrian safety education programs which encourage observance of traffic laws, and promote safety for pedestrians of all ages.

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

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

5:1:3 Strategy: Support programs to train law enforcement officers in appropriate enforcement techniques regarding pedestrians who violate laws.

5:1:4 Strategy: Promote awareness and increased enforcement of vehicle laws as they pertain to pedestrians.

5:2 OBJECTIVE: Improve -vehicle operators understanding of the need for sharing the road.

5:2:1 Strategy: Encourage the inclusion of pedestrian safety information in the State drivers licensing and re-examination program, and in driver education and defensive driving courses.

5:2:2 Strategy Support programs to train law enforcement officers in appropriate enforcement techniques regarding motorists' violation of pedestrians' rights to the road.

5:3 OBJECTIVE: Increase security for pedestrians.

5:3:1: Strategy: Encourage the provision of street lighting to increase the visibility and personal security of pedestrians.

5:3:2: Strategy: Provide a physical separation between pedestrians and vehicular traffic when possible.

GOAL 6

MONITOR AND UPDATE THE PEDESTRIAN PLAN.

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

6:1:1Strategy: Update the walkway facilities inventory for the County every three years.

6:1:2 Strategy: Collect pedestrian travel data for the Countyperiodically which measure how an area or facility is actually being used.

6:1:3 Strategy: Review of pedestrian accident data in the project priorities evaluation of the Capital Improvements Plan

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

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

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

The Goals, Objectives, and Strategies will be adopted into the Transportation System Plan (TSP)in the Comprehensive Plan. Components of the TSP will also be incorporated into other County planning and construction documents such as the Zoning and Development Ordinance and Road Design Manual. These documents guide daily and long-range decision-making.

CHAPTER III.
CURRENT CONDITIONS

A Plan is a course of action to get from the present to a desired future.Current conditions affect the direction , scope, and priorities of a plan. Therefore, a baseline for analysis is necessary to establish the projects and actions necessary to accomplish the vision of the Pedestrian Plan. Current conditions reviewed and analyzed are:

- Existing sidewalks;
- Comprehensive Plan and Zoning and Development Ordinance policies and requirements for pedestrian transportation;
- Existing pedestrian programs and funding in the County; and
- Citizen Involvement

EXISTING WALKWAYS

The Vision calls for a ...."..networked system of pedestrian facilities."... Therefore, an important analytical tool is an inventory of existing sidewalks. The inventory shows where existing facilities are in relation to major destinations and serves as the basis to develop a network that serves the destinations. The sidewalk inventory was conducted in the summer of 1994. The inventory was done on every County road in the urban area of Clackamas County. Using an Oregon Department of Transportation inventory checklist, sidewalks were evaluated by condition, width, presence of crosswalks and curb ramps. Map 1 shows the inventory of existing sidewalks and multi-use paths.

For inventory analysis, the northwest urban portion of the County can be divided into 2 general areas with different historical development patterns. The older area is west of I-205, east of the Willamette River and south of Highway 224. The newer area is the Clackamas Town Center and the area east of I-205 and north of Hwy. 212/224.

The inventory shows that of the 42 arterials and collectors in the north urban study area, 36 have sidewalks. Of the 36 roads with sidewalks, 24 have sidewalks on one side and 9 have sidewalks on both sides for a varying distance. Only 4 of the urban arterials and collectors inventoried have sidewalks their entire length.

There are 47 miles of arterials and 45 miles of collectors in the unincorporated urban area. There are 18.07 miles of sidewalks on arterials and 8.02 miles on collectors. By general historical development area, 63 percent of the total miles

of sidewalks on arterials are in the new area; for collectors, the percentage is 57 percent.

By road classification, 88 percent of arterials and 76 percent of collectors have sidewalks for various lengths. .

The inventory shows the older area has fewer pedestrian facilities than the new area. This is most evident in the Oak Grove, Jennings Lodge and Oatfield Ridge neighborhoods and along McLoughlin Boulevard. Much of the older area was developed prior to County Planning ordinances passed in 1971 that required sidewalks for most new development. The area also developed in an era when it was still considered a 'rural' environment. Sidewalks were typically not part of this early development pattern. Local streets are still perceived as 'country lanes' by many residents.

Residential development since 1971 in the older area has occurred primarily through partitioning and small subdivisions. There are few remaining large tracts of vacant land, so there has been redevelopment of existing developed parcels--infill. Typically, development is on sites 1 acre or smaller. A partition or subdivision on an infill lot may add 50-100 feet of sidewalk. Waiver provisions in the 1974 and 1979 Zoning and Development Ordinance allowed much of the development to occur without sidewalks. The result is that very few existing local streets had sidewalks installed at the time of new development. The inventory shows that on streets in this area, infill has added approximately 3000 feet of sidewalk since 1971! The sidewalks obtained are scattered and generally provide no connections to pedestrian destinations or arterials or collectors.

The inventory analysis also shows that In the older portion of the urban areas there is a comparatively small amount of developable land remaining and these parcels are dispersed throughout the area. This limits the opportunity to add to the pedestrian network through new development. Therefore, adding to the network in this area will require substantial retrofitting of sidewalks along existing arterials, collectors and local streets.

In contrast , most new development in the Town Center Area and east of I-205 has sidewalks. Prior to the late seventies, this area was primarily undeveloped. Whereas development in the old area during this period was infill, development in the new area usually occurred on large tracts of vacant or mostly vacant land. Accordingly, more sidewalks have been constructed through the development process. New residential development typically involves the creation of a local street connecting to a collector or arterial, or another local street with sidewalks. Sidewalks also are required for industrial and commercial development which has been rapidly increasing in the last two decades.

The newer area has the most potential for growth because there are still large parcels of vacant or underdeveloped land. To create a pedestrian network, some retrofitting will be required, but as the large parcels in the area develop and new streets are improved to county standards, additional pedestrian facilities on the proposed network will be constructed.

The inventory of pedestrian facilities for the rural portion of the County was done in conjunction with the Pavement Management System used by the Road Department. Shoulder widths and condition are part of the inventory, and were not inventoried specifically for this Plan. There are no sidewalks in the rural area. Road shoulders are used by walkers. Pedway Program improvements have concentrated on the areas around schools. Specific pedestrian improvements have been on Meridian Rd., 232nd. Avenue, Redland Rd., Salmon River Rd., Coupland Rd., Jackknife Rd . and Grays Hill Road.

Overall, the inventory provides a clear picture that most roads within walking distance of major destinations such as schools, libraries, bus stops, and parks do not have adequate facilities for safe, convenient access by pedestrians. Improving the pedestrian network will therefore be a major priority of this Plan.

COMPREHENSIVE PLAN AND ZONING ORDINANCE

The Clackamas County Comprehensive Plan has supported construction of sidewalks along arterials and collectors, as well as construction of sidewalks along new roads and reconstruction since 1974. The 1980 acknowledged Plan provided greater detail with regard to specific roads, as did Plan amendments in 1989 and 1992.

The Clackamas County Zoning and Development Ordinance has required sidewalks on all streets in new development since 1971. However, use of rather generous waiver provisions have allowed development without sidewalks to occur in some areas, particularly in older more established neighborhoods. This is one reason there are fewer sidewalks in the older areas .

The long standing policies in the Comprehensive Plan and ZDO, as well as the County Pedway program are partly responsible for creating the existing pedestrian facilities shown on Map 1.

Oregon's Transportation Planning Rule requires that a Transportation System Plan (TSP) for all transportation modes be completed by 1997. The Transportation System Plan must be incorporated into the Comprehensive Plan, and the Plan must include a pedestrian plan. This Pedestrian Plan is part of Clackamas County's Transportation System Plan, and portions will be adopted into the Comprehensive Plan. It also requires changes in the County's Zoning Ordinance to make development more pedestrian friendly.

In 1994, the Zoning and Development Ordinance was amended to comply with the Transportation Planning Rule. The 1994 Zoning and Development Ordinance provisions allow for fewer waivers. No waivers are allowed for new development on any street within a mile of a school or park. Staff has found few areas west of I-205 where a local street is not within a mile of a school or park.

Other highlights of the 1994 Zoning Ordinance amendments include minimum sidewalk widths based on functional road class and adjacent land use, accessway requirements, and provisions for dedication and development of off-road sections of planned trails.

The stricter standards in the 1994 Zoning Ordinance have been the subject of much debate on development proposals and through community planning meetings in communities such as Oak Grove. As previously noted, there were waiver provisions prior to the Transportation Planning Rule amendments in 1994 that allowed some development to occur without sidewalks. The result has been very few new sidewalks in many areas and some streets have retained a 'country' appearance. With the stricter 1994 standards, sidewalks are required on existing local streets whether or not they would connect to pedestrian destinations or other sidewalks.

The Transportation Planning Rule was amended by the Land Conservation and Development Commission in April 1995. According to this Oregon Administrative Rule, the Zoning and Development Ordinance does not have to be amended again to meet the revisions because the County ordinances related to the Transportation Planning Rule have not been appealed.

The State's new policy on sidewalks is that they shall be required on arterials, collectors and most locals in urban areas. The County Zoning and Development Ordinance is consistent with the new policy with the understanding the "most' allows for waivers when the criteria for a waiver are clearly specified.

This Pedestrian Plan will examine the impact of the 1994 standards on existing local streets, particularly the need for sidewalks on ALL local streets. As the policies in the pedestrian plan are debated and considered in conjunction with the needs of bicyclists, autos, trucks and narrow street standards, additional changes to the Zoning and Development Ordinance may be necessary. These revisions may be considered as part of the zoning ordinance amendments package proposed for the remainder of the transportation system plan the County is required to adopt by 1997.

PEDWAY PROGRAM

The County Board of Commissioners created the Pedway program in 1993. The program commits a portion of the County road fund to pay for bike and pedestrian improvements. The focus of the Pedway Program has been to improve pedestrian and bicycle access and safety, primarily around schools. Each year, potential projects are submitted by school districts, Citizens Planning Organizations, and citizens. Projects are evaluated and ranked by the Citizens Advisory Committee and approved by the Board of County Commissioners.

The primary source of funding is the State gas tax allocation to the County. The County Commissioners have also contributed additional money above the 1 percent minimum to support the Pedway Program. Some projects also receive outside grants or are leveraged through joint projects with cities or the State.

One full-time staff person oversees the the development and construction of all pedways and bikeways.

CITIZEN INVOLVEMENT

The Board of County Commissioners created a permanent - - Pedestrian and Bikeway Citizens Advisory Committee in 1990. The committee's mission is to promote and encourage safe bicycling and walking as a significant means of transportation in Clackamas County. Committee goals include the development of a coordinated system of safe and convenient bikeways and walkways, the stimulation of public awareness, budgeting strategies for bicycle and pedestrian projects and examination of current and future financing options. The Pedestrian and Bikeway Citizens Advisory Committee advises County staff and the Board of County Commissioners on all bicycle and pedestrian planning, implementation and maintenance issues. They also provide recommendations for Pedway Program projects, and are currently involved in the development of the County Bicycle and Pedestrian Plans.

There are 10 members of the Pedestrian and Bikeway Citizens Advisory Committee , with broad geographic representation. The County Planning Division and the Road Engineering Section provide staff support to the Citizens Advisory Committee.

The - Pedestrian and Bikeway Citizens Advisory Committee will continue to be involved in all aspects of pedestrian planning in the County, including implementation of the Pedestrian Plan.

CHAPTER IV.
IMPLEMENTATION

Through the Goals, Objectives,Strategies, and analysis of existing conditions, specific action items can be identified to implement the Plan. Actions will include proposed changes to the Comprehensive Plan, Zoning and Development Ordinance and a Capital Improvements Plan element for pedways. The capital improvements plan will be detaliled in the next chapter.

COMPREHENSIVE PLAN AND ZDO REVISIONS

The Zoning and Development Ordinance was modified in 1994 to incorporate the requirements of the State Transportation Planning Rule. As previously noted, the Transportation Planning Rule was amended in 1995. The County is still in compliance. However, amendments to the Comprehensive Plan and Zoning Ordinance are necessary to help accomplish the vision of this pedestrian Plan. The most important changes are incorporating the Pedestrian Plan into the Transportation Element of the Comprehensive Plan, codifying changes in local street sidewalk requirements for new development into the Zoning Ordinance, and adopting a pedway capital improvement element in the County Capital Improvements Plan. These changes will set the foundation for achieving the following goals:

Goal 1: providing a safe and convenient network of pedestrian routes and access integrated with other transportation modes

Goal 2: Integrate pedestrian facilities into all planning, design and construction activities

Goal 4: Increase the use of walking as a mode of transportation

Goal 5: Monitor and update the pedestrian plan.

LOCAL STREET POLICY

The pedestrian planning process included an evaluation of the County's policy requiring sidewalks for new development on all existing local streets. The policy evaluation occurred for three reasons:

- results of the sidewalk inventory analysis, stark in showing only a few scattered sidewalks in some neighborhoods;

- urban development patterns, indicating little potential to achieve a system through new development with essentially a " sidewalks everywhere" policy;
- public comments negative to sidewalks on every local street.

Based on this evaluation, County staff recommends that a new local street sidewalk improvements policy be adopted as part of this Plan. This recommendation is a significant departure from current policy, particularly because major amendments to the Zoning and Development Ordinance were just adopted in 1994. The policy change is an attempt to balance Transportation Planning Rule requirements with a pragmatic approach to improving pedestrian access in the County in a way that recognizes unique neighborhood character and funding limitations.

The current provisions requiring sidewalks on all local streets are unnecessarily severe and ineffective. The Zoning and Development Ordinance requires sidewalks on ALL streets, existing and new as part of development requirements (Section 1007). There are waiver provisions. In most cases, however, the waiver provisions are overridden by the requirement for sidewalks within 1 mile of all schools and parks. The result is the creation of scattered sections of new sidewalks with no logical relation to existing or proposed sidewalks where they are really needed.

Citizens have commented in several forums that local street characteristics obviate the need for sidewalks. Conditions include narrow streets with low traffic volumes. Many existing streets retain a 'rural' character valued as important to neighborhood livability. Many local streets have no direct connections to pedestrian destinations or arterial or collector streets. Many citizens do not want sidewalks on these local streets. They believe construction of short unconnected segments is ineffective and not necessary for a viable pedestrian system and the sidewalks detract from neighborhood character.

Based on these factors, the County Department of Transportation and Development recommends that a new policy be adopted for development on existing local streets. The policy is:

Sidewalk improvements will be required on the frontage of an existing local street when the street is part of the essential pedestrian network for the County identified in the Comprehensive Plan.

Sidewalk improvements will be waived for single family development on existing local streets not shown to be on the essential pedestrian network.

The new policy does not affect the sidewalk requirement for new streets for any development. The policy also does not effect curb requirements that are an engineering issue related to drainage control and road structure.

The new local street policy will require changes to the current Comprehensive Plan and Zoning and Development Ordinance.

ACTION 1:	Amend the Transportation Element of the Comprehensive Plan to include the Pedestrian Plan Fall 1995

ACTION 2:	Amend the Zoning and Development Ordinance to reference the Pedestrian Network Map and list of essential local streets in the Comprehensive Plan as the official map to determine where sidewalks are required for proposed development. Fall 1995

ACTION 3:	Amend the Zoning and Development Ordinance to eliminate sidewalk requirements for land partitions on existing local streets unless identified on the pedestrian network map. Fall 1995

ACTION 4:	Amend Zoning and Development Ordinance to reflect new standards for subdivisions. Short Subdivisions shall improve an existing local street when the street is on the pedestrian network. Fall 1995

ACTION 5:	Adopt the Pedway Capital Improvement Plan as part of the County Transportation Capital Improvement Plan Fall 1995

PEDESTRIAN FACILITY DESIGN STANDARDS

Current Design standards for pedways are listed in **Appendix A**. The County follows the Oregon Department of Transportation pedestrian plan standards when possible.

The County Road Engineering Division is currently working on a Road Standards and Design Manual. Pedway standards should be incorporated into this manual. These changes will achieve the following Goals and Objectives:

Goal 1: Provide a.....safe and convenient network of pedestrian routes...

Goal 2: Integrate pedestrian facilities into.....design and construction activities.

ACTION 6: Include in the County Road Standards and Design Manual pedway design standards that safely accommodate pedestrians The standards shall be consistent with the standards in the ODOT Pedestrian Plan and AASHTO. ongoing

ACTION 7: Amend the Zoning and Development Ordinance to reference the Clackamas County Road Standard and Design Manual as the official document for pedestrian improvement standards. Fall 1995

ACTION 8: work with the County Road Engineering Section to identify alternative pedway surface standards that provide greater flexibility in surface type while meeting AASHTO and ADA requirements. ongoing

EDUCATION AND PROMOTION

The Goals and Objectives call for the County to promote and educate people about the benefits of walking as a mode of transportation and maintenance responsibilities. Specific Goals are:

Goal 4: Increase the use of walking as a mode of transportation.

