# SPRINGFIELD BICYCLE PLAN

City of Springfield
225 Fifth Street
Springfield, Oregon 97477

PREPARED BY:

DAVID EVANS AND ASSOCIATES, INC.
Bend, Oregon

Karen Swirsky, Project Manager
541-389-7614
FAX 541-389-7623
E-mail: nilseddy@transport.com

Adopted by the Springfield City Council
June 15, 1998 - Resolution No. 98-36

# EXECUTIVE SUMMARY

## 20-Year Plan

The Bicycle Plan looks ahead about 20 years to a safe, convenient and attractive bicycle system that, as an integral part of the City's overall transportation system, promotes community livability and prosperity. The Bicycle Plan updates the 1982 Springfield Bikeway Plan and provides the implementation details for the Bicycle Element of the 1986 Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan).

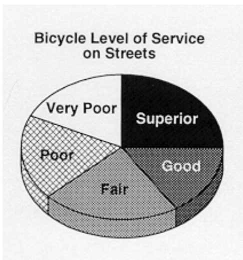
This plan was guided by the Springfield Bicycle Committee and was partially funded by a grant from the Oregon Department of Transportation.

As Springfield grows into the 21st Century, the improved bicycle system offers many benefits to the city:

- Connects neighborhoods and regions within the city that are now isolated from one another.
- Improves accessibility to businesses, schools, parks and other important destinations.
- Preserves neighborhood quality by reducing traffic impacts.
- Addresses the transportation needs of those who because of age, income, disability, or choice do not drive.
- Provides for human-scale facilities (bikeways and pathways) where valuable social interaction as well as transportation can take place.
- Reduces the personal and community costs of transportation.
- Protects the transportation system from disruption caused by over reliance on one mode.
- Increases the safety, comfort, and improves the behavior of bicyclists and pedestrians.
- Improves the street system for all users through shoulder and intersection improvements.
- Provides a healthy activity through which many residents can improve their long-term fitness.

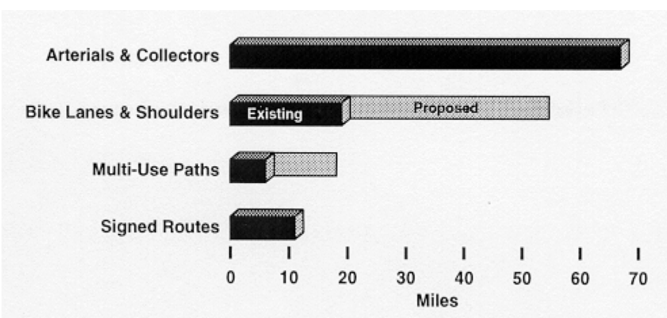
## *Street System is Backbone*

Over 73 miles of streets in the Springfield urban area were examined for cycling conditions in May 1996, including 67 mi of arterial and collector streets that form the backbone of the transportation system (see attached network schematic).




Overall, the streets offered a bicycle level-of-service between Good and Fair. About 41% of the arterials and collectors inside the Urban Growth Boundary rated Good or Superior for bicyclists, meaning that few improvements are necessary under present conditions. However, 59% rated Fair to Very Poor because of insufficient width, deteriorated pavement, or other problems. About 44% of the arterials and collectors do not have bike lanes and carry more than 5,000 ADT (Average Daily Traffic), considered heavy traffic.

TransPlan proposed a 38-mi grid of bike lanes to be added to 6 mi of lanes existing in 1986. TransPlan also recommended adding 8 mi of separated paths to 3 mi of existing paths. By the end of 1997, about 13 mi of new bike lanes and about 3 mi of new pathway were completed. In addition, new streets that were not planned for in 1986 added about 2 mi of new bike lanes. In total, about 18 mi of new bikeway have been established since TransPlan was adopted.




The proposed bikeway system described in the 1997 Bicycle Plan expands on TransPlan to address current needs, revised bikeway standards, and new opportunities. In total, about 37 miles of bike lanes and 12 miles of path projects are proposed beyond what exists in 1997.

Future efforts should focus on connecting the east and west sides of the city with bikeways. Limited highway crossings, several congested arterials that lack appropriated bikeways, and interrupted bikeway segments also deter bicycle use because they increase trip distance and time, and can expose bicyclists to traffic hazards.

Springfield's older core neighborhood provides a good model for the city in how to encourage walking and bicycling—a dense grid of streets offers many possible routes to a given destination. In general, destinations are located less than 2 mi apart in this area, prime cycling distance. Newer developments to the north and east of the central core of Springfield feature longer blocks that concentrate traffic on fewer streets, and limit accessibility and safety for bicyclists.

The challenge that faces Springfield is to promote efficient land use as it continues to grow, to improve the existing streets for bicyclists, and to capitalize on off-street path opportunities.

## *Implementation*

The following actions are necessary to implement the Bicycle Plan:

- Adopt the goal of this Plan:

  Springfield will provide a network of safe, convenient and attractive bikeways as an integral part of the City's transportation system with the objective to increase bicycle rider ship and safety.

- Support the action items of this Plan, which include:

  - Connect the east and west sides of Springfield with direct bikeways.
  - Support the upgrading (with Lane County) and permanent maintenance (by Willamalane Park and Recreation District ) required to promote the continued safe and reliable use of the EWEB bicycle-pedestrian pathway.
  - Establish on-street striped bicycle lanes on all new collector and arterial streets and restripe existing collector and arterial roads as identified in this Plan.
  - Establish a bicycle travel data collection program with biannual counts on all major bikeways.
  - Adopt ordinances, codes, standards, and maintenance procedures necessary to carry out this Plan.
  - Work with the school and transit districts to provide more covered parking.

- Support the part-time Bicycle and Pedestrian Coordinator.

- Dedicate necessary funding to street improvements (60% for widening, etc.), paths (25%), maintenance (10%), and other improvements (5% for signing, etc.).

- Promote efficient land use through planning that places more destinations close together, connects them with direct bikeways and walkways, and makes them accessible to bicyclists and pedestrians.

- Adopt transportation standards and traffic modeling that consider bicycling needs. Accept lower vehicle capacity if necessary.

- Maintain public awareness and support of the Plan through education and enforcement.

- Work with the Oregon Department of Transportation to improve nonmotorized access in the highways corridors.

_ Schedule the projects in the City or County Capital Improvement Program, or in the State Transportation Improvement Program, as appropriate to the project.
_ Establish regular maintenance programs for all bikeways and related facilities.

_ Review project scheduling and implementation annually.

## *Capital Improvement Projects*

Projects were categorized as short, medium, and long range based on the following criteria:

_ Importance to the bikeway system (barrier removal, connectivity, etc.).
_ Potential use.
_ Coordination with TransPlan and the 1995 Willamalane plan.
_ Coordination with other road work (City, County, and State).
_ Cost.
_ Ease of technical implementation.
_ Ease of political implementation.

Site-specific projects are organized in two categories to indicate their significance to the system: wide-area and local-area. Wide-area projects correct problems in major corridors that serve crosstown traffic, such as Main St. and 42nd St.. In total, 25.4 mi of wide-area projects combined with existing bikeways (28 mi of bike lanes and multi-use paths) form a coarse grid of about one mile spacing throughout the urban area.