Goal 5: heighten the awareness of pedestrians and vehicle operators of their rights and responsibilities for pedestrian safety, and for sharing both on-road and off-road facilities.

ACTION 9: in conjunction with regional pedestrian advocacy groups, other government agencies, school districts and the County sheriffs office, develop a education and safety program for the county cable access station. The video could be copied for use at schools etc.

ACTION 10: develop a brochure describing the benefits of walking for travel, and highlighting safety concerns. Brochures could be distributed at outdoor recreation stores, parks, schools, cities, community centers etc. .

ACTION 11: Include information about sidewalk obstructions and the ADA in the County Road Design Manual typical sidewalk drawing. 1995

ACTION 12: Continue funding a program coordinator to staff the Pedestrian and Bicycle Advisory Committee and administer the Pedway program. This position will provide communication between the advisory committee and the Department of Transportation and Development, and other County departments. Annually

ACTION 13: The County shall support the continuation of the County Pedestrian and -BikewayCitizens Advisory Committee to advise staff and the Board of County Commissioners on pedestrian and bicycleissues and serve as a forum for public imput.
ongoing

ACTION 14: Include funding for a project on bicycle and pedestrian safety and education in the next Capital Improvements Plan . 1995

MAINTENANCE

Proper maintenance of sidewalks is important for pedestrian safety and use and to help protect the investment of public funds in sidewalks and pedways.

Maintenance of sidewalks is currently the responsibility of the abutting property owner. Routine maintenance needs include sweeping, vegetation control to maintain adequate sight distance and clearances, and root control to prevent sidewalk surface damage. Property owners also are responsible for repairing or replacing damaged or worn out sidewalks abutting their property.

The County is responsible for the maintenance of pavement surfaces,traffic signs and signals, and surface water drainage on county roads.

The Plan includes a specific goal to address the importance of maintenance:

Goal 3: Maintain pedestrian facilities to ensure safety and encourage use

The actions needed to accomplish this goal are described below.

ACTION 15: Prepare and distribute a brochure describing sidewalk maintenance responsibilities for property owners.

ACTION 16: Coordinate utility installation and repair to ensure sidewalk cuts are backfield with the same original surface, flush with the surrounding sidewalk grade.

ACTION 17: The County shall continue to respond to reports by the public and others of walkway problems. The Clackamas County Road Use Ordinance is the authority for implementation and enforcement of maintenance requirements. Pursuant to the Road Use Ordinance, the county shall notify propertyowners of the report and responsibility for maintenance. Failure to comply with the Road Use ordinance shall be grounds for a hearing before the County Code Enforcement Hearings Officer or proceedings in Circuit Court.
ongoing

ACTION 18: The County Road Department, Road Engineering Section and Community Environment Section shall develop criteria for assessing sidewalk condition for the purpose of enforcing maintenance through the Road Use ordinance
1995-96

ACTION 19: As part of its maintenance program, the County shall continue to repair or relocate faulty drains at intersections where the water backs up onto the curb cut or into the crosswalk. ongoing

ACTION 20: The County shall maintain signs and pavement markings related to pedestrians in readable condition. ongoing

ACTION 21: The County shall properly maintain traffic signals on streets with sidewalks and crosswalks. ongoing

ACTION 22 Continue maintenance, including sweeping and striping of pedways that are part of the road surface

CHAPTER 5
PEDWAY CAPITAL IMPROVEMENT PLAN

The heart of the Plan is the creation of a networked system of pedestrian facilities. Because existing -walkwaysdo not form a network, a capital improvements program is required to construct the necessary facilities where they cannot be constructed at the time of new development or new road construction or road reconstruction. Pursuant to ACTION 5, The Pedway Capital Improvement Plan will be adopted as an element of the County's Transportation Capital Improvements Plan.

Purpose

The Capital Improvement Plan identifies, prioritizes, and sets a construction timetable for the projects identified as part of the proposed essential pedestrian network. The Capital Improvements Plan also will:

- facilitate better coordination with cities, special districts, the State and other affected agencies to maximize the investment of public resources and minimize conflicts;

  increase public awareness of the sidewalk capital construction and financing program.

Periodic Review and Update

Goal 6 of the plan requires the county.....'to monitor and update the pedestrian plan'. The Capital Improvement Plan and Program will be reviewed and updated as projects are completed, revenue and costs estimates are revised, unanticipated moneys like grants become available, and the public's priorities change. The Board of County Commissioners has final approval authority for the Capital Improvements Plan and the expenditure of funds. The Board may amend the Capital Improvements Plan at any time to reflect changing conditions and priorities.

Specific actions to assure Goal 6 is met are:

ACTION 23: Update the pedestrian facility inventory every 3 years.

ACTION 24: Develop a method to maintain an updated inventory of new sidewalks obtained through development, new or reconstructed road projects and capital improvement projects.

begin in 1995

ACTION 25: Review pedestrian accident data in the projects priorities evaluation of the Capital Improvements Plan.	every 3 years

ACTION 26: Review new land use development to determine impacts on plan priorities in the Capital Improvements Plan.	Ongoing

ESSENTIAL PEDESTRIAN NETWORK

The - Pedestrian and Bikeway Citizens Advisory Committee, the public and staff have identified an essential pedestrian network necessary to meet the Vision of the Plan. Map 2 shows the proposed Essential Pedestrian Network. The network will provide direct access to most major pedestrian destinations. The network includes arterials and collector roads and select local streets pursuant to the recommended new local street policy. The significance of roads on the network is that while these roads may not have been initially developed with sidewalks, it is now deemed necessary to add or complete sidewalks along them. Sidewalks along these streets will not be waived in the development process.

All roads in the urban area were reviewed to determine which would be part of the essential pedestrian network. Factors of consideration included the functional classification of the road, location of schools and parks, commercial land uses, transit stops, connectivity between arterials or collectors and Metro 2040 plan designations, areas with vacant land, and streets where filling gaps would add to the system. The proposed network will meet Transportation Planning Rule requirements for sidewalks on arterials, collectors and most local roads.

Specific local streets are identified in Appendix B

In addition to the improvements proposed in the Capital Improvements Plan, sidewalks will continue to be required for new development and road reconstruction on roads comprising the essential pedestrian network.

Also, pursuant to Strategy 1:2:4, the County will work with county and city park districts and Metro on the acquisition and development of multi-use paths . Multi-use trails are an integral part of the County's proposed pedestrian network. The Portland Traction Line and the Molalla River Pathway are proposed as multi-use facilities.

CAPITAL IMPROVEMENT 20 YEAR PROJECTS

The Capital Improvement Plan lists the proposed sidewalk construction projects for the next 20 years. Because of financial constraints, the 20 year plan will not complete all the projects necessary to complete the essential pedestrian network. Initially, they will continue the focus started in the Pedway Program to improve safety around schools and will form an integral part of the proposed network.

Evaluation Criteria

The estimated cost of the improvements exceeds existing and anticipated revenues. The limited financial resources constrain the number of projects that can be constructed annually. Therefore, to prioritize projects for the Capital Improvements Plan, evaluation criteria were developed to rank projects. A discussion of the evaluation criteria is found in Appendix C.

The Pedestrian and Bikeway Citizens Advisory Committee and the public identified several roads that should be part of the pedestrian and bicycle network. Recognizing the limits of funding and the need for a network of pedestrian facilities , the Citizens Advisory Committee recommends that under certain circumstances, a bikelane will be considered an adequate *interim* pedestrian facility for Capital Improvements Plan purposes . Bikelanes, while not the most desirable pedestrian facility, do provide an area for pedestrians to walk relatively safely. Conversely, a sidewalk or pedway is not a bicycle facility. Furthermore, curbs and sidewalks in the wrong location may preclude future bike facility improvements. The criteria for allowing bikelanes to be a joint interim pedestrian facility are:

- sufficient width to allow pedestrians and bicyclists to pass;
- relatively slow traffic speeds;
- absence of sight distance problems or other road alignment problems.

Roads meeting these criteria will not be ranked or included in the 20 year Capital Improvements Plan. However, the CIP includes biannual review. These roads will be evaluated as part of the review to determine if changing road conditions warrant inclusion in the 20 year improvements plan.

The County roads that meet the standards for a joint facility are:

1. River Rd.
2. Oatfield Rd.
3. Courtney Ave.
4. Webster Rd.

TWENTY Year Projects

The projects identified in the list below and on Map 3 are planned for construction during the 20 year period covered by the Capital Improvements Plan. Map 4 shows the projected 20 year network based on these projects being completed. Project rankings are found in Appendix D.

The cost of the projects does not exceed the projected 7.5 million dollars available for pedestrian improvements during the 20 year period. If additional funds become available, new projects can be added as part of the Capital Improvements Plan review process

20 YEAR PEDWAY CAPITAL IMPROVEMENTS PROJECTS

	ROAD	SEGMENT	COST	FUNDING SOURCE
	High Priority			
1	Oak Grove Blvd	Rupert-99E	78,000	county
2	Thompson	Monroe-Fuller	114,000	county
3	Concord	River-Oatfield	487,000	county; grant
4	Johnson	Lake-Clackamas	185,000	county
5	Price-Fuller	King-Harmony	226,000	county;TC UR--p.o;SDC
6	Linwood	King-Johnson Creek	133,000	county
7	Wall St. (Colton)	Hwy. 211-Farris CT	655,000	county
8	Arista/Traction ROW	Milwaukie-Gladstone		grants
9	Thiessen	Oatfield-Hill Rd	444,000	county
10	Courtney	River-99E	45,000	county
11	Lake	Webster-Johnson	129,000	county
12	Stanley	Willow-Johnson Creek	237,000	county
13	Ivy (Canby)	99W-SE13th	150,000	county
14	Roethe	99e-River	117,000	DR--portion
15	Thiessen	Carol-Johnson	116,000	county
16	Johnson Creek Blvd	Bell-82nd	329,000	county; SDC
17	North Clackamas Trail	Park Complex-Mather		TC&CI UR;grants;parks
	Medium Priority			
18	Harmony	overpass-Milwaukie CL	96,000	county
19	Park	River-99E	30,000	county
20	Hill	All	556,000	county
21	Rusk	all	347,000	county
22	Hillcrest	Stevens-92nd	105,600	county; TC UR
23	Bell	King-Johnson Creek Blvd	221,000	county; grant
24	Stevens	92nd-Mt. Scott school	155,000	
25	Concord	Oatfield-LaBonita	105,000	county
26	Roots	Webster-Lark	190000	rd.reconstruct
27	Courtney	99E-Oatfield	44,000	county
	Low Priority			
28	92nd	Otty-to existing	180,000	SDC
29	122nd	Sunnyside-Hubbard		DR--portion
30	Monterey	finish south side		DR--all

31 132nd	Sunnyside-Hubbard		Development Review(DR)
32 Sunnyside	102nd-152nd		Grant
33 97th	Sunnyside-Lawnfield		DR--all
34 Thiessen	Webster-Anna Marie Ct	57,000	DR--all
35 Sunnybrook	split diamond		grant
36 142nd Ave	Sunnyside-south		DR--Sunnyside Village
37 152nd	Sunnyside-south		DR--Sunnyside Village
38 SE Hubbard Rd	Se 122nd-SE130th		DR--most
39 Salmon River Rd	Welches GS--Fairway Ave	350,000	county
40 Jennings	99E-River Rd	93,000	county

DR=Development Review
UR=Urban renewal
TC= Town Center
CI= Clackamas Industrial Area
SDC=Systems Development Charge

FUNDING OPTIONS

The key to a successful Capital Improvements Plan to establish the essential pedestrian network is funding. A limited number of sidewalks will be added to the network through new development. The majority of new pedways will be funded through the Capital Improvements Plan. Currently, the primary source of funding is through the state gas tax that is funneled to the County. The Oregon bicycle law requires a minimum of 1 percent of these funds received by the county be used for pedestrian and bicycle improvements. The outlay from this source since the Pedway program began has averaged approximately $750,000 a year. On average this funds 10 projects. This includes pedways and bike lanes. The Pedway program has leveraged this outlay through grants, road reconstruction projects and joint projects with local jurisdictions.

Outside funding is available from several sources. The status of these funds is subject to the Congressional budget process. Therefore, these funds should not be heavily relied on to fund the construction of the pedestrian network. They include:

- **Intermodal Surface Transportation Efficiency Act (ISTEA)** funds are federal transportation dollars from the Federal Gas Tax. They are available for 'regionally significant' pedestrian projects. The dollars are administered through METRO, and are available for multi-use commute to work routes.

- **Community Block Grant** funds for bike and pedestrian projects. Funding is limited to low income neighborhoods.

- **Congestion Management and Air Quality (CMAQ)** funds are part of the ISTEA fund. They are available for projects that can be shown to result in cleaner air.

'Local ' sources of funds include:

- **Local Improvement Districts:** formed by property owners on a street who want road improvements. Improvements can include sidewalks or pedways. The County could consider offering matching funds to leverage commitments from property owners. Criteria could be established for the percentage match.

- **County Gas Tax:** A tax would require a vote in Clackamas County. A percentage of the moneys collected could be used for pedestrian and bicycle facilities improvements.

- **Bonds:** Voters could be asked to fund capital improvements through a bond measure. A key would be having improvements on major pedestrian routes in each general neighborhood. Like a county gas tax, this is a unlikely source of funds

- **Urban Renewal District:** within district boundaries, capital sidewalk improvements may be made using funds from the Clackamas Town Center and Clackamas Industrial Area Urban Renewal District.

ACTION 25: The County will actively seek outside funding to supplement the county funds for pedway capital improvements. ongoing

APPENDIX A

CURRENT PEDWAY DESIGN STANDARDS

CLACKAMAS COUNTY

STANDARD DRAWINGS FOR ROADWAY IMPROVEMENT

1990

APPENDIX B

LIST OF LOCAL COUNTY ROADS ON THE ESSENTIAL SIDEWALK NETWORK

The Essential Sidewalk Network for the urban area consists of all arterial roads, collectors (whether major collectors or neighborhood collectors), and selected local streets. The significance of roads on the Essential Sidewalk Network is that while these roads may not have been initially developed with sidewalks, it is now deemed essential to add or complete sidewalks along them. Sidewalks will not be waived along these roads in the development process. The County will encourage formation of Local Improvement Districts (LIDs) for property owners to build sidewalks, or the County will build a select few sidewalks on this network annually as the Capital Improvement Program allows.

It is recognized that if sidewalks can be retrofitted on only two of these local streets per year it would take in excess of 75 years to complete the network. The criteria for prioritizing County capital expenditures are important in determining which sidewalks are retrofitted each year. These priorities are set biannually in the County's Capital Improvement Program (CIP). The list below consists of those local streets identified on the map of the Essential Pedestrian Network. All new development on these streets will be required to construct sidewalks. The local streets will also be included in future capital improvements projects after the 20 year plan is completed, or additional money becomes available.

The following criteria were used for selection of the existing local streets appearing on this list:

1) Streets having commercial or industrial frontage. Extend Essential Network designation at least 1/4 mile from commercial or industrial zoning. CRITERION F

2) Streets with frontage that is more than 25% vacant. CRITERION V

3) Streets connecting to collectors or arterials and within 1/4 mile of an existing or planned school or park. CRITERIA S and P

4) Streets connecting two or more collectors, or arterials. CRITERION C

5) Streets connecting transit stops to neighborhoods. Extend Essential Network designation at least 1/4 mile from transit stop. CRITERION T

6) Streets where filling in small gaps in the existing or planned network of sidewalks would result in continuity. CRITERION G

7) Streets are in a Metro designated 2040 Regional Center or Town Center. CRITERION M

Existing local streets meeting the above criteria are listed below followed by the criteria that qualifies the street for inclusion.

Direct routes are specified to be provided through several excessively long blocks. Street connections are usually preferred, unless ODOT prohibits motor vehicular access. If a street connection is prohibited, or impractical due to topography, an accessway shall be provided.