Local-area projects involve elements of the bikeway system that link neighborhoods or access major corridors, such as 58th St., Daisy St., and Yolanda Ave. About 26.9 mi of local area projects fill in the bikeway grid.

Citywide projects, such as bicycle parking and drainage grate upgrades, are also part of the program.

All 48 projects totalling 53.2 mi can be completed in 16 years at the rate of 3 projects a year (see attached project phasing scheme).

The majority of the needed work can be accomplished by integrating bicycle projects into normal road construction, maintenance, and planning efforts undertaken by the City, County, and State using existing revenue streams. Many bicycle projects are straightforward and inexpensive, such as striping bike lanes, while other projects involve improving a street for all users through widening or resurfacing.

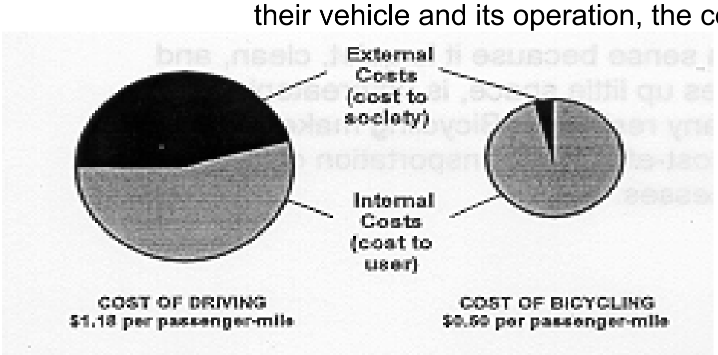
## *Costs*

There are **37.6** mi of proposed bike lanes, shoulders and other on-street improvements that, built to full standard, would cost about $5.8 million. About half of this mileage is simple restriping with minor cost (under $150,000); 7 mi of that are State facilities with the remainder City or County. About $5.6 million of the total represents adding roadway width (such as shoulders)-projects that are on the TransPlan Street and Highway Project List and which benefit all users.

There are 14.7 mi of multi-use paths that would cost about $2.7 million. Paths are shared with other nonmotorized users, such as pedestrians, and in some cases may be primarily pedestrian facilities.

If the entire project list is built out in 20 years, it will cost about $425,000 per year, plus about $100,000 per year for maintenance. Responsibility, under current jurisdictions, would be distributed primarily among the County (45%), City (40%), and State (15%), although Willamalane and private sources would also play a part.

Note that facility costs represent a small fraction of motor vehicle costs - about 2%. Although drivers pay a considerable amount of “direct” costs for their vehicle and its operation, the community bears the much greater




“external” costs of congestion, land use impacts, air pollution, and about half of costs of parking and accidents.

Bicycling enjoys very low external costs (4% of total cost during peak periods compared to 45% for driving). External costs, because they are imposed on other individuals or the community at large, tend to have little affect on individual’s

travel decisions and so encourage inefficient travel. Shifting trips from driving to bicycling can save the city about $0.51 per passenger mile during peak periods in external costs plus about $0.17 in internal costs (reference Litman).

Using conservative estimates, the bicycle system can be expected to reduce automobile commuting by about 1,250,000 miles per year. The bicycle system would save $637,500 for the community and $212,500 for the users. So long as the system costs less than $850,000 per year, it can be deemed cost-effective. This does not include other benefits from nonwork trips, enhanced community livability, and improved personal health.

Looked at another way, every 1 % of bicycle use instead of automobiles on a one-mile street with 10,000 vehicles/day saves $22,265 per year (at $0.61 per vehicle mile average) when all costs are included. The cost implications of not providing appropriate bicycle facilities can be significant.

## *Bicycling's Potential*

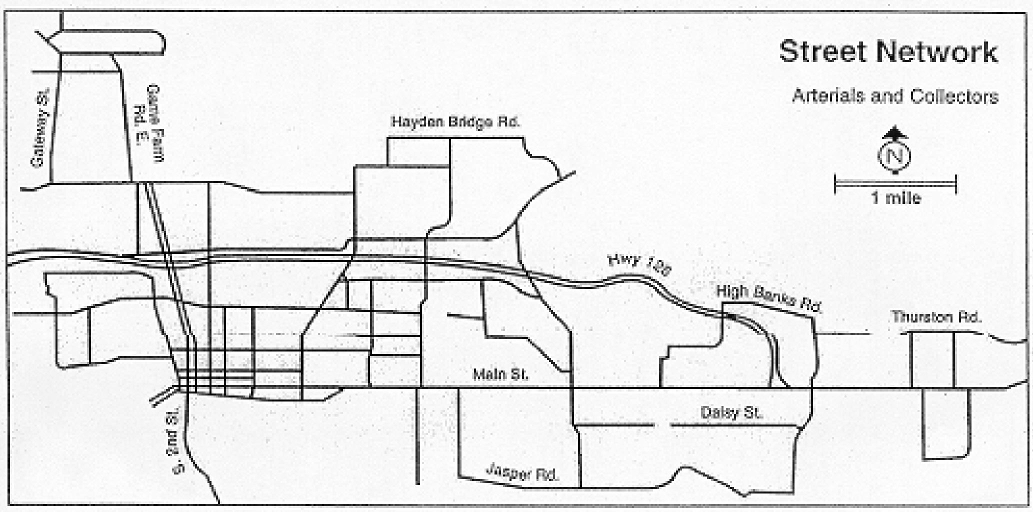
There is much untapped potential for bicycle use in Springfield. A systematic program of bicycle promotion and facility improvements will help to create an environment where bicycle trips can increase. Accommodating bicycles, along with encouraging pedestrians, can replace many automobile trips and postpone or eliminate the need for costly increases in road and parking capacity.

A reasonable goal for Springfield is to increase ridership to 2% by the year 2000 (as measured by the U.S. Census journey-to-work data), 5% by 2005, 7% by 2010, and 10% by 2015. Beyond these gains, further increases would require control of incentives for automobile use (e.g., free parking, excess road capacity, and unrestricted access).

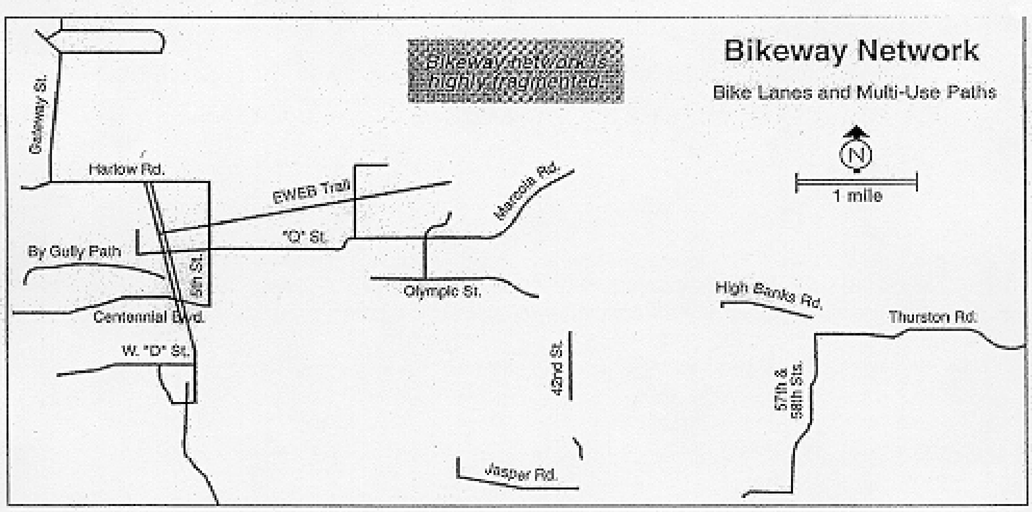
Springfield is a young city-about 74% of the population is under 45, well above the state average of 67%. About 19% of the population belongs to the age group that is old enough to attend school but too young to drive (5 to 15 years). Typically, about half of people under the age of 18 participate in bicycling. For the 28% of Springfield's population in this age group, an enhanced bicycling program would have a ready clientele. Low income groups are also attracted by necessity to walking and bicycling, as are higher income groups interested in regular exercise.