1. 29th Ave., (Evergreen Ave. to Park Ave.) F all
2. 65th Ave., (King Rd. to Monroe St.) C all, T all
3. 70th Ave., (Alberta St. to County line) T all
4. 70th Ave., (King Rd. to Monroe St.) C all, T all
5. 74th Ave., (King Rd. to Thompson Rd.) S all, C all, T all
6. 77th Ave., (King Rd. to Thompson Rd.) C all, T all
7. 80th Ave., (Harmony Rd. to McBride St.) F all, M all, P all
8. 85th Ave., (Monterey Ave. to Causey Ave.) G all, M all
9. 85th Ave., (Spencer Dr. to King Rd.) G all
10. 90th Ave., (Adams St. to Jannsen Rd.) T all, F part, S all
11. 91st Ave., (Johnson Creek Blvd. south to Con Battin St.) F part, V part, G
12. 91st Ave., (Tolbert St. to Jannsen Rd.) T all, F all, S all
13. 92nd Ave., Clark St., (82nd. Dr. to 91st. Ave.) T all, F all, S all
14. 92nd Ave., Hillcrest Rd., (Stevens Rd. to Stevens Rd.) C all, S all
15. 93rd Ave., (Clackamas Rd. to Tolbert St.) F all
16. 94th Ave., (Clackamas Rd. to Tolbert St.) F all
17. 96th Ave., (Stevens Rd. to Idleman Rd.) C all, S part
18. 99th Dr., (Stevens Rd. to Idleman Rd.) C all, S part
19. 102nd Ave., (Hwy 212 south to dead end) T all, F all
20. 117th. Ave., (Sunnyside Rd. north to Westgate Dr.) T future
21. 124th Ave., (Sunnyside Rd. south to Mather Rd. F part, T future
22. 126th Ave., (Sunnyside Rd. north to Imperial Crest St.) T future
23. 128th Ave., (Sunnyside Rd. south to Mather Rd.) T future
24. 132nd. Ave., (Sunnyside Rd. north to dead end S part, T future

25. Abernethy Ln., (Jennings Rd. to Glen Echo Ave.) F part, T all, C all
26. Adams St., (90th Ave. to 82nd Dr.) F all, T all
27. Addie St., (Boardman Ave. to Jennings Rd.) F part, T all
28. Allen Rd., (Oatfield Rd. to Wallace Rd.) T all
29. Ambler Rd., (82nd Dr. north to dead end) F all, T all
30. Arista Dr., (Courtney Ave. to Oak Grove Blvd.) C all, S all (2), F part
31. Arista Dr., (Jennings Ave. to Boardman Ave.) F part, T all
32. Arista Dr., (Oak Grove Blvd. to Creighton Ave.) F part, S part
33. Ash St., (Willamette Ave. to Kellogg Rd.) V part
34. Battin St., (92nd. Ave. west to dead end) F all, V part
35. Battin St., Malloy Pl., (Fuller Rd. to dead end) F all
36. Bluff Rd., Denny St., Laurie Ave., (Courtney Ave. to Cottonwood Park) P all
37. Boardman Ave., (River Rd. to school accessway) F part, T all, S part, C part
38. Boyer Dr., (82nd Ave. to 85th Ave.) F part, T all
39. Cardinal St., (Ash Ave to Crestview Ave.) V part
40. Carpenter Dr., (120th Ave. to Capps Rd.) F all, C all
41. Casa Del Rey Dr. and 51st Ave. (Lake Rd. to N.C. Park) T all, P all
42. Cason Ln., Charolais Dr., (Cason Rd. to Webster Rd. C all, T part
43. Cedar Ave., (Oak Grove Blvd. to Maple St.) S all
44. Center Ave., (Hill Rd. to Aldercrest Rd.) V part
45. Chestnut St., (McLoughlin Blvd. to Oatfield Rd.) C all, T all, F part
46. Chestnut St., Woodland Way, Pine Ln., (McLoughlin Blvd. to Bunnell Park) F part, T all, P all
47. Church St., (92nd Ave. to 94th Ave.) F all, T all, S all
48. Clackamas Rd., (SPRR west to I-205 ROW) T all, F all, S all, G part
49. Clackamas Rd., (Webster Rd. west to Stohler Rd.) T all, V part
50. Clackamas St., (82nd Ave. westward to dead end) F part
51. Clatsop St., (82nd Ave. to Fuller Rd.) C all, F part, T all
52. Clayson Ave., (Portland Ave. to Oatfield Rd.) T all
53. Con Battin St., (92nd. Ave. west to dead end) V part
54. Con Battin St., (Fuller Rd. eastward to dead end) F all
55. Concord Rd., (Oatfield Rd. east to Wanda Dr.) S part, T part
56. Cornwell Ave., Garden Ln. (82nd Ave. to Fuller Rd.) F part, T all, C all
57. Cornwell St., (82nd Ave. to 80th Ave.) F part, T all, V part
58. Courtney Ave., Fairoaks Ave., Fairoaks Way, (River Rd. to Cottonwood Park) T part, P part
59. Creighton Ave., (River Rd. to Rupert Dr.) T all
60. Cypress Ave., (Webster Rd. to Johnson Dr.) C all, T part
61. East Ave., Risley Ave., Orville Ave., (Oak Grove Blvd. to Concord Rd.) F part, C all, G part
62. Evergreen Ave., (McLoughlin Blvd. to Oatfield Rd.) F part, C all
63. Evergreen St., (River Rd. to PTC ROW) T part, F part

64. Fern Ave., (67th Ave. to 72nd Ave.) T all
65. Fir Ave., (67th Ave. to 72nd Ave.) T all
66. Ford St., (122nd Ave. to 130th Ave.) F all, C all, G part
67. Glen Echo Ave., (Portland Ave. to 1/4 mile west of River Rd.) F part, C part, T part, V part
68. Glencoe St., (82nd Ave. to 79th Ave.) F part, T all
69. Gray St., (82nd Ave. to dead end) F part
70. Greenview Ave., (Thiessen Rd. to Clackamas Rd.) C all
71. Hager Ln., (Oatfield Rd. to Risley Ave.) T part
72. Harmony Dr., (Fuller Rd. to McEachron Ave.) S part, T part
73. Harold Ave., (Concord Rd. to Roethe Rd.) S part, C all
74. Herbert Ct., (82nd Dr. west to dead end) F all, T all
75. Hinkley Ave., (82nd Ave. to Fuller Rd.) F part, T all, C all
76. Hinkley Ave.,(92nd. Ave. west to dead end) F all, V part
77. Holly Ave., (McLoughlin Blvd. to Oatfield Rd.) C all, T all, F part
78. Hull Ave., (Wilmot Rd. to Oatfield Rd.) F part, S part (2), C part, T part
79. Ina Ave. (McLoughlin Blvd. to accessway to school) F part, S all
80. Jannsen Rd. (82nd Dr. west to I-205 ROW) F all, T all, G part
81. Jennings Ave., (River Rd. westward 1/4 mile) T all
82. Jennings Ave., Fragrance Ave., (Webster Rd. to Strawberry Ln.) C all, T part
83. Johnson Rd., (Clackamas Rd. to Roots Rd.) C all, T part
84. Jordan Ave. Needham Ct., (Linwood Ave. to Bell Ave.) C all, T all
85. Kellogg Ave. (Oak Grove Blvd. to Risley Ave.) F all,
86. Kellogg Cr. Dr. Russcliff Rd. (N.C.Park to end of Russcliff Rd.) P all, S all, V part
87. Kellogg Rd. (Aldercrest Rd. to Willamette Ave.) V part
88. King Rd. (82nd Ave. to Owen Dr.) F part
89. Kuehn Rd. (Lake Rd. to Aldercrest Rd.) connect two segments with accessway over cliff C all, T part, V part
90. La Bonita Way (Concord Rd. to Thiessen Rd.) F part,
91. Lamphier St., (Bell Ave. to 82nd Ave.) F part, C all
92. Lark Ave., (Clackamas Rd. to Roots Rd.) C all, T part
93. Lee Ave. and Ruby Dr., (Oak Grove Blvd. to Risley Park) F part, S part, P part
94. Lee Ave. (Courtney Ave. to Oak Grove School) S all
95. Linden Ln. Chestnut St., Park Rd., (Courtney Ave. to Bunnell Park) P all
96. Lindy St. (82nd Ave. to dead end) F part, T all
97. Loeffelman Rd. (Oatfield Rd. to Briggs St.) T all
98. Mabel Ave. (Webster Rd. west 1/4 mile) T all
99. Mangan Dr. Water Ave., (Evelyn St. to boat ramp) P all, F all, V part
100. Maple St.(Laurie Ave. to Rupert Dr.) F part, T all, S all
101. Maple St. (McLoughlin Blvd. to Oatfield Rd.) C all, T all, F part
102. Maple St. (Woodland Way, Walnut St., (McLoughlin Blvd. to Bunnell Park) F

part, P all

103. Maplehurst St., (Monroe St. to McEachron Ave.) S part, V part
104. Marigold St., Primrose Ave., (Johnson Rd. to back of school) S all
105. McBride St. (Southgate St. to 82nd Ave.) F part, T part, S part, M all
106. McEachron Ave. (Maplehurst St. to South 1400 Ft.) S part, V part
107. McNary Rd. (Oatfield Rd. to Norma Rd.) T part, S part, G part
108. Meldrum Ave. (Glen Echo Ave. to Abernethy Ln.) F part, T all, C part
109. Michael Dr. (Fuller Rd. to McEachron Ave.) S all, T all
110. Molt St., Aldercrest Ct. (Webster Rd. to Thiessen Rd.) C all, T part
111. Naef Rd. (River Rd. to Wallace Rd.) F part, C part, T all
112. Naef Rd. Oetkin Rd., (Oatfield Rd. to Thiessen Rd.) C all, T part
113. Needham St. (Linwood Ave. to Bell Ave.) C all
114. Nixon Ave. (Oatfield to 1/4 mile south) T part
115. Norma Rd. Cordova Ct., (Oetkin Rd. to McNary Rd.) S all, V part
116. Oakland Ave. Viewcrest Dr. (Oatfield Rd. to Norma Rd.) T part, S part
117. Orchard Ln. (82nd Ave. eastward to dead end) F all
118. Otty St., 73rd Ave., Drew Ave. (Bell Ave. to 82nd Ave.) F part, C all, T part
119. Overland St. (Linwood Ave. to 82nd Ave.) F part, C all, T all, P part
120. Owen Dr. (King Rd. to Marcus St.) G all
121. Park Ave. (Oatfield Rd to 32nd Ave.) T all
122. Pinehurst Ave. (Oatfield Rd. to 1/4 mile east) T all
123. Portland Ave. (Glen Echo Ave. to Clayson Ave.) S all, C part
124. Queen Rd. (Linwood Ave. to 70th Ave.) T all
125. Raymond St. (Harold Ave. to Oatfield Rd.) T all
126. Risley Ave. (River Rd. to Garland Ln.) F part, P part, T all, C part
127. River Dr. (River Rd. westward 1/4 mile) T all
128. River Forest Rd. (River Rd. to intersection with River Forest Place) T all
129. Robin Rd. (Oatfield Rd. east to Wanda Dr.) S part
130. Roethe Rd. (Oatfield Rd. east to Byron Dr.) T all, S part
131. Rupert Ave. (Oak Grove Blvd. to Creighton Ave.) F part
132. Rupert Dr. (Courtney Ave. to Oak Grove Blvd.) C all, F part
133. San Marcos Ave. Delrey Ave., (Webster Rd. to Cypress Ave.) T part
134. Silver Springs Rd. (River Rd. to Oatfield Rd.) push street through across McLoughlin Blvd. C all, F part, T part
135. Southgate St. (82nd Ave. to Fuller Rd.) F part, T part, S part, M all
136. St. Helens St. (90th Ave. to 82nd Dr.) F all, T all
137. Stanley Ave. (Monroe St. to Johnson Creek Blvd.) C all, T part
138. Stephanie Ct., (Fuller Rd. to dead end) T all, S all, M all
139. Sunnyside Dr. (82nd Ave. to Fuller Rd.) F part, T part, P part, M all
140. Swain Ave. (River Rd. to Arista Dr.) T all P all
141. Tiara Dr. Bonnie Way and Topaz Ave., (Lake Rd. to Thiessen Rd.) C all, P part, S part
142. Tolbert St. (94th Ave. west to dead end) F all, T all, S all
143. Topaz Ave. Chickory St., Carol Ave., Cypress Ave., Topaz Ave., (Thiessen

Rd. to Clackamas Rd.) C all, P part

144. Torbank Rd. (River Rd. to McLoughlin Blvd.) push street through C all, T all, S part
145. Valley View Terrace (Sunnyside Rd. north to Otty Rd.) T part, F part, C future
146. View Acres Rd. (Oatfield Rd. to Hill Rd.) C all, S part
147. Vineyard Rd. (River Rd. to Harold Ave.) F part, C part, T all
148. Wabash Ave., (Silver Springs Rd. to Torbank Rd.) S all
149. Wallace Rd. (Thiessen Rd. to Viewcrest Dr.) S part
150. Walnut St. Bunnell Ave., Park Entrance, (Rupert Dr. to Bunnell Park) S all, P all
151. Westview Ave. (Arista Dr. to McLoughlin Blvd.) require accessway through to McLoughlin Blvd. F part, T part
152. Wichita Ave. (King Rd. to Johnson Creek Blvd.) C all, P part, T part
153. Willamette Ave. (Fernridge Ave. east to dead end) V part
154. Wilshire St. Tamarack Way and Bevington Ave., (Webster Rd. to Thiessen Rd.) C all, T part, P part

APPENDIX C
DRAFT PEDWAY PROJECT EVALUATION CRITERIA

CRITERION	POINTS
A. POTENTIAL USE:	
RESIDENTIAL ZONE DENSITY:	
• Multi-Family	5
• Single Family	3
DESTINATIONS:	
• School	10
• Other Major destinations{park, store, church, , library, bus stop, }	5 (each/max. 20)
DISTANCE TO DESTINATION:	
< 1/4 mile	10
>1/4 m.< 1/2 m	5
> 1/2 < 1 mile	3
B. SAFETY:	
TRAFFIC VOLUME	
• High > 3000 daily trips	10
• Med. > 1500	5
• Low <1500	3
SAFETY FACTORS:	
• Inadequate Sight distance	5
• narrow shoulders	5
• no pedestrian facility	3
C. COST EFFECTIVENESS:	
• outside funding source	5
• coordinated w. planned road project	5
D. EXTRA CREDIT	
• provides off road facility	2
• provides bike facility	2
• completes link	5

Explanation of Criterion:

1. POTENTIAL USE:

Projects with the most potential for pedestrian use receive the most points. Factors of consideration were residential zoning density, major destinations along the project route and the distance to the destination.

- **Density:** Higher density zones are usually located along higher volume streets and are closer to major pedestrian attractors like stores, transit and schools than low density neighborhoods. People living in multi-family units are more likely to rely on alternative modes of transportation such as walking.

- **Major Destinations :** Schools, parks, neighborhood convenience or video stores, libraries and transit stops are major pedestrian destinations. . These are travel trip attractors. Some of these destinations are typically within walking distance of most neighborhoods. Therefore, there is an opportunity to increase the use of pedestrian facilities to travel to these places.

- **Distance :** Time is a major consideration in deciding how to travel to a destination. National walking surveys show that 25 percent of all trips are less than 1 mile and 40 percent are less than 2 miles. Because time is an important variable in deciding which mode of transportation to use, distance is a key factor in the decision to walk and therefore in the potential use of a sidewalk.