Bicycling makes transportation sense because it is quiet, clean, and healthy transportation that takes up little space, is unthreatening, and offers affordable mobility to many residents. Bicycling makes economic sense because it is the most cost-effective transportation choice and improves accessibility to businesses.

## Street and Bikeway Network Schematics




*Arterials and collectors are the backbone of any transportation system, and failure to accommodate nonmotorized travel on major thoroughfares will lead to a fragmented system that does not realize its full potential, denying access to nonmotorized users.* – Oregon Bicycle and Pedestrian Plan



## Project Phasing

### *Priority I (1997-2002)*

28$^{th}$ St.
31 st St.
42$^{nd}$ St. Pathway
S. 42$^{nd}$ St.
58$^{th}$ St.
Game Farm S. Rd.
Main St. & S. ‘A’

### *Priority II(2003-2008)*

S. 32$^{nd}$ St.
69$^{th}$ St.
Aspen St.
Centennial Blvd.
Jasper Rd.
McKenzie Connector Path
Rainbow Dr.

### *Priority III (2009-2013)*

35$^{th}$ St. & Commercial Ave.
36$^{th}$ St.
52$^{nd}$ St., ‘G’ St. & 51 st St.
Yolanda Ave.
By Gully Path
EWEB Trail
14$^{th}$ St. ‘G’ to South ‘A’

### *Additional*

5$^{th}$ St.
21$^{st}$ St.
23$^{rd}$ St.
S. 28$^{th}$ St.
S. 28$^{th}$-32$^{nd}$ Path
66$^{th}$ St.
S. 67$^{th}$ St.
S. 70$^{th}$ St.
Beltline Rd.
Booth-Kelly Rd.
W. ‘D’ St.
Daisy St.

Gateway McKenzie Path
Hayden Bridge Rd. (east)
Hayden Bridge Rd. (west)
Laura St.
Ivy St.
Mill St.
Millrace Path
Mt. Pisgah-Springfield Path
Olympic St.
Potato Hill
Springfield-Coburg Path
Weyerhaeuser Rd. (east)
Weyerhaeuser Rd. (west)
42nd Street

# CONTENTS


**Executive Summary** ..... iii

1. **INTRODUCTION** ..... 1-1
   - Purpose ..... 1-1
   - Citizen Involvement ..... 1-2
   - Milestones ..... 1-2
   - Organization of the Plan ..... 1-2
   - Glossary ..... 1-3

2. **BACKGROUND** ..... 2-1
   - Introduction ..... 2-1
   - Community Description ..... 2-1
   - Personal Transportation ..... 2-3
   - Facility Inventory ..... 2-6
   - Progress Since 1982 Bikeway Plan ..... 2-8

3. **ANALYSIS** ..... 3-1
   - Streets Analysis ..... 3-1
   - Factors Affecting Bicycle Use ..... 3-3
   - Anticipated Use ..... 3-11
   - Benefits of Bicycling ..... 3-12

4. **GOALS AND POLICIES** ..... 4-1
   - Bicycle Plan Goals and Objectives ..... 4-1
   - Relevant Policies ..... 4-3

5. **IMPLEMENTATION** ..... 5-1
   - Priorities for System Implementation ..... 5-1
   - Program Support ..... 5-2
   - Typical Costs ..... 5-4
   - Funding ..... 5-7
   - Facility Standards ..... 5-11
   - Promotion ..... 5-24

**6. PROJECTS** .......... 6-1
Introduction .......... 6-1
Background .......... 6-1
Capital Improvement Projects .......... 6-4
Project Summary (Updated Annually)* .......... . 6-5
Project Phasing - Table 6 -2 (Updated Annually)*.......... 6-9
Project Maps (Updated Annually)* .......... 6 -13
*Updated Maps & Summary to be inserted here.

**Appendixes**

**A. ORDINANCE GUIDELINES** .......... A-1
Provision of Bicycle Parking .......... A-1
Safe, Convenient Circulation and Access .......... A-4

**B. RESOURCES** .......... . B-1
Reference Publications .......... B-1
Organizations .......... B-3

**C. INVENTORY** .......... C-1

**D. BICYCLE LEVEL OF SERVICE** .......... D-1

**E. PROJECT DETAIL** .......... E-1

Priority I Projects .......... E-1
Priority II Projects .......... E-7
Priority III Projects .......... E-13
Additional Bikeway Projects .......... E-19

**Indexes** .......... I-1

**Tables**

2-1. Population Age Distribution ............................................. 2-5
3-1. Bicycle LOS Summary for Arterials and Collectors ............. 3-2
3-2. Factors Affecting Bicycle Use ……………….......................... . 3-3
5-1. Typical Facility Unit Costs .................................................. 5-5
5-2. Bikeway Types ................................................................ 5-11
5-3. Bikeways and Traffic Volume .......................................... 5-12
5-4. Bicycle Parking Categories ............................................... 5-19
6-1. Project Summary ............................................................ 6-7
6-2. Project Phasing ............................................................... 6-9

**Plates (after indicated page)**

1. Street and Bikeway Network Schematics .................................. 2-6
2. Bicycle Level-of-Service Data Form ........................................... 3-2
3. Bicycle Level-of-Service Schematic ........................................... 3-2
4. Barrier Schematics ...................................................................... 3-3
5. Design Practices ........................................................................ 5-12
6. Project Schematic ...................................................................... 6-4

**Project Maps** ................................................................................. 6-13

# Section 1
# INTRODUCTION

## Purpose

A comprehensive bicycling system that the City of Springfield can achieve in 20 years is described, and the tasks necessary to accomplish this vision are detailed. The system builds on local, regional and state plans to create an integrated network of bikeways and supplemental facilities. The work was partially funded by a grant from the Oregon Department of Transportation.

### ❖ Update 1982 Bikeway Plan

This plan updates and supersedes the 1982 Springfield Bikeway Plan. Bicycle planning has evolved significantly during the past decade, especially in regard to integrated transportation planning whereby all modes are considered equally and each mode is relied on for what it does best. Several fundamental changes in bikeway design have taken place, such as going beyond the concept of bicycle routes and bikeway class.

### ❖ Coordinate with TransPlan

This plan provides the implementation details for the Bicycle Element of the 1986 Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan). It also updates the project list in view of current conditions.

### ❖ Comply with State and Federal Guidelines

Bicycle planning is a part of Springfield's overall long-range transportation planning that identifies local needs, establishes priorities, and puts forth solutions that are consistent with regional and national policies, plans and standards (see Appendix B: *Resources*).

The Springfield Bicycle Plan focuses on bicycle considerations within the City's Urban Growth Boundary and on the requirements of the Oregon Transportation Planning Rule. The Bicycle Plan provides Springfield's citizens with the basic information needed to implement a meaningful bicycle program.

## Citizen Involvement

In 1974, the Springfield Bicycle Committee (SBC) was established to "assist and advise the Council in a continuing program for the use of bicycles in the City of Springfield." The Committee includes members of the public interested in bicycling issues. The Committee established the goals and objectives for this Plan, and provided local information, guidance and review. Committee meetings are open to the general public.

The work scope includes a public meeting between the second and final drafts. The Plan adoption by the City and County also includes public meetings.

## Milestones

The following significant events marked the progress of the Springfield Bicycle Plan:

Kick-off meeting with SBC and site visit .................................. May 8, 1995
Bicycle ride with SBC............................................................July 15, 1995
First draft .........................................................................Sept. 11, 1995
Interim review draft ......................................................................Dec. 1995
Interim review draft ...................................................................... May 1996
Second draft .....................................................................................July 1996
Final draft........................................................................................ June 1998

## Organization of the Plan

The Plan comprises 6 sections and an appendix:

**1: Introduction** ......................*Overview and related planning documents.*

**2: Background** ............................ *Community description and conditions.*

**3: Analysis** ...................................................*Issues, needs and forecast.*

**4: Goals and Policies** .......................................*Policies guiding this plan.*

**5: Implementation** ................................*Strategy, funding and standards.*

**6: Projects**........................................*Site-specific and city-wide projects.*

**Appendix** .................................................*Backup and reference material.*

**Indexes**........................................................*Project and Subject Indexes*

## *Glossary*

AASHTO........American Association of State Highway and Transportation Officials
ADA ...............Americans with Disabilities Act; civil rights legislation effective July 1992.
ADT................Average Daily Traffic; the number of vehicles passing a given point in all directions each day.
arterial............Street designated to carry mostly uninterrupted traffic through an urban area or to neighborhoods.
bike lane ........Portion of the roadway designated by striping and pavement markings for the use of bicyclists.
bike path ........Obsolete term sometimes seen in reference to a multi-use path or to a bikeway.
bike route.......Obsolete term sometimes seen in reference to a shared roadway that has been posted with “Bike Route” signs (no longer used in Oregon).
bikeway..........Any road, path or way which is open to bicycle travel, regardless of whether it is designated for the exclusive use of bicycles or is shared with other users.
CMAQ............Congestion Mitigation and Air Quality Improvement
collector .........Street designated to carry traffic between local streets and arterials.
crosswalk.......A portion of the roadway, whether marked or unmarked, designated for pedestrian crossing.
EWEB ............Eugene Water and Electric Board; name of a multi-use path along a utility corridor.
FHWA ............Federal Highway Administration
ISTEA ............Intermodal Surface Transportation Efficiency Act
LID .................Local Improvement District
LOS................Level of service, a measure of motor vehicle congestion; bicycle LOS as used in this Plan is a measure of how well bicycles are served by a street segment.
LTD ................Lane Transit District
multi-use path Path separated from motorized traffic by open space or barrier, for use by bicyclists, pedestrians, joggers, and other nonmotorized users.
MUTCD..........Manual on Uniform Traffic Control Devices
OAR...............Oregon Administrative Rule (e.g., OAR 660-12, the Transportation Planning Rule).
ODOT ............Oregon Department of Transportation
ORS ...............Oregon Revised Statute (e.g., ORS 366.514, the “Oregon Bike Bill”).
PROS.............Park, Recreation, and Open Space; name of a Willamalane Park and Recreation District plan.
roadway .........Paved portion of a street or highway.
SBC ...............Springfield Bicycle Committee
SDC ...............System Development Charge
shared roadway .........A bikeway where bicyclists and motor vehicles share the travel lane.
shoulder bikeway.......Bikeway where bicyclists travel on a paved shoulder.

sidewalk......... Walkway separated from the roadway with a curb, constructed of a hard, smooth, durable surface, for use by pedestrians.
SOV ............... Single-Occupancy Vehicle
STIP............... State Transportation Improvement Program
STP................ Surface Transportation Program
street.............. A public way for travel, including the entire area within the right-of-way; includes the roadway, sidewalks, and planting strips.
TIP ................. Transportation Improvement Program
TPR................ Transportation Planning Rule (OAR 660-12)
trail ................. Off-street path or track which may be unpaved. May be designated as a recreational facility due to strong scenic or other recreational values.
UGB ............... Urban Growth Boundary
wide outside lane....... A wider than normal curbside lane (usually 14–15 ft) that improves bicycle operation where there is insufficient room for a bike lane. _

*Never doubt that a small group of*

*thoughtful, committed citizens can*

*change the world. Indeed, it's the*

*only thing that ever has.*

— Margaret Mead

# Section 2
# BACKGROUND

## Introduction

Springfield's existing conditions set the scene for the analysis and recommendations that follow in later sections. This section gives an overview of Springfield and its residents, examines bicycle use, inventories the transportation system, and charts progress since the 1982 Bikeway Plan.

Data were obtained from documents supplied by the City, the 1990 U.S. Census, and from observations taken during site visits in March, July and November 1995. The inventory was current as of May 1996.

## Community Description

### ❖ *Physical Features*

Springfield is in Lane County at an elevation of about 425 ft; the urban area occupies about 35 square miles in a flat river valley. The climate is generally mild and conducive to bicycling; average high-low temperatures are 46°F–33°F in January and 83°F–51°F in July.

### ❖ *Population*

The 1990 Census credited Springfield with a population of 44,683, up from 41,460 in 1980. The 1993 estimate was 46,715, making Springfield the state's 7th largest city. Springfield, with neighboring Eugene (119,235 in 1993), is the second largest population center in Oregon. The population density, at about 3,900 people/sq mi, is somewhat low for an urban area.

Springfield has grown steadily during the past 40 years and may reach nearly 60,000 residents by the year 2000 according to the Springfield Community Environmental Scan.

### ❖ *Community Services*

Springfield has the spectrum of services expected in a larger city. The following are among the most attractive urban destinations to bicyclists:

- The Springfield School District includes 15 elementary schools, 4 middle schools, and 2 high schools with a total enrollment of about 11,000. The schools have playgrounds, athletic facilities and open space, although many facilities are closed outside of school hours.

- The University of Oregon is in Eugene about 2 miles west of downtown Springfield and can be reached via several routes. Lane Community College is about 3 miles to the south in an isolated county area reached from Springfield via Main St. and Franklin Blvd.