2. SAFETY:

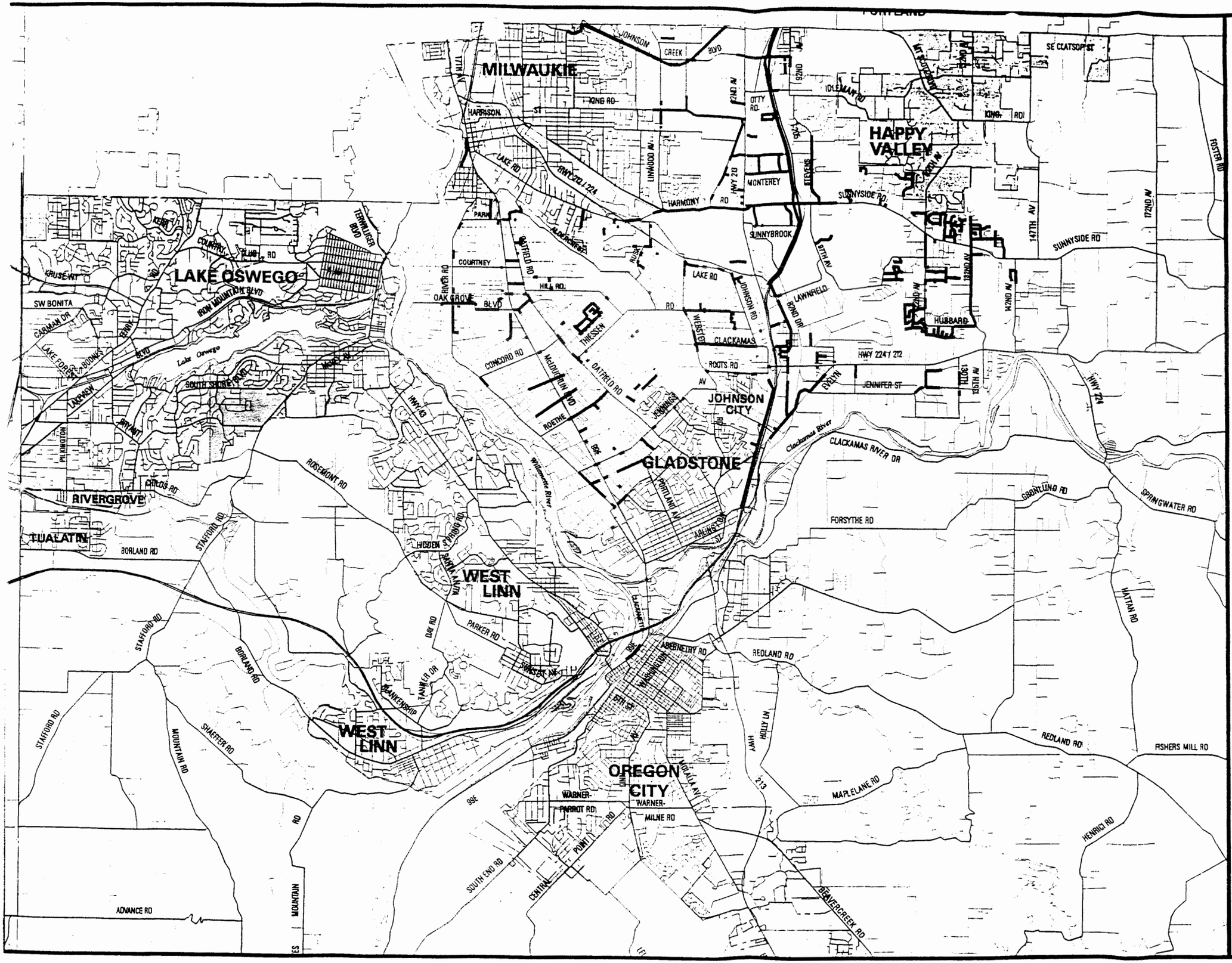
Projects on higher volume roads with unsafe conditions such as narrow shoulders or no pedestrian facility are given a higher priority than projects with low traffic volumes and no unusual safety conditions.

3. COST EFFECTIVENESS:

The funds available for capital improvements are limited. As identified in the Capital Improvements Plan, there are potential outside funding sources including grants, urban renewal district dollars, and joint projects with cities. The County must be flexible in selecting projects to take advantage of these opportunities to enable the County to get the greatest number of pedestrian facilities for the least cost. Points will be given to projects receiving outside funds.

4. EXTRA CREDIT:

Projects that complete a link in the network, provides a multi-use facility or off-road facility receive extra points.



Map 1

Existing Sidewalk Network

Legend

Existing Pedways (Fall 1994)

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Clackamas County 1995

Adopted
00696

CLACKAMAS COUNTY

BICYCLE MASTER PLAN

April 18, 1996

CLACKAMAS COUNTY
Department of Transportation and Development
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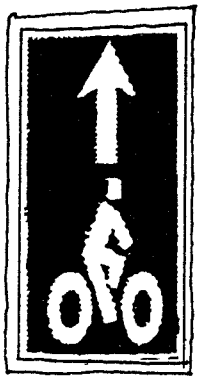

Chapter 1
INTRODUCTION

PURPOSE

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

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

CHAPTER SUMMARY

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

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

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

BACKGROUND

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

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

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

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

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

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

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

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

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

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

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

PUBLIC AND INTERAGENCY INVOLVEMENT

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

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

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

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

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

The final draft plan is being presented to interested Citizen Planning Organizations and other interested groups. An informational slide show is presented followed by a questions and answers.

THE LAWS RELATING TO BICYCLING

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

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

Federal

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

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

ISTEA requires that each State appoint a bicycle and pedestrian coordinator. It also provides funding opportunities through the National Highway System, Surface Transportation Program Funds, including Transportation Enhancement Activities allocations, Congestion Mitigation and Air Quality Improvement Program Funds, Scenic Byways Program Funds, Federal Lands Highway Funds and the National Recreational Trails Fund. Bicycle safety is also a priority, subject to expedited approval for Section 402 Highway Safety

Program Funding. All this means greater opportunities for providing more bikeways and a more balanced transportation system throughout Clackamas County.

State

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

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

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

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

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

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

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

The benchmark that applies directly to this plan is:

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

Other benchmarks also relating to this plan are:

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

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

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

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

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

County

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

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

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

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

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

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

Chapter 2
COUNTY OVERVIEW

EXISTING COMMITTEES AND PROGRAMS

Pedestrian and Bikeway Advisory Committee

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

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

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

Bike and Pedway Program

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

EXISTING CONDITIONS

Bikeways

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

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

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

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

Map 1

Existing Bikeway Network
Urban Area

Legend

Existing Bikeway

Existing Multi-use Trail

Urban Growth Boundary

Scale: 1" = 1 mile
Clackamas County 1995

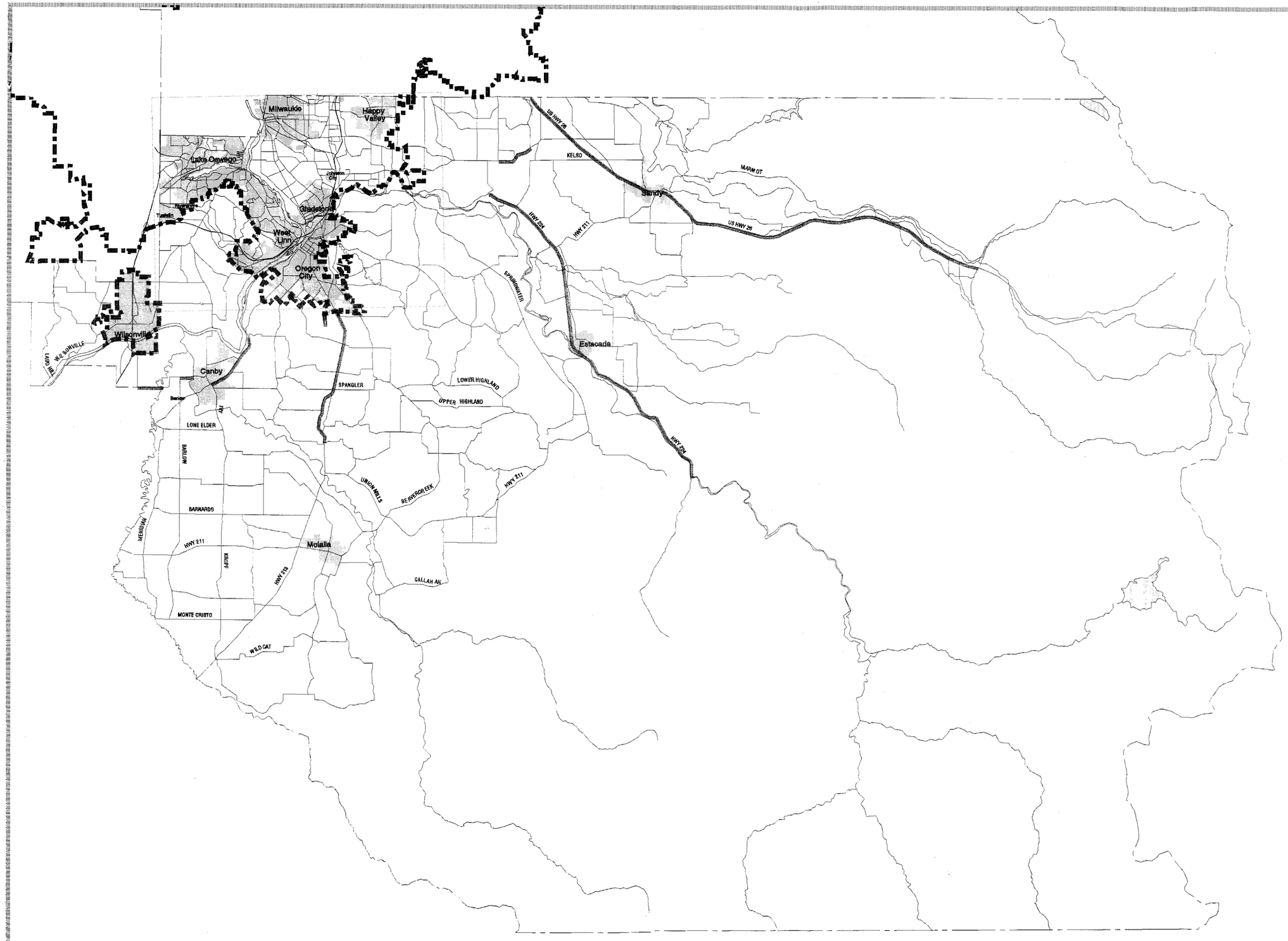
Map 2

Existing Bikeway Network
Rural Area

Legend

Existing Bikeway

Urban Growth Boundary



Clackamas County 1995

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

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

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

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

Recreational Versus Commuter/Utility Routes

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

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

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

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

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

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

GOAL 3

Maintain bikeways to ensure safety and encourage use.

3:1 Objective: Keep bikeways free of debris and in good repair

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

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

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

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

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

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

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

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

GOAL 4

Increase the use of bicycles as a mode of transportation.

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

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

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

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

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

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

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

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

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

GOAL 5

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

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

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

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

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

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

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

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

GOAL 6

Monitor and update the bicycle plan.

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

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

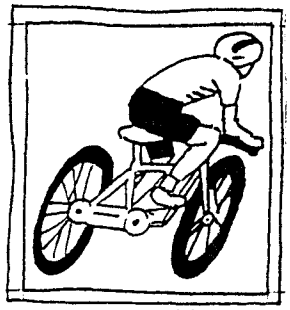
6:1:2 Strategy: Collect bicycle travel data for the County every two years to measure how an area or facility is actually being used.

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

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

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

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



Chapter 4
RECOMMENDED BICYCLE NETWORK AND ITS IMPLEMENTATION

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

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

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

GOAL 1

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

THE BIKEWAY NETWORK

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

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

Existing bikeways are shown on Maps 1 and 2.

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

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

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

IMPLEMENTATION OF THE BIKEWAY NETWORK

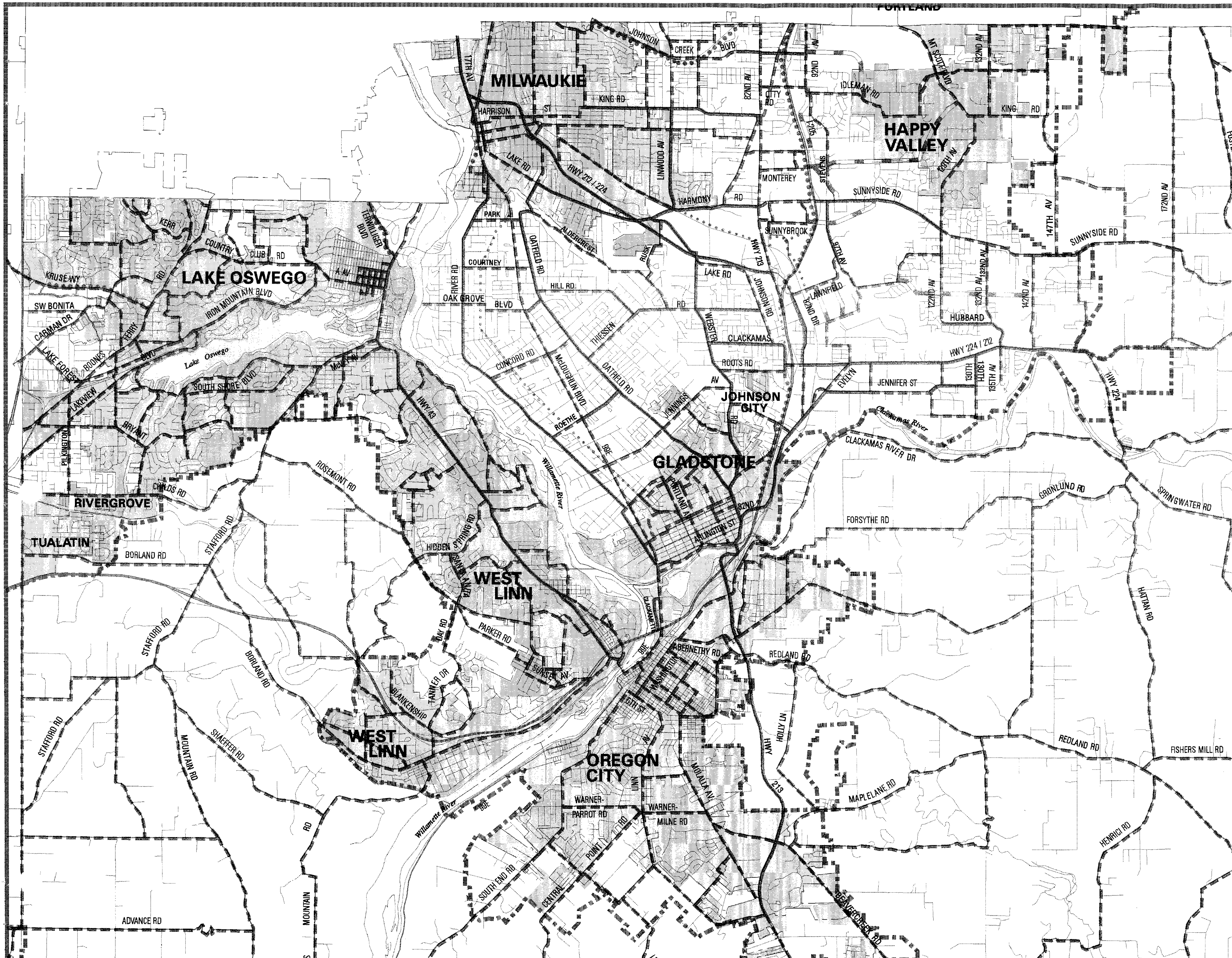
1:1:2 Strategy: *Construct all bikeways designated in this Plan and any others proposed to be safe in accordance with the current Oregon Bicycle and Pedestrian Plan, and the American Association of State Highway and Transportation Officials (AASHTO) standards.*

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

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

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

As stated in 1007.05 of the Zoning and Development Ordinance accessways for use by pedestrians and bicyclists shall be required when topography allows and when necessary to provide direct routes not otherwise provided by the road system. These connections are important to encourage and facilitate bicycle and pedestrian travel.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HAPPY VALLEY
LAKE OSWEGO
JOHNSON CITY
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
WEST LINN
OREGON CITY
JOHNSON CREEK BLVD
KING RD
HARRISON ST
LAKE RD
HWY 99E
HWY 224
LINWOOD AV
HARMONY RD
MONTEREY
SUNNYSIDE RD
SUNNYBROOK
IDLEMAN RD
MT SCOTT BLVD
132ND AV
KING RD
FOSTER RD
172ND AV
147TH AV
122ND AV
142ND AV
HUBBARD
HWY 224 / 212
JENNIFER ST
HWY 224
CLACKAMAS RIVER DR
Clackamas River
GRONLUND RD
SPRINGWATER RD
FORSYTHE RD
HATTAN RD
REDLAND RD
FISHERS MILL RD
HENRICI RD
MAPLELANE RD
BEAVERCREEK RD
HWY 213
HOLLY LN
MOLALLA AV
WARNER-MILNE RD
WARNER-PARROT RD
SOUTH END RD
CENTRAL POINT RD
ABERNETHY RD
ARLINGTON ST
82ND
PORTLAND AV
WEBSTER
CLACKAMAS
ROOTS RD
EVELYN
LAKE RD
JOHNSON RD
LAWNFIELD
OATFIELD RD
ALDERCREST
HILL RD
RUSK
THIESSEN
CONCORD RD
McLOUGHLIN BLVD
ROETHE
JENNINGS AV
RIVER RD
OAK GROVE BLVD
COURTNEY
PARK
TERWILLIGER BLVD
KERR
COUNTRY CLUB RD
A AV
KRUSE WY
SW BONITA
CARMAN DR
LAKE FOREST
BOONES
IRON MOUNTAIN BLVD
Lake Oswego
SOUTH SHORE BLVD
McVEY AV
HWY 43
LAKEVIEW
BRYANT
PILKINGTON
CHILDS RD
ROSEMONT RD
STAFFORD RD
BORLAND RD
Willamette River
HIDDEN SPRINGS RD
PARKER RD
DAY RD
TANNER DR
BLANKENSHIP
SUNSET AV
SHAEFFER RD
MOUNTAIN RD
ADVANCE RD
ADVANCE RD
CLACKAMETTE
7TH ST
SANTA ANITA
Willamette River