- The Willamalane Park & Recreation District includes 31 parks and other facilities providing playgrounds, picnicking, fishing, hiking, ball fields, aquatic centers, tennis courts, meeting rooms, and a fitness center. Among the facilities most heavily visited by bicycle are the Willamalane Health Fitness and Swim Centers (Mohawk Blvd. and 'G' St.) and the Lively Swim Center (Thurston Rd.). Also, three parks along the Willamette River—Alton Baker-Eastgate Woodlands ('D' St.), Dorris Ranch Living History Farm (S. 2nd St.) and Island Park (W. 'A' St.)—are popular destinations.

- Shopping areas and their primary access include:

  - Downtown (Main St. and downtown grid)
  - Springfield Mall (Olympic St.)
  - Paramount Square (Main St., 21st St.)
  - Gateway Mall (Gateway St.)
  - Mohawk Shopping District (Mohawk Blvd.)
  - East Main St. (Main St., 66th St.)
  - McKenzie West (Main St., 42nd St.)
  - Village Square (Main St., 58th St.)
  - Centennial Center (Centennial Blvd.)
  - Pioneer Plaza ('Q' St., 5th St., Pioneer Parkway)
  - Mohawk Market Place (Marcola Rd., 19th St.)

- Other major destinations: public library ('B' St.), post office ('C' St.), medical center (Mohawk Blvd. and 'G' St.), sports center (Sports Way), and various transit stops.

### ❖ *Employment Centers*

Although it is important to encourage all workers to use nonmotorized means of transportation where feasible, often the most effective programs are those that involve the largest employers. These organizations not only contain the most workers but they provide community leadership. Springfield has 15 employers with at least 100 employees:

| | |
|---|---|
| Springfield School District | 1250 |
| Weyerhaeuser Company | 1175 |
| McKenzie Willamette Hospital | 780 |
| Springfield Forest Products | 551 |
| Rosboro Lumber Co. | 400 |
| City of Springfield | 337 |
| Willamalane Park & Recreation District | 325 |
| Morgan Manufacturing | 186 |
| Servi-Star/Coast-to-Coast | 165 |
| Borden Chemical Co. | 114 |
| Willamette Industries | 110 |

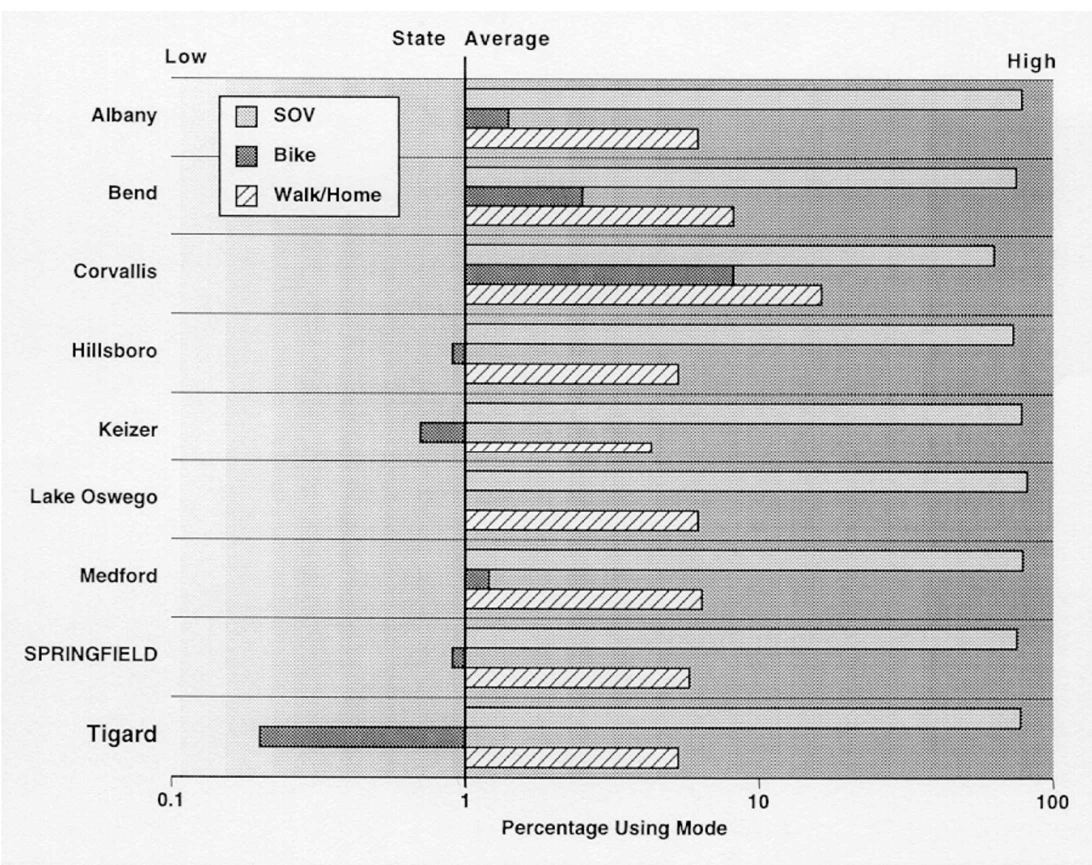
Springfield Utility Board .......................................... 110
Blue Water Boats.................................................... 110
Sony Complex ................................................ unknown

For employees who live in or near Springfield, the opportunity for commuting to work by bicycle exists because of the shorter distances involved.

## *Personal Transportation*

Springfield residents rely heavily on the private automobile for most transportation, somewhat more so than the average Oregon community. The 1990 Journey to Work data for the City reveal that 76% of those over 15 years of age commute to work by driving alone, compared to the State average of 73% and 5th among 9 similar-sized cities (Corvallis is best at 65% and Lake Oswego is worst at 82%). SOV commuting in Springfield has increased in the last decade, up 5.7% from 70.0% in 1980. Carpooling accounts for another 12% of trips to work, compared to the State average of 13%.

Traffic counts on 129 city streets (refer to *ADT Traffic Count Report*, City of Springfield, April 25, 1995) show an average increase of about 16% from 1990 to 1994. This compares to a population increase of about 6% during that period, indicating that the greater traffic level is as much the result of people driving more than it is of population increase.




Buses are relied upon for the majority of school transportation. Local fixed-route transit service is provided by Lane County Transit.

## ❖ *Existing Bicycle Use*

Journey to Work data show that 0.9% of Springfield residents bike to work and 2.7% walk to work—lower than the State averages (1.1% and 4%). Among 9 Oregon cities of similar size (10,000–29,000 workers), Springfield is tied for 5th in biking to work.

When considering these numbers, note that Journey to Work data are only an indicator of adult commuting trips and do not include trips by children or any trips for errands or pleasure; work trips may make up only a quarter or less of total trips. Because of the way the census question is phrased, walking and bicycle commutes are probably underrepresented. Furthermore, the survey was taken in March which typically is not a high bicycling month; the mode share for bicycling would probably be higher during the summer months.

Still, the relatively low percentages of bicyclists and walkers indicates that there are significant barriers and gaps in Springfield's bikeway system.