Map 3

Planned Bikeway Network
Urban Area

Legend

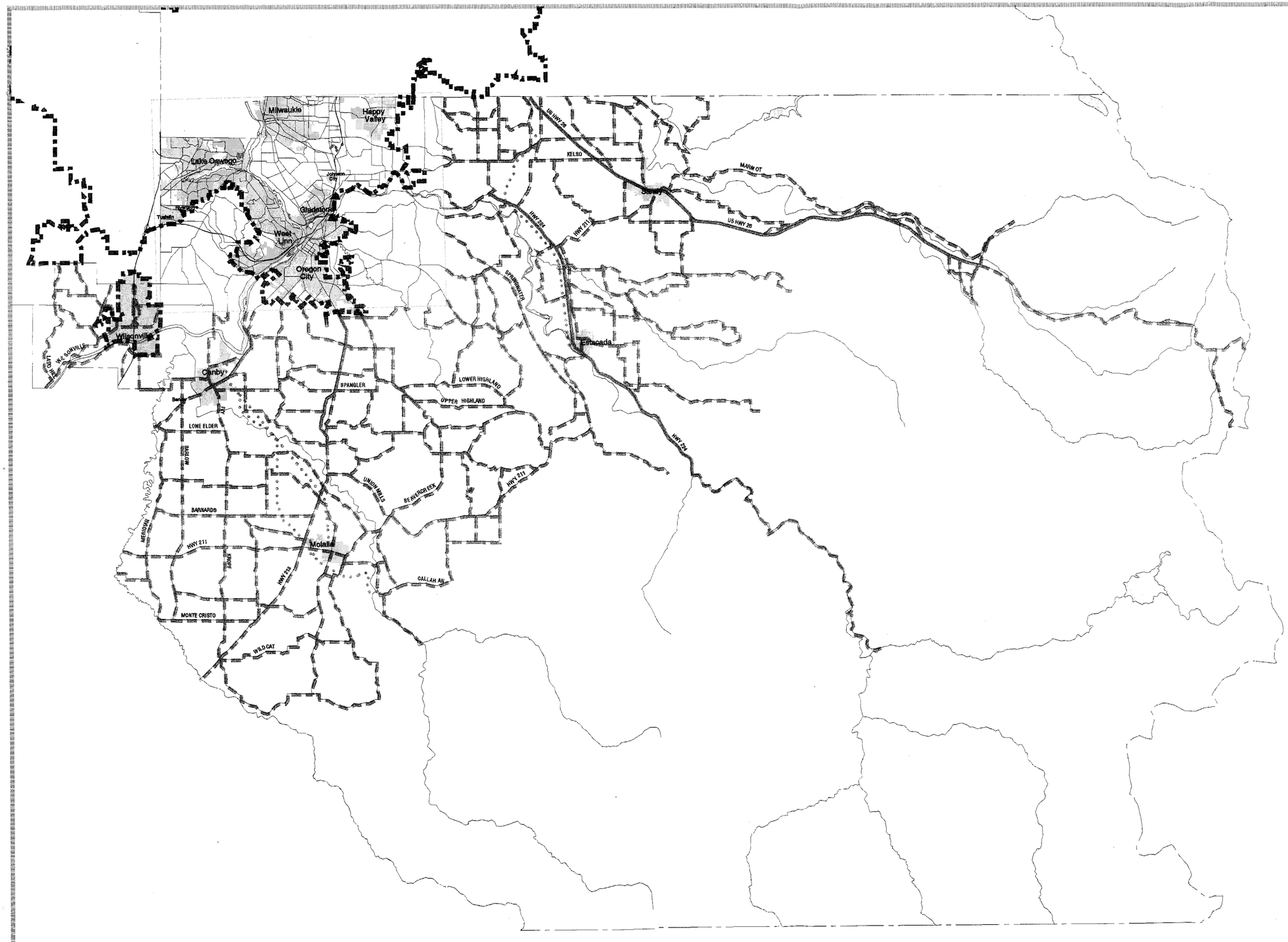
- Existing Bikeway
- Proposed Bikeway
- Existing Multi-use Trail
- Proposed Multi-use Trail
- Planned New Roads (Will Include Bikeway)
- Urban Growth Boundary

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

Scale: 1" = 1 mile
Clackamas County 1995

Map 4

Planned Bikeway Network
Rural Area



Legend

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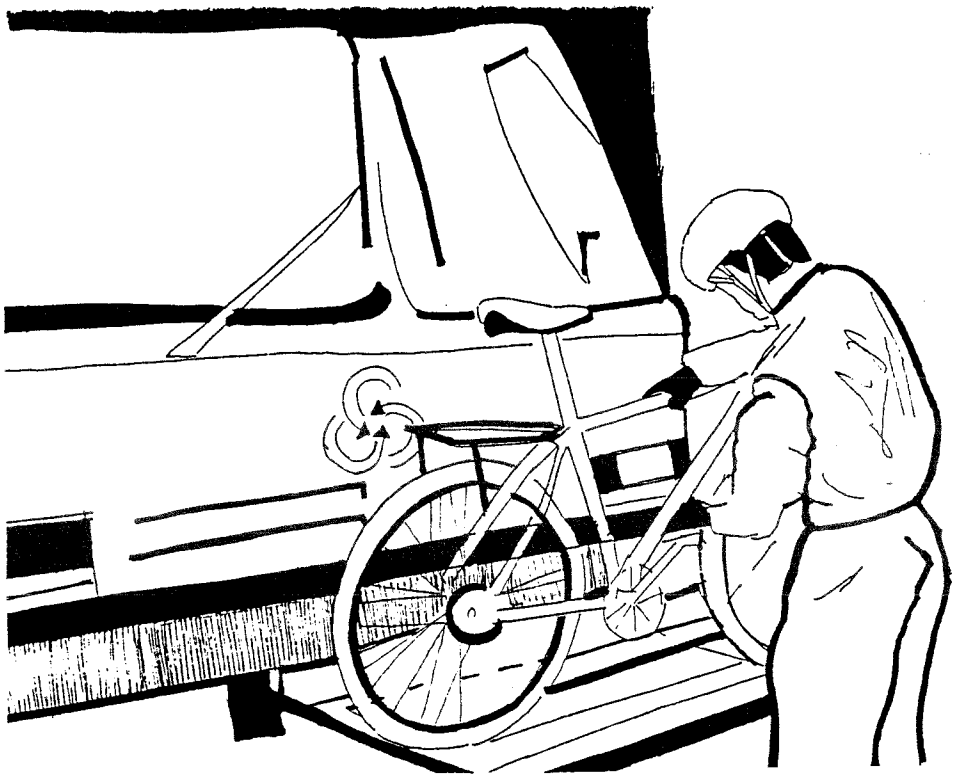
- Proposed Bikeway
- Existing Multi-use Trail
- Proposed Multi-use Trail
- Urban Growth Boundary

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

Clackamas County 1995



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

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

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

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

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

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

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

1:2 Objective: *Provide more bikeways.*

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

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

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

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

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

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

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

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

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

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

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

FUNDING

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

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

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

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

- Continue to apply up to $1 million/year from the County Road Fund earmarked by the Board of County Commissioners to build identified, stand-alone bicycle facility projects as prioritized through the Capital Improvement Program (CIP). This policy was adopted in 1993. Currently this program's priority is toward building improvements near schools.

- Coordinate with and support Metro in securing ISTEA funds (Federal Transportation dollars from Federal gas tax) for "Regionally Significant" bike projects.

- Actively seek funding sources to provide needed bicycle facilities in the County.

FUNDING SOURCES

ISTEA PROGRAMS:

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

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

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

- Facilities for pedestrians and bicycles.

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

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

FEDERAL FUNDING:

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

STATE AND LOCAL FUNDING

- Oregon Department of Transportation Bike and Pedestrian Program Construction Grants.

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

- Provide bikeways through road maintenance projects such as minor widening or restriping. These projects are provided through the Bike and Pedway Program.

- Development Review - Require bicycle facilities with all new development.

- Local Improvement District (LID) formation - LIDs are formed by property owners interested in funding roadway improvements in their area. These improvements could include bikeways. This method is limited to places where property owners want facilities enough to pay for them themselves. The County could offer "matching funds" to LIDs from the County Road fund to leverage commitments from property owners who want bicycle facilities. Criteria could be established for the percentage match.

- Urban Renewal District - Urban renewal district funds may be used for capital improvements for bikeways within urban renewal district boundaries.

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

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

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

FINANCIALLY CONSTRAINED BIKEWAY NETWORK

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

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

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

Stand-alone bikeway projects totaling $17,079,000 have been identified as part of the Financially Constrained Network. These projects will be achieved through grants and the Bike and Pedway Program funding. Potential funding sources have been identified for each project and are listed in the "Potential Funding Sources" column on pages 28

Map 5

Financially Constrained Bikeway Network

Urban Area

Legend

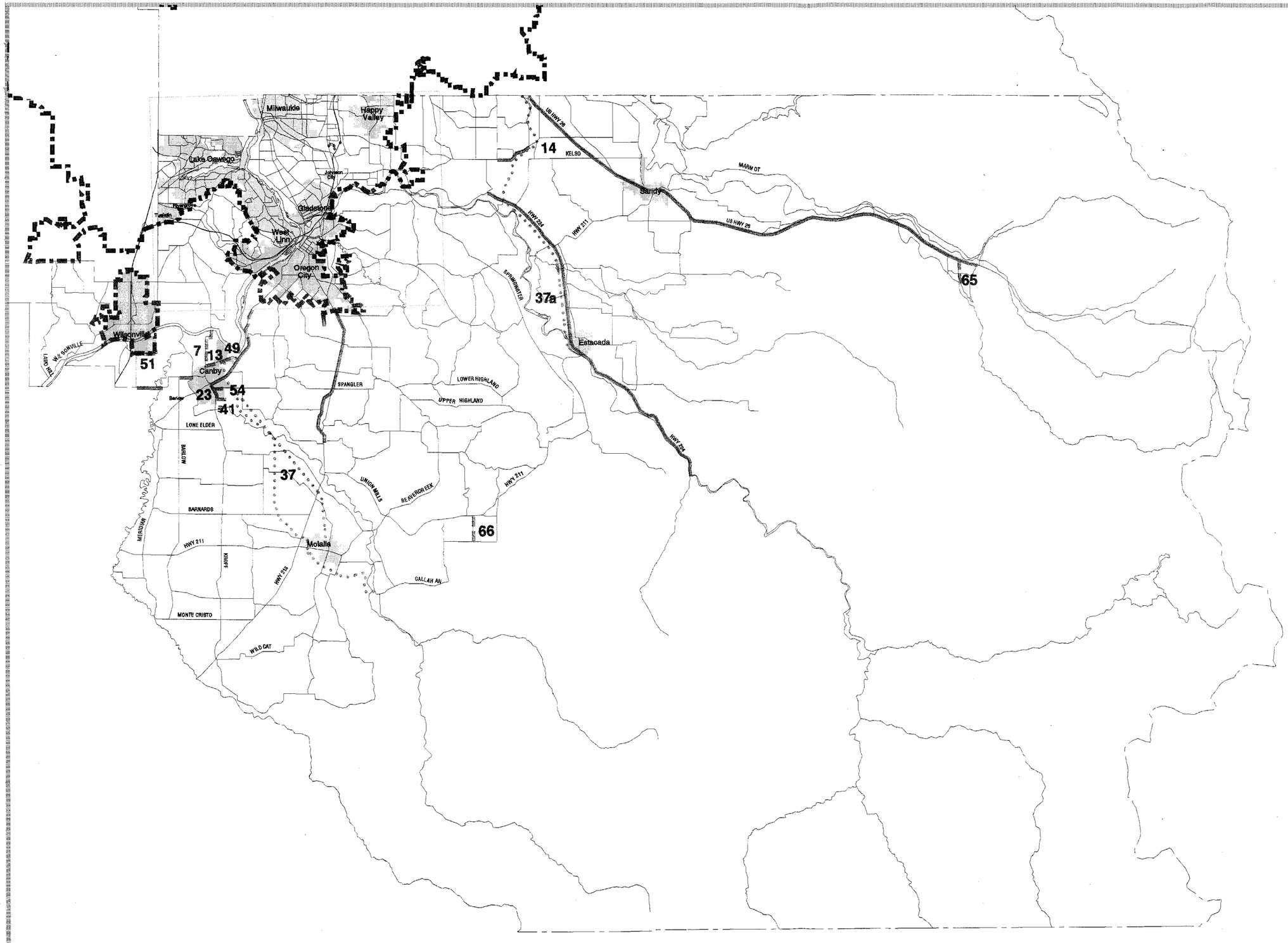
- Existing Bikeway
- Proposed Bikeway
- Planned New Roads (Will Include Bikeway)
- Existing Multi-use Trail
- Proposed Multi-use Trail
- Urban Growth Boundary

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

Scale: 1" = 1 mile
Clackamas County 1995

Map 6

Financially Constrained Bikeway Network
Rural Area



Legend

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

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

N

Clackamas County 1995

and 29. Based on the grant funding that has been secured over the pasted five years, the County can expect approximately $360,000 annually in grant funding. This will amount to approximately $7,200,000 over the next 20 years. The Board of County Commissioners currently allocates approximately $1,000,000 annually for bike and pedway project construction. Over the next twenty years approximately $10,000,000 of the Bike and Pedway Program funding should be spent specifically on stand-alone bikeway projects. The total expected funding for bikeway projects is estimated at $17,200,000.

All projects on the Financially Constrained Bikeway Network were prioritized using the Bikeway Project Evaluation Criteria shown on page 30. The projects with their scoring for each criteria are shown in Appendix III. The Financially Constrained Project List divides the projects into four categories, funded, high priority, medium priority and low priority projects. These categories provide general guidelines for choosing which projects to achieve first. This ranking will be used in assessing the ranking of all road projects in the Capital Improvements Plan during the next update.

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

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

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

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

This will be done with each County Capital Improvement Plan.

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

Bicycle Plan
Financially Constrained Project List

Project Number	Road Name or Project	Section	Project Description (numbers 1-4 indicate rank in 1992-2010 Adopted CIP)	Cost	Potential Funding Sources
FUNDED PROJECTS					
1	92nd	Idleman to County Line	(1)Part of road widening to include bike lanes	Funded	SDC, Urban Renewal Funds
2	CONCORD	99E to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	State Bike Grant & County Bike/Ped Program Match
3	CONCORD	River Road to 99E	Bike lanes TO BE BUILT 95/96	Funded	State Bike Grant & County Bike/Ped Program Match
4	COURTNEY	River Road to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	CMAQ Grant
5	FRONTAGE ROAD	Idleman to Sunnyside	(1)New road to include bike lanes	Funded	TAD, Urban Renewal - 1998
6	HILL	Weeks to Oatfield	Bike lanes TO BE BUILT 95/96	Funded	Bike/Ped Program Funding
7	HOLLY	Willamette R. to NW Territorial	Stand-alone/widening to include bike lanes	Funded	Bike/Ped Program Funding
8	MONTEREY OVERPASS	Extend Monterey over I-205	(1)New road to include bike lanes	Funded	TAD, Urban Renewal - 1998
9	STRAWBERRY	Webster to bridge	Bike lanes TO BE BUILT 95/96	Funded	CMAQ Grant
10	SUNNYBROOK EXTENSION	I-205 to Sunnyside at 108th	(1)New road to include bike lanes	Funded	Urban Renewal Funds
11	SUNNYSIDE ROAD	Sunnybrook to 122nd	(1)Part of road widening to include bike lanes	Funded	STP, SDC - 1999
12	SUNNYSIDE ROAD	Stevens to Sunnybrook	(3)Part of road widening to include bike lanes	Funded	STP - 1999
13	TERRITORIAL ROAD	Holly to the Molalla River Forest Rd	Stand-alone/widening to include bike lanes	Funded	Federal Grant/Transportation Enhancement Funds
14	SPRINGWATER CORRIDOR	1/2 mile in Boring	Land Acquisition	Funded	ISTEA & Clackamas County
HIGH PRIORITY PROJECTS					
15	BEAVERCREEK	Molalla Ave to Henrici	(3)Part of road widening to include bike lanes		Road Project Funding
16	FULLER	King Road to Harmony Road	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
17	JOHNSON/LAKE	Webster to Clackamas	(3)Part of road widening to include bike lanes		Road Project Funding
18	OAK GROVE	99E to River Road	Stand-alone/widening to include bike lanes	$195,000	Bike/Ped Program Funding & Regional Funding
19	THIESSEN	Oatfield to Webster	Stand-alone/widening to include bike lanes	$900,000	Bike/Ped Program Funding & Regional Funding
20	SUNNYSIDE	82nd to I-205	Stand-alone/restriping to include bike lanes	$5,000	Bike/Ped Program Funding, State Bike Grant
21	JENNINGS	Oatfield to Webster	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
22	SUNNYSIDE ROAD	122nd to 172nd	(3)Part of road widening to include bike lanes		Road Project Funding
23	IVY	99E to 13th	Stand-alone/widening to include bike lanes	$150,000	Bike/Ped Program Funding
24	132nd	Sunnyside to Hubbard	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding
25	JENNINGS	River Rd E. to Oatfield	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
26	SUMMERS LANE EXTENSION	Mather to 152nd	(4)New road to include bike lanes		Road Project Funding
27	122nd/129th	Sunnyside to King	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
28	ROOTS	Webster to McKinley	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
29	142nd	Sunnyside to Hwy 212/224	(4)Part of road widening to include bike lanes		Road Project Funding
30	CARMEN	I-5 overpass to Quarry R	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
31	82nd	Jennifer to Fred Meyer	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding & Regional Funding
32	LINWOOD	King to Johnson Creek	Stand-alone/widening to include bike lanes	$222,000	Bike/Ped Program Funding & Regional Funding
33	STAFFORD	Lake Oswego City limits to I-205	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
34	JOHNSON CREEK BLV	County line to 82nd Ave	(2)Part of road widening to include bike lanes		Road Project Funding
35	Bicycle Parking and Promotion Program			$20,000	Bike/Ped Program, Federal & State Grants
36	Education and Promotional Brochures and Slide Shows			$60,000	Bike/Ped Program, Federal & State Grants
37	MOLALLA RIVER PATHWAY	Canby to Molalla	Stand-alone/land purchase & trail improvements	$3,440,700	Bike/Ped Program - Grants and TE funds
37a	SPRINGWATER CORRIDOR	Boring to Estacada	Pathway improvements	$1,500,000	Oregon State Parks & Clackamas County
MEDIUM PRIORITY PROJECTS					
38	122nd	Hubbard to Sunnyside	(1)Part of road widening to include bike lanes		Road Project Funding