Bicycle counts were conducted by the City at 17 intersections during the peak morning or evening period (7:30–8:30 A.M. or 4:30–5:30 P.M.). The counts were conducted from July 18 to August 2, 1995. The results showed high bicycle use at several locations (hour counts):

- River Path at 'D' St. .......................... 103
- 14th St. at 'G' St. ................................ 52
- 5th St. at 'Q' St. .................................. 51
- Gateway St. at Harlow Rd. ................. 42
- 42nd St. at Main St. ............................ 26
- Mill St. at Centennial Blvd. ................. 19
- 14th at Main St. .................................. 16
- 19th St. at Marcola Rd. ....................... 10
- 19th St. at the EWEB Path ................. 10
- 28th St. at 'G' St. ................................ 10

Other locations counted less than 10 cyclists. Survey forms were collected from 31 cyclists, most at the 'D' St. location, with the following results:

| | |
|---|---|
| Trip purpose | recreation (61%); work (48%) |
| Regular bike commuters | 71% |
| Ride daily | 87% |
| One-way trip length over 5 mi | 48% |
| Most frequented routes | 'D' St. (19%) |
| | Centennial Blvd. (16%) |
| | 5th St. (13%) |
| | Mohawk Blvd. (6%) |
| | Main St. (6%) |
| | Mill St. (6%) |
| | River Path (6%) |
| | Hayden Bridge Rd. (6%) |

Details of the existing bikeway system are described below, under Facility Inventory.

## ❖ *Community Demographics*

When planning and designing transportation facilities, it is important to know the customer. Springfield is a young city—about 74% of the population is under 45, well above the state average of 67%. About 19% of the population belongs to the age group that is old enough to attend school but too young to drive (5 to 15 years). Another 11% of the population is over 64 (see Table 2-1).

The young and old groups, containing the largest numbers of non-drivers, can be the most disadvantaged by a lack of transportation options. Typically, about half of people under the age of 18 participate in bicycling. For the 28% of Springfield's population in this age group, an enhanced bicycling program would have a ready cliental.

The elderly may bicycle the least of any group, but about one-third like to walk and can benefit greatly from carefully designed multi-use facilities. Springfield's adult population is smaller than the State average but will grow in the coming decades. This population has a potential for high pedestrian use and can benefit from much of the same planning (e.g., land use, traffic calming, and trails) that encourages bicycle use.

Low income groups are also attracted by necessity to walking and bicycling. Per capita income in Springfield for 1989 was $10,222, compared to Oregon's $13,418.

**Table 2-1.** Population Age Distribution

| | % in Age Group | | |
|---|---|---|---|
| **Age** | **Springfield** | **Oregon** | **Characteristics** |
| <18 | 27.8% | 25.5% | age group that bicycles most; many also walk |
| 18-24 | 12.0% | 9.4% | decline in bicyclists; fewest walkers |
| 25-44 | 34.4% | 32.6% | further decline in bicycling, increase in walking |
| 45-64 | 15.0% | 18.7% | further decline in bicycling, increase in walking |
| >64 | 10.8% | 13.8% | group with fewest bicyclists but many walkers |

## *Facility Inventory*

The backbone of Springfield's transportation system is the arterial and collector street network (see Plate 1). There are about 67 mi of arterials and collectors, excluding Hwy 126 but including Hwy 126 Business (Main St. and S. 'A' St.). The major and minor arterials comprise 35 of these mi and the collectors 32 mi.

Hwy 126, the Eugene-Springfield Highway, is a limited access state facility of about 6.4 mi within the city, of which the 5.2 mi east of Pioneer Parkway has some limited utility, albeit little appeal, to bicyclists. It is not included in the street totals.

The street system is augmented by 6.25 miles of multi-use path.

Appendix C contains a summary of the major streets, significant local streets, and paths, amounting to about 78 miles in total. All segments are identified by their "from" and "to" points.

Several features are listed, such as pavement width, the width of the outside lane and paved shoulder or bike lane, and the ADT (average daily traffic) from 1993 or 1994.

Other data were also collected and used in the computation of bicycle level-of-service (refer to *Section 3: Analysis* for a description of the database and level-of-service). A large-format map was also produced that shows existing and proposed bikeways in more detail (the small maps included here are intended to stress certain points rather than identify specific facilities).

### ❖ *Bicycle Facilities*

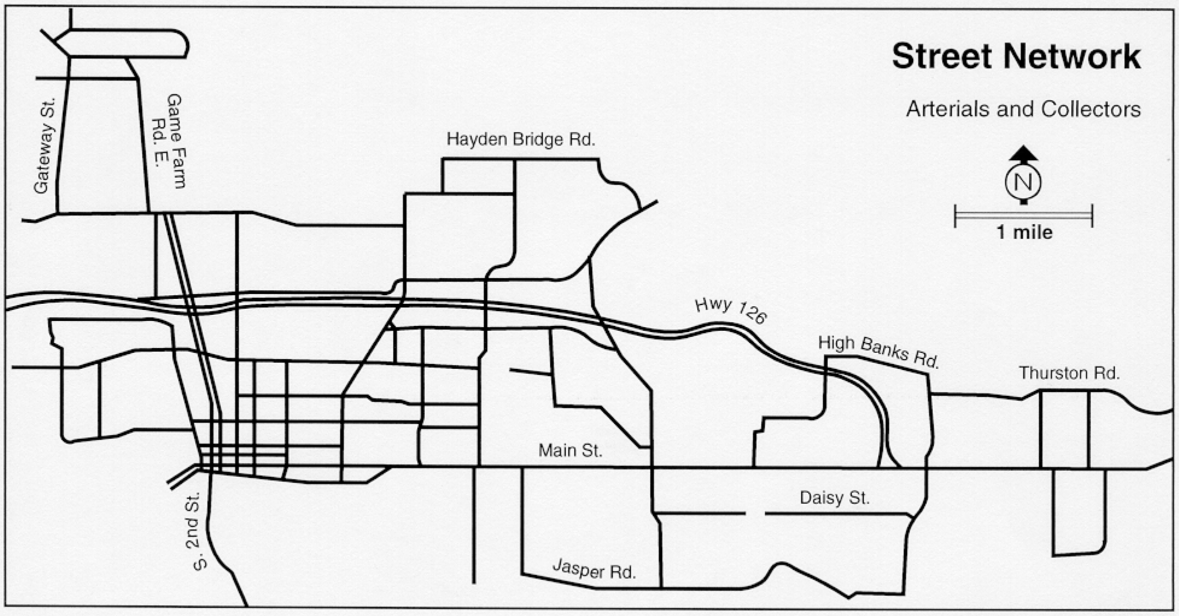
There are about 38 mi of specially designated bikeways within Springfield, comprised of 21 mi of bike lanes, 1 mi of shoulder bikeway, 11 mi of signed routes, and 6 mi of multi-use paths (see Plate 1). About 23% of the 67 mi of arterials and collectors (excluding Hwy 126) have bike lanes. Of streets without bike lanes, only Pioneer Parkway has outside lanes at least 15 ft wide that would easily accept bike lanes.

For arterials and collectors without bike lanes or shoulder bikeways, the outside travel lane is less than 14 ft wide on 44 mi (67% excluding Hwy 126) which is too narrow to function well as a shared lane. The outside travel lane is less than 12 ft on 19 mi (29%).

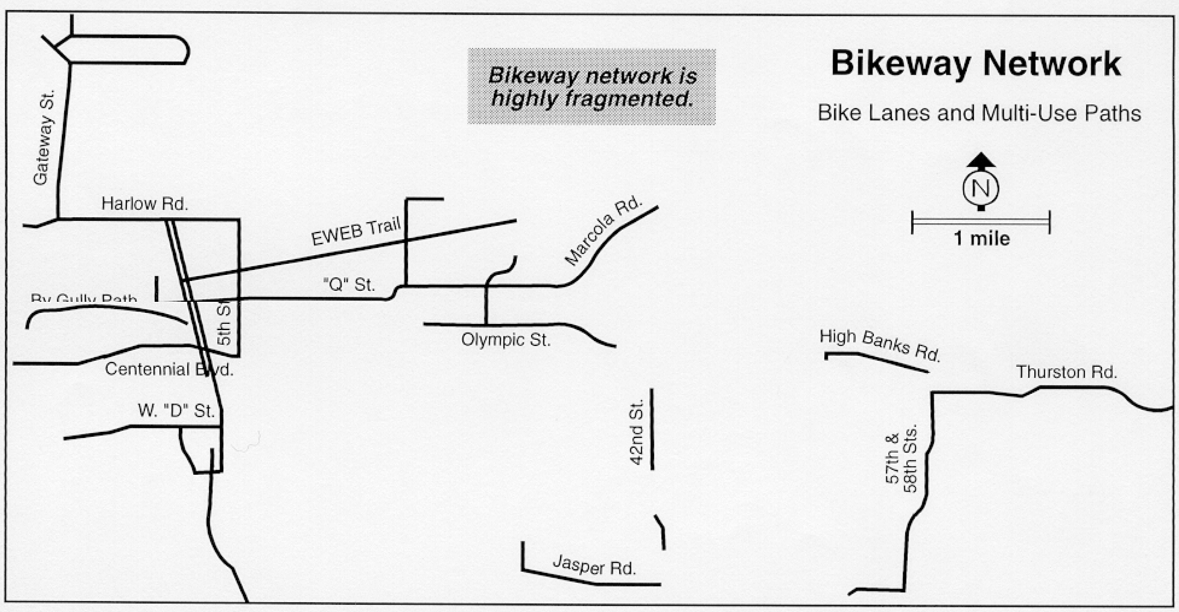
About 42 mi of streets carry more than 5,000 ADT. This is considered heavy traffic where bike lanes are the appropriate facility; 29 mi of these streets do not have bike lanes (44% of arterials and collectors excluding Hwy 126).

**PLATE 1**

# Street and Bikeway Network Schematics




*Arterials and collectors are the backbone of any transportation system, and failure to accommodate nonmotorized travel on major thoroughfares will lead to a fragmented system that does not realize its full potential, denying access to nonmotorized users.* – Oregon Bicycle and Pedestrian Plan



Over 18 mi of streets have a speed limit above 35 mph, which is high for an urban setting and a discouragement to bicycling and walking; 13 mi of these streets do not have bike lanes (20% of arterials and collectors excluding Hwy 126).

A formal bicycle parking inventory was not taken as part of this project. Informal observation noted few bicycle racks. The bus system does accept bicycles on the front of their buses; however transit stops were observed to have limited bike racks (although these were not checked methodically).

An inventory of Springfield's existing street and path system is in the Appendix.

### ❖ *Walkways*

Because of the interaction between walkway and bikeway systems and because they share many basic needs, plans often deal with both. Although this Plan does not specifically address pedestrian issues and facilities, a general look at pedestrian facilities is warranted.

The most notable example of shared facilities is multi-use trails (sometime referred to erroneously as "bike paths") where the bicyclists may be outnumbered by walkers, runners, in-line skaters, baby carriages, dogs and, in some cases, even horses. Road shoulders are also shared by many modes, including turning motor vehicles.

The existence or absence of walkways and their general design features affect bicycling. For example, a lack of sidewalks forces pedestrians onto the roadway edge where they compete with bicyclists for space. Also, young children who ride on sidewalks are discouraged from riding by missing sidewalks. Poorly maintained sidewalks or sidewalks interrupted by frequent driveway ramps force many pedestrians into adjacent bike lanes where the surface is smooth and level.

There is an extensive sidewalk system in the older part of town, including the downtown. Out of the 67 miles of arterials and collectors, 44 mi (66%) have at least one sidewalk. The majority of the sidewalks are located in the central area. The outlying areas, which include both new developments and established neighborhoods, have patchwork sidewalks and often lack even shoulders. There are many places where the sidewalk is discontinuous or switches alignment in mid-block.

## *Progress Since 1982 Bikeway Plan*

The 1982 Bikeway Plan lists 22 projects, with 15 to be accomplished by 1988 and 7 "not programmed." By the end of 1997, 9 projects (and 1 partial) were completed. Out of all the original projects, 11 mi involved bike lanes on arterials and collectors, and over 7 mi of these were completed.

The Bikeway Plan projects became a subset of TransPlan in 1986. TransPlan recommended nearly every arterial and collector in Springfield as a bikeway, including a 38-mi grid of bike lanes added to 6 mi of lanes existing in 1986. This was supplemented by 8 mi of new multi-use paths added to 3 mi of existing path.

By the summer of 1997, over 13 mi of new bike lanes (about 35% of identified bike lane projects) and 3 mi of new path (40% of identified path needs) were completed or funded for construction. In addition, new streets not on TransPlan added about 2 mi of bike lane, for a total 15 mi of new bike lanes. At the present rate of about 1.5 mi of bikeway per year, the entire system identified in TransPlan could be completed about the year 2028.

An active grate replacement program has improved about 3,500 grates to bicycle-safe condition. ❖

# Section 3
# ANALYSIS

This section analyzes the on- and off-street bikeways in Springfield. Several other factors that directly affect bicycle use—system barriers, land use, and standards—are also addressed. Lastly, the potential of bicycling to Springfield is discussed.

## *Streets Analysis*

The transportation system is well developed around a hierarchy of streets—highways, arterials, collectors, local—that provide direct public access to nearly all destinations. The city's existing arterials and collectors provide the basis for the most functional urban bikeway network, just as they do for motorists. Decades of experience provides insight into the most effective bikeway design for each street.

The challenge is to gather enough relevant information to make informed decisions. The inventory of existing facilities in Section 2 is a beginning. The next step is to organize the data to highlight deficient elements, as is done with the bicycle level-of-service (LOS) analysis below.

The most needy streets highlighted in the LOS analysis become candidates for improvement. The final decision is based on potential use, barrier removal, connectivity, and cost effectiveness. Finally, the capital improvement list is developed (refer to *Section 6: Projects*).

### ❖ *Bicycle Level-of-Service*

Arterials, collectors and important local streets within Springfield's Urban Growth Boundary (UGB) were examined for factors that affect bicycle operation and use. These factors include standard street measurements such as Average Daily Traffic (ADT), outside lane width, number of travel lanes, and vehicle speed. Various other factors are divided into 'pavement' and 'location' categories that describe street condition and design. Where a street changed conditions significantly mid-length, it was broken into segments.