Bicycle Plan
Financially Constrained Project List

Project Number	Road Name or Project	Section	Project Description (numbers 1-4 indicate rank in 1992-2010 Adopted CIP)	Cost	Potential Funding Sources
39	LAWNFIELD	82nd Drive to 97th	Stand-alone/widening to include bike lanes	$90,000	Bike/Ped Program Funding, State Bike Grant
40	SUNNYSIDE ROAD	172nd to Hwy 212	(1)Part of road widening to include bike lanes		Road Project Funding
41	13th (Canby)	Ivy to Redwood	Stand-alone/widening to include bike lanes	$100,000	Bike/Ped Program Funding
42	CAUSEY	I-205 Path to Fuller	Stand-alone/restriping to include bike lanes	$2,000	Bike/Ped Program Funding, State Bike Grant
43	ROETHE	River Road to 99E	Stand-alone/widening to include bike lanes	$150,000	Bike/Ped Program Funding
44	97th	Lawnfield to Mather	Stand-alone/restriping to include bike lanes	$10,000	Bike/Ped Program Funding, State Bike Grant
45	STRAWBERRY	E. edge of Bridge to 82nd Drive	Stand-alone/widening to include bike lanes	$75,000	Bike/Ped Program Funding, State Bike Grant
46	MATHER	97th to 122nd	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
47	SOUTH END ROAD	Glacier Ct. to UGB	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
48	SOUTH END ROAD	UGB to 99E	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
49	TERRITORIAL	Molalla Forest Road to 99E	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
50	BONITA	Bangy to Carmen	Stand-alone/widening to include bike lanes	$112,000	Bike/Ped Program Funding
51	MILEY ROAD	I-5 to Eilers	Stand-alone/widening to include bike lanes	$75,000	Bike/Ped Program Funding, State Bike Grant
52	BORLAND/WILLAMETTE FALL	Stafford to Hwy 43	Stand-alone/widening to include bike lanes	$2,250,000	Bike/Ped Program Funding & Regional Funding
53	JENNIFER	106th to 120th	Stand-alone/widening to include bike lanes	$248,000	Bike/Ped Program Funding & Regional Funding
54	TOWNSHIP	Ivy Street to Molalla River Pathway	Stand-alone/widening to include bike lanes	$375,000	Bike/Ped Program Funding
55	STAFFORD	I-205 to Wilsonville	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
56	JOHNSONCREEK EXTENSION	92nd to Idleman	(4)New road to include bike lanes		Road Project Funding
LOW PRIORITY PROJECTS					
57	132nd	King to Clatsop	(4)Part of road widening to include bike lanes		Road Project Funding
58	BORLAND	65th to Stafford	Stand-alone/widening to include bike lanes	$1,500,000	Bike/Ped Program Funding & Regional Funding
59	ALDERCREST	Rusk to Thiessen	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
60	KING	145th to 129th	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
61	RUSK	Lake Road to Aldercrest	Stand-alone/widening to include bike lanes	$435,000	Bike/Ped Program Funding
62	98th	Lawnfield to Mather	(4)Part of road widening to include bike lanes		Road Project Funding
63	102nd/Industrial Way	Hwy 212 to Lawnfield	(4)Part of road widening to include bike lanes		Road Project Funding
64	IDLEMAN	92nd to Mt. Scott	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
65	WELCHES ROAD	Hwy 26 to Elk Park Road	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
66	WALL	Hwy 211 to Green Mtn Road	Stand-alone/widening to include bike lanes	$655,000	Bike/Ped Program Funding
67	MT SCOTT BLVD	County line to Idleman	Stand-alone/widening to include bike lanes	$315,000	Bike/Ped Program Funding & Regional Funding
68	MT SCOTT BLVD	Idleman to King Road	(4)Part of reconstruction and widening to include bike lanes		Road Project Funding
69	145th/147th	Clatsop to Monner	Stand-alone/widening to include bike lanes	$840,000	Bike/Ped Program Funding
70	Monterey Extension	Stevens Rd to Valley View	(4)New road to include bike lanes		Road Project Funding
71	HAPPY VALLEY ACCESS RD	Valley View Terrace to Mt Scott	(4)New road to include bike lanes		Road Project Funding
72	OTTY ROAD	82nd to 92nd	(3)Part of reconstruction and widening to include bike lanes		Road Project Funding
73	90th	Causey to Monterey	Stand-alone/widening to include bike lanes	$77,000	Bike/Ped Program Funding, State Bike Grant
74	162nd	Monner to Sunnyside	Stand-alone/widening to include bike lanes	$320,000	Bike/Ped Program Funding
75	MONNER	147th to 162nd	Stand-alone/widening to include bike lanes	$317,000	Bike/Ped Program Funding
76	MOUNTAIN ROAD	Stafford Road to Canby Ferry	Stand-alone/widening to include bike lanes	$2,441,000	Bike/Ped Program Funding, Regional Funding, State Gr
77	MATHER	Industrial Way to 98th	(4)Part of road widening to include bike lanes		Road Project Funding

BICYCLE PROJECT EVALUATION CRITERIA

POTENTIAL RIDERSHIP

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

SAFETY

Traffic volume

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

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

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

CONNECTIVITY

Connectivity to existing network:

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

Connectivity to destination: (Maximum 20 points)

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

COST EFFECTIVENESS

Cost per mile compared to project of similar nature

< $50 (10) $50-$85 (5) > $85 (0) _____

ADDITIONAL CONSIDERATIONS

Outside funding source

Yes (10) No (0) _____

Coordinated with planned road project (maintenance or capital)

Yes (10) No (0) _____

Community support

+25.....-25 _____

TOTAL _____

Chapter 5
BICYCLE FACILITY PLANNING, DESIGN, AND CONSTRUCTION

GOAL 2

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

BIKEWAY STANDARDS, SIGNING AND MARKING

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

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

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

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

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

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

they are not reduced below the "minimum width". Where "minimum width" cannot be achieved, removal of on-street parking or alternate routes should also be considered.

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

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

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

Recommendations:

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

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

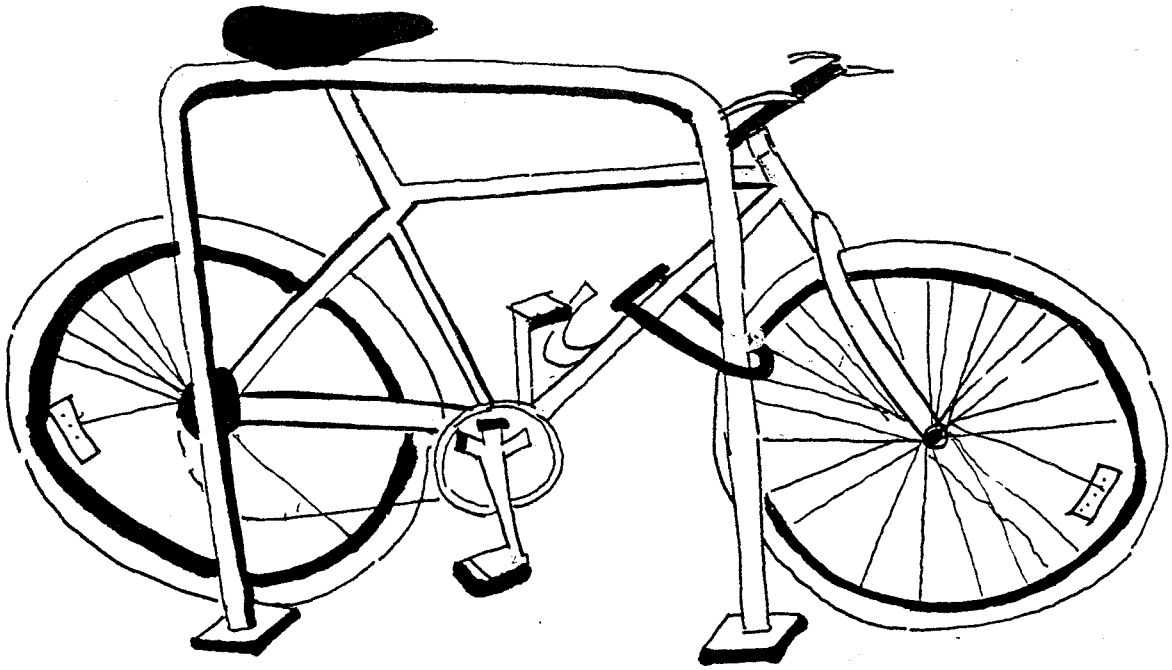
BICYCLE FACILITY PLANNING COORDINATION

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

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

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

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



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

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

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

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

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

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

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

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

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

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

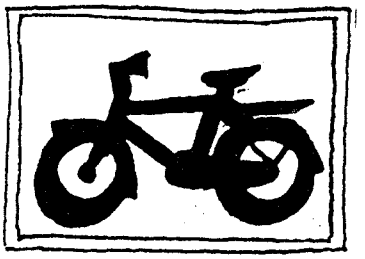
2:3:3 Strategy: Coordinate recommended bicycle system needs with roadway improvement projects to take advantage of cost-sharing opportunities.

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

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

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

Chapter 6
MAINTENANCE NEEDS AND RECOMMENDATIONS



GOAL 3

Maintain bikeways to ensure safety and encourage use.

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

3:1 Objective: Keep bikeways free of debris and in good repair.

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

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

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

ON-ROAD BIKEWAY MAINTENANCE

SWEEPING:

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

Recommendations:

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

SURFACE REPAIRS:

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

Recommendations:

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

Patching Recommendations:

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

PAVEMENT OVERLAYS:

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

Recommendations:

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

Drainage Grates, Manholes and Utility Covers:

Recommendations:

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

Chip Seals:

Recommendations:

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

VEGETATION REMOVAL:

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

Recommendation:

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

OFF-ROAD BIKEWAY MAINTENANCE

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

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

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

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

SIGNS , STRIPES AND LEGENDS:

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

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

Recommendations:

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

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

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

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

OTHER MAINTENANCE STRATEGIES

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

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

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

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

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

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

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

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

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

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

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

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

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

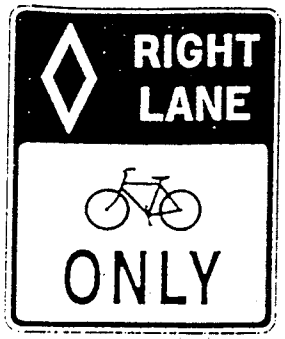
ACTION
The County shall annually contact utility districts to determine which roads they plan to dig up and coordinate any roadway maintenance activities to occur after the utility district activity.

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

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

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

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



Chapter 7
ENCOURAGEMENT AND EDUCATION

Goal 4

Increase the use of bicycles as a mode of transportation

ENCOURAGEMENT

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

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

TDM, while reducing reliance on SOVs, is a means to increase other mode choices. Bicycling is fun and can become an even more popular alternative mode to the SOV.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GOAL 5

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

EDUCATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

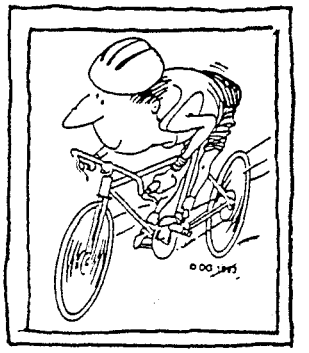
5:2 Objective: *Increase security for bicycles and bicyclists.*

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

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

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

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



Chapter 8
BICYCLE PLAN IMPLEMENTATION AND REVIEW

GOAL 6

Monitor and update the bicycle plan.

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

ACTION

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

APPENDIX I
GLOSSARY

AASHTO: American Association of State Highway and Transportation Officials.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ISTEA: The Intermodal Surface Transportation Efficiency Act.

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

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

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

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

Multi-use path: A path physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way, for use by bicyclists, pedestrians, joggers, skaters, and other means of non-motorized transportation.

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

ODOT: Oregon Department of Transportation.

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

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

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

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

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

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

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

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

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

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

TPR: Transportation Planning Rule.

Traffic control devices: Signs, signals, or other fixtures, whether permanent or temporary, placed on or adjacent to a travelway by authority of a public body having jurisdiction to regulate, warn, or guide traffic.

Traffic volume: The given number of vehicles that pass a given point for a given amount of time (hour, day, year). See ADT.

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

UGB: Urban Growth Boundary;

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

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

Appendix II
ACTION ITEM SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

34. **ACTION**
The County shall:

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

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

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

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

Review annually the priorities in the Capital Improvement Program.

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

APPENDIX III
DRAFT BIKEWAY PROJECT PRIORITIES LIST

					2 point for each:				
					Short sight distance				
					Narrow/no shoulder		Schools & major bike		
					High speed traffic	Links = 10	destinations =10	< 50 = 10	
					Turning Movements	Extends = 5	Others = 5	50 - 85 = 5	
			Low (0) - High (10)	Low (0) - High (10)	0 - 10	Isolated = 0	(Max. 20 pts)	> 85 = 0	
Project Number	Road Name	Description	Potential Ridership	Traffic Volume	Other Safety Factors	Connectivity to Network	Connectivity to Destination	Cost per Foot	Total Score*
	HIGH PRIORITY PROJECTS								
15	BEAVERCREEK	Molalla Ave to Henrici	10	10	10	5	15	10	60
16	FULLER	King Road to Harmony Road	8	6	6	10	20	10	60
17	JOHNSON/LAKE	Webster to Clackamas	8	9	4	10	15	9	55
18	OAK GROVE	99E to River Road	10	7	6	10	15	5	53
19	THIESSEN	Oatfield to Webster	9	10	8	10	15	0	52
20	SUNNYSIDE	82nd to I-205	10	10	6	10	5	10	51
21	JENNINGS	Oatfield to Webster	5	7	10	10	10	8	50
22	SUNNYSIDE ROAD	122nd to 172nd	9	10	8	5	10	8	50
23	IVY	99E to 13th	5	10	4	5	15	10	49
24	132nd	Sunnyside to Hubbard	10	3	4	5	15	10	47
25	JENNINGS	River Rd E. to Oatfield	6	7	6	10	10	8	47
26	SUMMERS LANE EXT	Mather to 152nd	7	7	7	0	15	7	43
27	122nd/129th	Sunnyside to SE King	6	4	10	5	10	7	42
28	ROOTS	Webster to McKinley	6	8	6	10	5	7	42
29	142nd	Sunnyside to Hwy 212/224	10	1	8	5	10	7	41
30	CARMEN	I-5 overpass to Quarry R	8	8	8	5	5	7	41
31	82nd	Jennifer to Fred Meyer	3	8	4	10	5	10	40
32	LINWOOD	King to Johnson Creek	10	6	4	10	5	5	40
33	STAFFORD	Lake Oswego City limits to I-205	3	10	10	0	10	7	40
34	JOHNSONCREEK BLVD	County line to 82nd Ave	5	10	8	5	5	7	40
35	Bicycle Parking and Promotion Project**								
36	Education and Promotional Brochures and Slide Shows**								
37	Molalla River Pathway**								
37a	Springwater Corridor**	Boring to Estacada							
	MEDIUM PRIORITY PROJECTS								
38	122nd	Hubbard to Sunnyside	7	8	6	5	5	6	37
39	LAWNFIELD	82nd Drive to 97th	3	10	4	5	5	10	37
40	SUNNYSIDE ROAD	172nd to Hwy 212	8	7	10	0	5	6	36
41	13th	Ivy to Redwood	10	1	4	0	10	10	35
42	CAUSEY	I-205 Path to Fuller	5	6	4	0	10	10	35
43	ROETHE	River Road to 99E	6	5	4	10	5	5	35
44	97th	Lawnfield to Mather	4	6	4	5	5	10	34
45	STRAWBERRY	E. edge of bridge to 82nd Drive	4	4	10	10	5	0	33
46	MATHER	97th to 122nd	3	6	8	0	10	5	32
47	SOUTH END	Glacier Ct. to UGB	5	6	6	0	10	5	32
48	SOUTH END	UGB to 99E	4	3	10	0	10	5	32
49	TERRITORIAL	Molalla Forest Road to 99E	3	3	6	5	10	5	32
50	BONITA	Bangy to Carmen	8	3	6	0	5	10	32
51	MILEY ROAD	I-5 to Eilers	3	10	4	0	5	10	32
52	BORLAND	Stafford to Hwy 43	5	3	8	0	10	5	31
53	JENNIFER	106th to 120th	3	4	4	5	10	5	31

APPENDIX III
DRAFT BIKEWAY PROJECT PRIORITIES LIST

					2 point for each:				
					Short sight distance				
					Narrow/no shoulder		Schools & major bike		
					High speed traffic	Links = 10	destinations =10	< 50 = 10	
					Turning Movements	Extends = 5	Others = 5	50 - 85 = 5	
			Low (0) - High (10)	Low (0) - High (10)	0 - 10	Isolated = 0	(Max. 20 pts)	> 85 = 0	

Project Number	Road Name	Description	Potential Ridership	Traffic Volume	Other Safety Factors	Connectivity to Network	Connectivity to Destination	Cost per Foot	Total Score*
54	TOWNSHIP	Ivy Street to Molalla River Pathway	3	4	4	0	15	5	31
55	STAFFORD	I-205 to Wilsonville	3	7	10	0	5	5	30
56	JOHNSONCREEK EXT	92nd to Idleman	5	5	5	5	5	5	30
	LOW PRIORITY PROJECTS								
57	132nd	King to Clatsop	3	5	6	0	10	5	29
58	BORLAND/WILLAMETTE	65th to Stafford	4	8	10	0	5	0	27
59	ALDERCREST	Rusk to Thiessen	5	3	8	0	5	4	25
60	KING	145th to 129th	4	3	4	0	10	4	25
61	RUSK	Lake Road to Aldercrest	4	3	8	5	5	0	25
62	98th	Lawnfield to Mather	3	4	4	5	5	4	25
63	102nd/Industrial Way	Hwy 212 to Lawnfield	2	4	4	5	5	4	24
64	IDLEMAN	92nd to Mt. Scott	4	2	8	0	5	4	23
65	WELCHES ROAD	Hwy 26 to Elk Park Road	2	3	4	0	10	4	23
66	WALL	Hwy 211 to Green Mtn Road	2	1	4	0	15	0	22
67	MT SCOTT BLVD	County line to Idleman	2	3	6	0	5	5	21
68	MT SCOTT BLVD	Idleman to King Road	3	3	6	0	5	3	20
69	145th/147th	Clatsop to Monner	3	1	6	0	10	0	20
70	Monterey Extension	Stevens Rd to Valley View	4	3	3	0	5	3	18
71	Happy Valley Access Rd	Valley View Terrace to Mt Scott	4	3	3	0	5	3	18
72	OTTY ROAD	82nd to 92nd	4	3	4	0	5	3	19
73	90th	Causey to Monterey	3	2	4	0	5	5	19
74	162nd	Monner to Sunnyside	2	1	4	0	5	5	17
75	MONNER	147th to 162nd	2	1	4	0	5	5	17
76	MOUNTAIN ROAD	Stafford Road to Canby Ferry	2	1	7	0	5	0	15
77	Mather	Industrial Way to 98th	2	2	2	0	5	2	13

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

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

APPENDIX IV
DRAFT STAND-ALONE BIKEWAY PROJECT PRIORITIES LIST

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

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

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

Appendix V
BIKEWAY PROJECT EVALUATION CRITERIA DESCRIPTION

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

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

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

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

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

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

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

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

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

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

Additional Considerations

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

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

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

Appendix VI
METHOD FOR ESTIMATING POTENTIAL RIDERSHIP

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

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

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

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

EX. A
Adopted Version

PEDESTRIAN AND BICYCLE FACILITIES

The County completed its Transportation Systems Planning for pedestrian and bicycle modes in 1995, to implement the State's Transportation Planning Rule (TPR). The TPR is grounded by the notions that:

1. Land Use and Transportation are intimately related,

2. Over reliance should not be placed on any one transportation mode,

3. Walking and bicycling reduce the number of motorized vehicle trips,

4. Compact, mixed use development encourages the use of non-motorized modes,

5. Well planned, properly designed facilities will encourage people to make trips by non-motorized modes.

6. Facilities for these non-motorized modes are essential for people not having access to an automobile, and constitute desirable elements in a well designed community that are enjoyed by people who can drive, but choose to walk or bicycle.

These principles underlie the development of the Clackamas County Pedestrian Master Plan and the Clackamas County Bicycle Master Plan, both of which are adopted by reference as supporting documents. Both master plans were prepared under the guidance of the Clackamas County Bicycle and Pedestrian Citizens' Advisory Committee which was guided by the following vision:

VISION

Create an environment which encourages people to bicycle and walk on networked systems that facilitate and promote the enjoyment of bicycling and walking as safe and convenient transportation modes.

POLICIES

The first five policies below speak to how the envisioned system should be designed. The results of the system design work based on those policies are shown on Maps V-6, V-7, V-8, and V-9. Those pedestrian and bicycle facilities shall be constructed in the course of development, as well as added to existing communities as the Capital Improvement Program allows. Responsibility for construction falls on both the private and public sectors. These facilities shall be constructed to specified standards. On-going, unfinished, and project level planning for pedestrian and bicycle facilities will continue. It will be coordinated with other jurisdictions, and integrated with other transportation modes.

1.0 Provide networked systems of walkways and bikeways connecting neighborhoods, transit stops, commercial areas, community centers, schools, parks, libraries, employment places, other major destinations, regional bikeways and walkways, and other transportation modes.

2.0 Identify walkway and bikeway improvements necessary to ensure direct and continuous networks of walkways and bikeways on the County road system.

3.0 Support acquisition and development of multi-use paths on abandoned public and private rights-of-way.

4.0 Encourage bicycle and pedestrian access across rivers and other natural barriers.

5.0 Promote grid-street development patterns to provide direct routes from neighborhoods to destinations frequented by pedestrians and bicyclists.

6.0 Construct all walkways and bikeways designated on Maps V-6, V-7, and V-8.

7.0 Construct all walkways designated in this plan and any other walkways proposed, according to the current County Design Standards, the American Association of State Highway and Transportation Officials (AASHTO) standards, and the Americans with Disabilities Act (ADA) standards.

8.0 Construct all bikeways designated in this plan and any other bikeways proposed, according to the current standards in the Oregon Bicycle and Pedestrian Plan, and the American Association of State Highway and Transportation Officials (AASHTO) standards.

9.0 Bikeways and sidewalks shall be considered in all new collector or arterial construction or reconstruction, even if not designated on Maps V-6 and V-7.

10.0 Require that new development provide pedestrian and bikeway connections within and between adjacent developments to increase non-motorized mobility.

11.0 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 pedway and bikeway network

12.0 Coordinate the implementation of pedways and bikeways with neighboring jurisdictions and jurisdictions within the County.

13.0 Support the continuation of the "Bikes on Transit" program or all public transit routes.

14.0 Require new development to provide bicycle parking, and initiate a program for adding bicycle parking in areas frequented by bicyclists.

15.0 Encourage 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.

16.0 Support continuation of current (or equivalent) federal, state, and local funding mechanisms to construct County pedestrian and bicycle facilities.

17.0 Develop dedicated funding sources to implement the Clackamas County pedestrian and Bicycle Plan.

18.0 Develop routine maintenance standards and practices for pedestrian facilities and on-road and off-road bikeways including traffic control devices.

19.0 Inform the public of their responsibilities for sidewalk maintenance

20.0 Ensure an opportunity for representative citizen involvement in the County pedestrian and bicycle planning process by sponsoring the County Pedestrian and Bicycle Advisory Committee as a forum for public input.

21.0 Encourage the provision of street lighting to increase the visibility and personal security of pedestrians and bicyclists.

22.0 Monitor and update the Pedestrian and Bicycle Plans through data collection, evaluation and review activities necessary to maintain and expand the programs established in these Plans.

23.0 Coordinate with the North Clackamas Park District development of property with neighborhood trails shown on MAP V-9.

MC 03 EXHIBIT B

Planned Bikeway Network
Urban Area

Legend

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

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

Scale: 1" = 1 mile
Clackamas County 1995

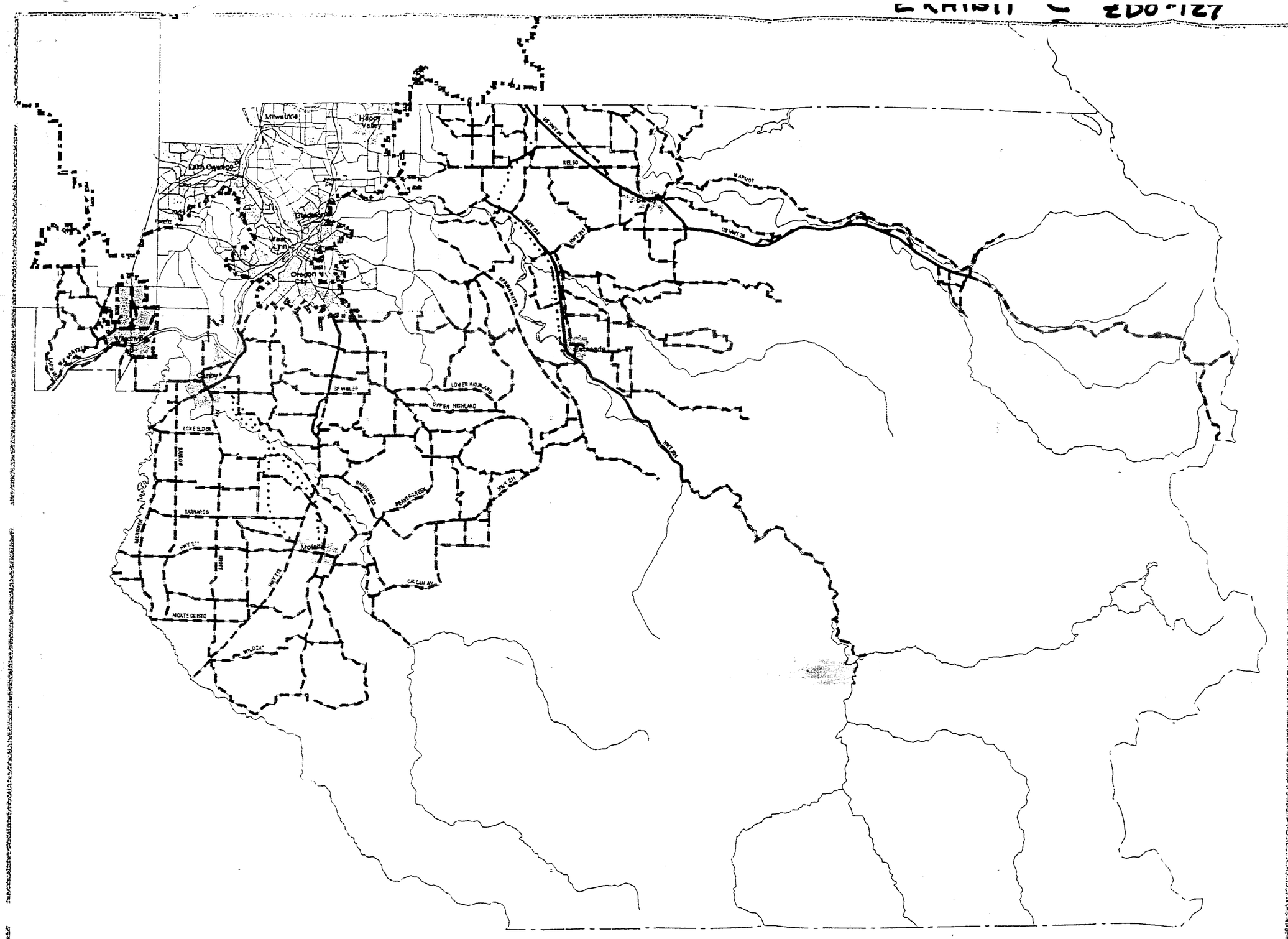
CP MAP V-6

EX B

EXHIBIT C ZDO-127 11-9-95

Map 4

Planned Bikeway Network
Rural Area



Legend

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

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

Clackamas County 1995

CP MAP V-7
EX. C

Ex. D
Adop' 1 Versim

Essential Pedestrian Network

- STATE HIGHWAY
- ARTERIALS/COLLECTORS
- PROPOSED ARTERIALS/COLLECTORS
- LOCALS
- PROPOSED LOCALS
- MULTI-USE TRAILS

APRIL 1996

N O R T H

0 1 2

S C A L E I N M I L E S

Clackamas County

DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

902 ABERNETHY ROAD • OREGON CITY, OR 97045

COMPREHENSIVE PLAN

MAP V-8

EX. E
Adopted Version
4-17-96

1007 ROADS, CIRCULATION AND PARKING (9-08-94)

1007.01 PURPOSE

To provide safe, efficient, convenient, and economical movement of vehicles and pedestrians while minimizing environmental degradation and conserving energy.

1007.02 GENERAL PROVISIONS

The location, alignment, design, grade, width and capacity of all road, circulation and parking systems within the County shall conform to the Comprehensive Plan and shall be established so as to:

A. Protect public health and safety through functional, efficiently designed improvements.

B. Require the least amount of impervious surface necessary to adequately serve the type and intensity of proposed land uses within developments, provide adequate access for service vehicles, and take into account future traffic demands by type and volume.

C. Require the creation of the minimum feasible amounts of land coverage and the minimum feasible disturbance to the soil.

D. Provide, to the extent feasible, for the separation of motor vehicular, bicycle, pedestrian and equestrian traffic.

E. Create conditions of proper drainage.

F. Provide for proper landscaping and preserve trees, vegetation, and topography to the greatest extent possible.

1007.03 ROADWAYS

A. Right-of-way dedication and improvements shall be required of all new developments and subdivisions as deemed necessary by the Department of Transportation and Development. (11-15-82) All roadways shall be developed according to classifications and guidelines listed in Table V-1 of the Clackamas County Comprehensive Plan and the most recent standards adopted by separate order by the Board of County Commissioners. These standards may be deviated from when the County finds that alternate designs would better accommodate: (7-15-81)

1. Terrain

2. Scenic qualities

3. Existing development

4. Forest or agricultural uses

5. Planned Unit Developments

6. Local streets less than 200 yards in length which are not extendible.

7. Interior vehicular circulation for multifamily, commercial and industrial developments.

8. Half streets or private common access drives within developed urban areas providing access to not more than seven (7) lots.

B. Where appropriate, roadways shall be designed to accommodate transit services.

C. Development along the specific urban arterials listed in the Clackamas County Comprehensive Plan shall improve those arterials to the specifications set forth in the plan.

D. Development on scenic roads listed in the Comprehensive Plan or any future roads which may be designated as scenic roadways by Clackamas County shall conform where appropriate to the following design standards:

1. New developments shall have strict access controls.

2. Road shoulders shall be improved to accommodate pedestrian or bicycle traffic.

3. Turnouts shall be provided at view points or for recreational needs as determined by the County.

4. Design review of developments adjacent (immediately abutting) to scenic roads with particular emphasis on visual characteristics and signing appropriate for the area.

5. Building, parking areas and frontage roads which are developed adjacent to scenic roads shall set back a suitable distance to provide for a landscaped buffer along the scenic road.

E. Boulevards shall be developed according to the criteria and standards listed on Table V-1 of the Comprehensive Plan.

1. Developments and subdivisions adjacent to boulevards shall provide pedestrian, transit and visual amenities. These may include: Street trees, landscaping, kiosks, outdoor lighting, outdoor seating, bikeways/bike racks, bus shelters, pedestrian spaces and access to the boulevard, landscaped medians, aesthetically designed lights, bridges, signs, and turn bays rather than continuous turn lanes, as appropriate.

2. Vehicle access shall be strictly controlled with strict visibility controls on signing, planting, curbside parking.

3. Boulevard design and developments fronting boulevards shall be environmentally sensitive including people oriented uses and transit amenities.

4. Noise and pollution control measures shall be incorporated into the design of developments along boulevards.

F. Road Frontage Improvements (10-15-92)

1. New developments, subdivisions and partitions may be required to dedicate land and/or make road frontage improvements to existing rights-of-way as required in subsections 1007.02A-F, and subsections 1007.03, 1007.04 and 1007.05.

2. Improvements in the urban area shall include surfacing, curbing or concrete gutters, except as provided under subsection 1007.03A, and street lights. Sidewalks, bikeways, and transit facilities shall be provided as required under subsection 1007.05 and 1007.06. Street trees are required as specific in subsection 1009.09.

G. Onsite vehicular circulation roadways in the case of multifamily, commercial and industrial developments shall be a maximum of twenty-four (24) feet in width unless the size and intensity of development warrants additional width for turning lanes, or truck circulation.

H. When easements are used to provide vehicular access to lots within short subdivisions or subdivisions, the minimum width shall be eighteen (18) feet. The

access easements shall be developed according to the most recent standards adopted by separate order by the Board of County Commissioners. Access easements may also be used for utilities.

Access easements shall be designated as common access and utility easements on the final plat or recorded survey. Existing access easements shall be identified by recorder's fee number. (10-11-82)

I. Roadways in condominium developments must be constructed to the standards of the Department of Transportation and Development. Such roadways shall be constructed or the construction shall be guaranteed pursuant to Section 1104 prior to final approval by the Department of Transportation and Development. Roadways in condominium developments shall be inspected by the County Road engineer prior to final approval. The normal inspection fee shall be paid prior to review of road and storm drainage plans and recording of the final plat. (10-11-82)

J. In all developments road compaction tests shall be conducted in all fill areas and backfill areas when deemed necessary by the Department of Transportation and Development. The cost of the compaction tests shall be borne by the developer. (10-11-82)

1007.04 VEHICLE ACCESS

A. The location and design of accesses to existing and new developments shall be planned, coordinated and controlled by the Department of Transportation and Development.

B. Access control shall be based on the guidelines found in Table V-1 of the Comprehensive Plan. Joint accesses and circulation drives shall be utilized whenever feasible.

C. Access to state highways shall require approval from Oregon Department of Transportation (ODOT) and a road approach permit issued by ODOT.

D. Visibility:

1. Developments and subdivisions along all roadways shall be designed to optimize visibility for vehicle traffic.

2. No planting, signing, or fences shall be allowed which restricts vision.

3. Curbside parking restrictions may be required

Replace
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along streets determined to have visibility problems.

1007.05 PEDESTRIAN/BICYCLE CIRCULATION (9-8-94)

A. Pedestrian and bicycle circulation facilities shall be designed to: (9-8-94)

1. Minimize conflicts among automobiles, trucks, pedestrians and bicyclists.

2. Provide safe, convenient and an appropriate level of access to various parts of the development and to offsite locations such as schools, employment centers, shopping areas, adjacent developments, recreation areas and open space, and transit corridors.

3. Allow for unobstructed movements and access for transportation disadvantaged persons. (9-8-94)

B. Sidewalks and Accessways: (9-8-94)

1. All developments, and structural additions to existing commercial or industrial buildings exceeding 10% of the assessed value of the existing structure or addition of 1,000 square feet or more within the Urban Growth Boundary except the Mt. Hood Urban area, shall develop sidewalks, accessways, and walkways to the specifications of the Department of Transportation and Development. Sidewalks shall be built on: (9-8-94)

a. Both sides of a new street within a subdivision, or any new or reconstructed street. (9-8-94)

b. The street frontage(s) adjacent to a development or subdivision. (4-17-96)

c. The steet frontage adjacent to a partition when the existing street is identified on **Map V-8** in the Comprehensive Plan and listed in Appendix B in the Pedestrian Masterplan (4-17-96).

2. Sidewalk requirements may be reduced by staff to one side only of the development frontage for: (9-8-94)

a. New streets when topographic features require a reduction in road standards. (9-8-94)

a. New streets when topographic features require a reduction in road standards. (9-8-94)

b. New cul-de-sacs which are 350 feet or less in length and cannot be extended. (9-8-94)

3. Sidewalks shall be constructed to the following minimum widths: (9-8-94)

Functional Class, Land Use Designation/Minimum Required Sidewalk Width (9-8-94)

Street Type	Residential Sidewalk	Commercial/ Public/Institutional Sidewalk	Industrial Sidewalk
Local	5'	7'	5'
Collector	5'	8'	5'
Arterial	6'	8'	6'

The entire required width of sidewalks shall be unobstructed. Sidewalks at transit stops shall be a minimum of eight (8) feet wide. (9-8-94)

A sidewalk setback from the curb by at least five feet may be one foot narrower (but not less than 5 feet) than the standard listed above. This 5 foot separation strip shall be landscaped and shall be maintained by the adjacent property owner. The separation strip may contain fixed

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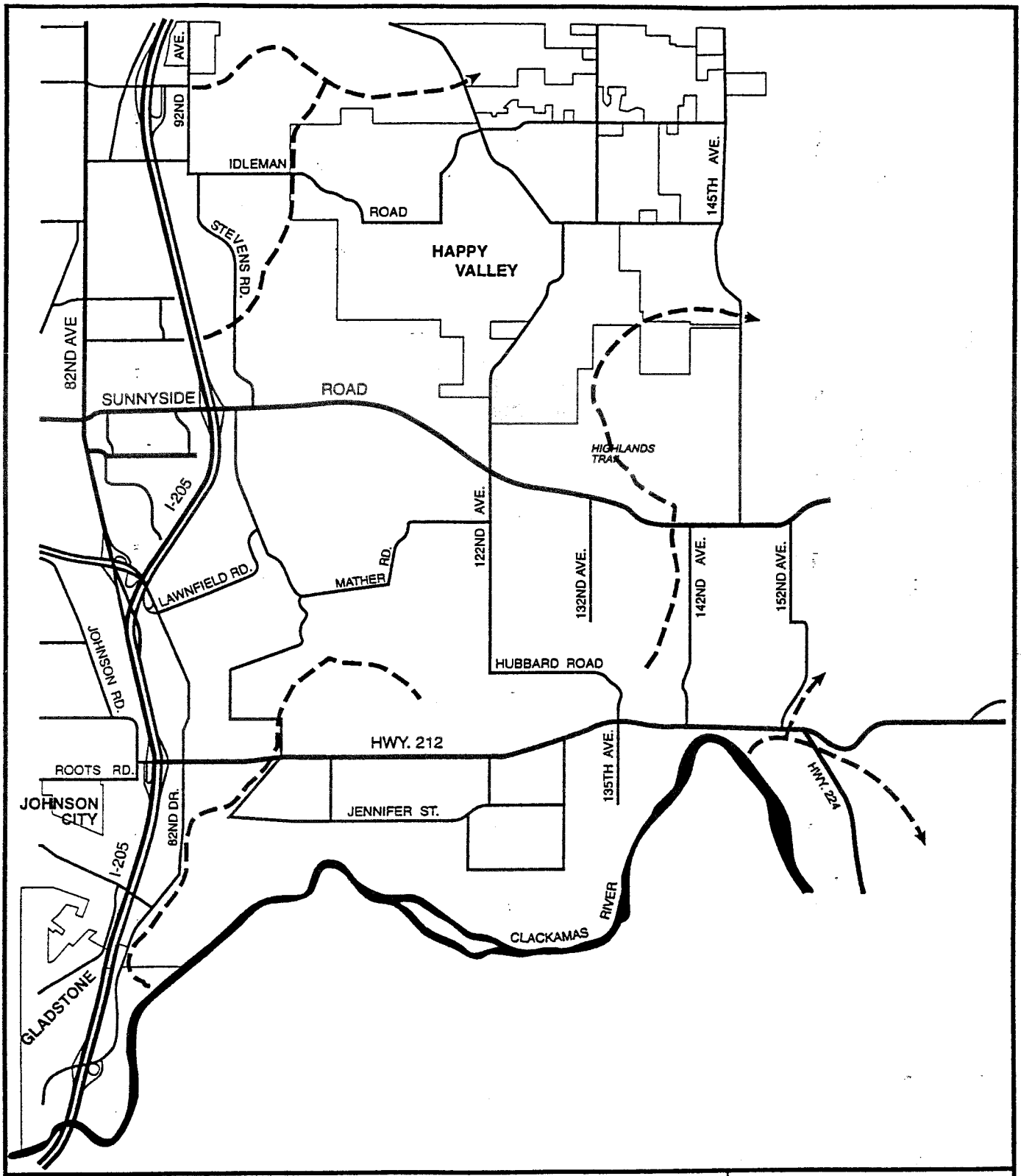
Ex. I



NORTH CLACKAMAS PARK DISTRICT NEIGHBORHOOD TRAILS

TRAILS

CLACKAMAS COUNTY COMPREHENSIVE PLAN

MAP V-9

Essential Pedestrian Network

- STATE HIGHWAY
- ARTERIALS/COLLECTORS
- PROPOSED ARTERIALS/COLLECTORS
- LOCALS
- PROPOSED LOCALS
- MULTI-USE TRAILS

APRIL 1996

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S C A L E I N M I L E S

Clackamas County

DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

902 ABERNETHY ROAD • OREGON CITY, OR 97045

MAP 2

Pedestrian Network
Capital Improvement Program

*** HIGH PRIORITY**

1 OAK GROVE BLVD: Rupert to 99E
2 THOMPSON RD: Monroe St. to Fuller Rd.
3 CONCORD AVE: River Rd. to Oatfield Rd.
4 JOHNSON RD: Lake Road to Clackamas Road.
5 FULLER RD: King Rd. to Harmony Rd.
6 LINWOOD AVE: King Rd. to Johnson Creek Blvd.
7 WALL STREET: Hwy 211 to Farris Ct.
8 ARISTA AVE./PORTLAND TRACTION COMPANY ROW: Milwaukie City Limits to Gladstone City Limits.
9 THIESSEN RD: Oatfield Rd. to Hill Rd.
10 COURTNEY AVE: River Rd. to 99E.
11 LAKE RD: Webster Rd. to Johnson Rd.
12 STANLEY AVE: Willow St. to Johnson Creek Blvd.
13 IVY ST: 99E to SE 13th
14 ROETHE RD: River Rd. to 99E.
15 THIESSEN RD: Carol Ave. to Johnson Rd.
16 JOHNSON CREEK BLVD: 82nd Ave. to Bell Ave.
17 NORTH CLACKAMAS TRAIL: Park Compiex to 84th Ave.

*** MEDIUM PRIORITY**

18 HARMONY RD: Railroad crossing to Milwaukie City Limits
19 PARK AVE: River Rd to Hwy 99E
20 HILL RD: All
21 RUSK RD: All
22 HILLCREST ST: Stevens Rd. to 92nd Ave.
23 BELL AVE: King Rd. to Johnson Creek Blvd
24 STEVENS RD: 92nd Ave. to Mt. Scott Elementary School
25 CONCORD AVE: Oatfield Rd. to LaBonita Way
26 ROOTS RD: Webster Rd. to Lark Ave.
27 COURTNEY AVE: 99E to Oatfield Rd.

*** LOW PRIORITY**

28 92ND AVE: Otty Rd. to Existing
29 122ND AVE: Sunnyside Rd. to Hubbard Rd.
30 MONTEREY AVE: Complete south side (development review)
31 SE 132ND AVE: Sunnyside Road to Hubbard Rd.
32 SUNNYSIDE RD: 102nd Ave. to 152nd Ave.
33 97TH AVE: Sunnyside Rd. to Lawnfield Rd.
34 THIESSEN RD: Webster Rd. to Anna Marie Ct.
35 SUNNYBROOK: Split Diamond
36 142ND AVE: Sunnyside Rd. south
37 152ND AVE: Sunnyside Rd. south
38 HUBBARD RD: 122nd Ave. to 130th Ave.
39 SALMON RIVER RD: Welches Grade School to Fairway Ave.
40 JENNINGS AVE: River Rd to 99E.

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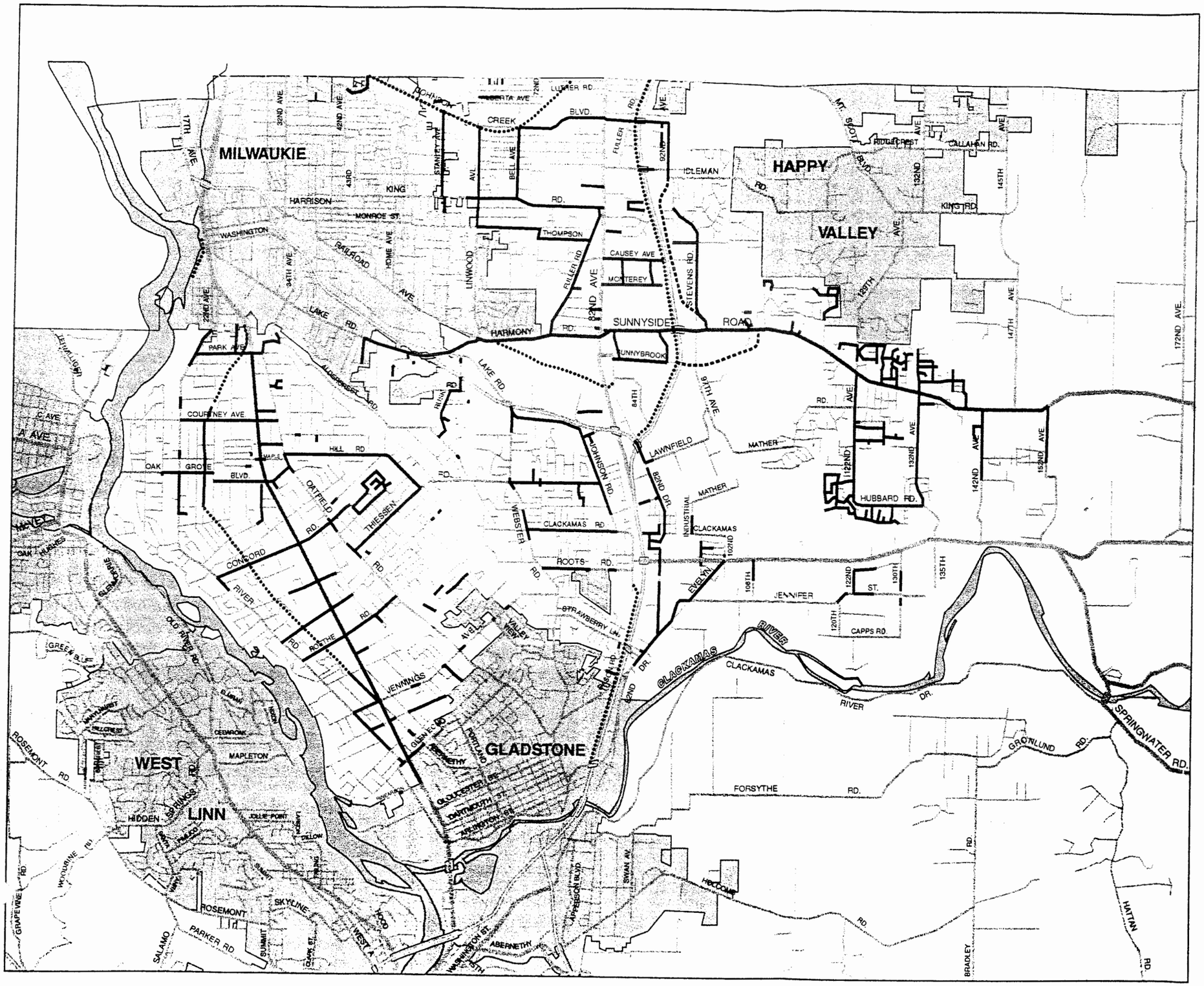
MAP 3



Proposed 20-Year Pedestrian Network

EXISTING STREET

FUTURE STREET

MULTI-USE TRAIL

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MAP 4