The data were organized in a computer database for each street segment using an onscreen form (see Plate 2) and output as summary tables (see Appendixes C and D). A numerical value was assigned to each factor to calculate a bicycle level-of-service (LOS). The resulting number is an overall indication of a street's condition—**the lower the number, the better the street accommodates bicyclists**. Although multi-use paths were included in the database, the LOS methodology is not applicable to paths which, being few in number, were evaluated on a case-by-case basis (see discussions in *Appendix E: Project Details*).

The bicycle LOS depends on reasonably accurate traffic counts, lane widths and conditions. Existing information was bolstered by inspection of the urban area and by inputs from the Springfield Bicycle Committee. Where ADTs were not known, they were estimated.

The Springfield Bicycle Committee and Public Works Departments should gather the data necessary to keep this information up-to-date so as to identify future needs and to track progress.

## ❖ *Findings*

The bicycle LOS results described above were used to divide the streets into 5 categories: superior, good, fair, poor, and very poor. Results were transferred to a map (see Plate 3), so that gaps in the system are demonstrated graphically.

Over 73 miles of major streets in the Springfield urban area were examined for cycling conditions. Overall, the streets rated near the break between Good and Fair.

Table 3-1 summarizes the results for arterials and collectors as of May1996. **Appendix D lists all streets examined in order of their LOS score.**

**Table 3-1.** Bicycle LOS Summary for Arterials and Collectors

| LOS | Scale | Description | miles | Percent of total miles |
|---|---|---|---|---|
| Superior | less than 3.00 | Conducive to bicycle use. Minor improvements, if any, needed. | 16.6 | 25 |
| Good | 3.00-3.99 | Accommodates most cyclists. Minor improvements may elevate to superior rating. | 11.0 | 16 |
| Fair | 4.00-4.99 | Usable by many cyclists but poses hazards. Improvements, such as shoulders or lanes, may be needed. | 14.5 | 22 |
| Poor | 5.00-6.99 | Usable by some cyclists but poses significant hazards. Improvements, such as shoulders or lanes, probably needed. | 12.7 | 19 |
| Very Poor | greater than 6.99 | Substandard conditions combined with heavy traffic create significant hazards. Should be improved. | 12.3 | 18 |
| | | Total | 67.1 | 100 |

Table 3-1 shows that 41% of the arterials and collectors inside the UGB are rated good or superior for bicyclists, meaning that few improvements are necessary under present conditions. These are streets that have a good surface and ample width (wide outside lane or shoulder).

Springfield, OR

## PLATE 2
## Bicycle Level-of-Service Data

Record 1

| | | | |
|---|---|---|---|
| **Date** 8/21/95 | | **By:** | |
| **Street** | Jasper Rd | **Seg. No.** | 1 |
| **From** | 32nd St | **Zone** | |
| **To** | 42nd St | **ROW** | 70 ft |
| **Classification** | Minor Arterial — **Length** 5000 ft 0.95 mi | **Width** | 26 ft |

**Rating Index** 5.60 = ADT 5500 / (Lanes 2 • 2500) + Speed, mph 35 / 35 + (14 - Outside Lane Width 10 - Bike Lane Width 0) / 2 + Pavement Factors 1.00 + Location Factors 0.50

LOS Score:
- <3 Superior
- 3-4 Good
- 4-5 Fair
- 5-6 Poor
- >6 Very Poor

**Pavement Factors**

Good ☐ 0 / Fair ☒ 1 / Poor ☐ 2 / Very Poor ☐ 3 — OR —

| | |
|---|---|
| Cracking | ☐ 0.50 |
| Patching | ☐ 0.25 |
| Weathering | ☐ 0.25 |
| Potholes | ☐ 0.75 |
| Rough Edge | ☐ 0.75 |
| Debris | ☐ 0.75 |
| Curb | ☐ 0.25 |
| Rough RR Crossing | ☐ 0.50 |
| Drainage Grates | ☐ 0.75 |

**Location Factors**

| | |
|---|---|
| Angle Parking | ☐ 0.75 |
| Parallel Parking | ☐ 0.50 |
| Right Turn Lanes | ☐ 0.25 |
| Physical Median | ☐ -0.25 |
| Center Turn Lane | ☐ -0.25 |
| Paved Shoulder | ☐ -0.75 |
| Bike Lane | ☐ -1.00 |
| *Typical Section* | |
| Severe Grades | ☐ 0.50 |
| Moderate Grades | ☐ 0.25 |
| Frequent Curves | ☐ 0.25 |
| Restricted Sight Distance | ☐ 0.50 |
| *Roadway Alignment* | |
| Numerous Drives | ☐ 0.50 |
| Numerous Stops | ☐ 0.75 |
| Industrial Land Use | ☐ 0.50 |
| Commercial Land Use | ☐ 0.25 |
| One Sidewalk Only | ☐ 0.25 |
| No Sidewalks | ☒ 0.50 |
| *Roadway Environment* | 0.50 |

**Comments**

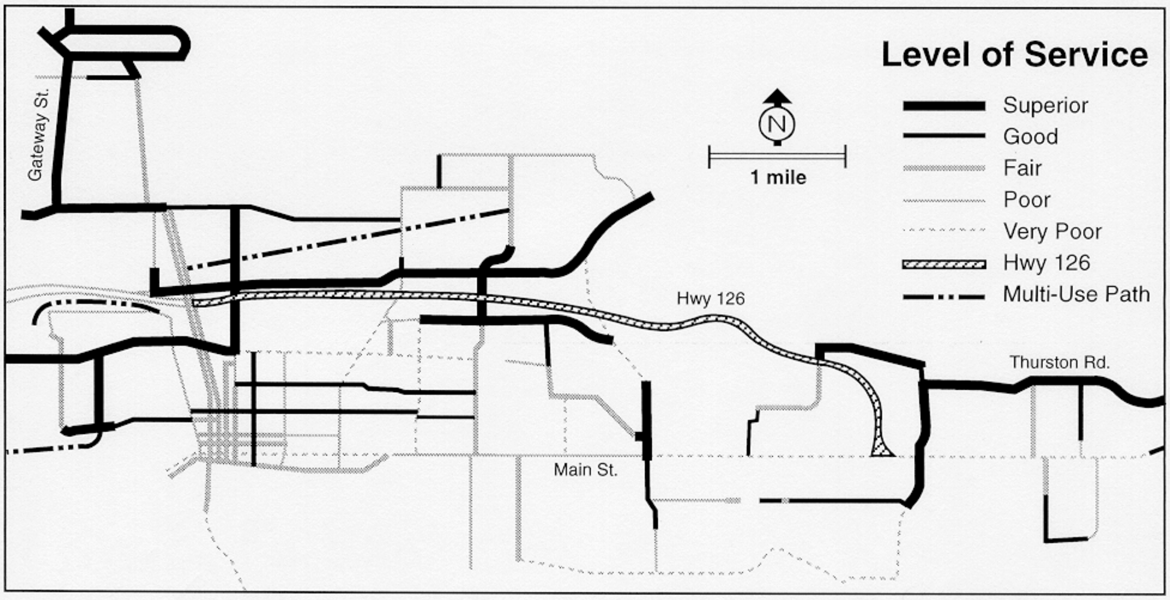
Douglas Gardens Park and School.
6-9.5-9.5-1 with 6 on side opposite school.
City & County.

**Sidewalks**

| | |
|---|---|
| **Buffer:** ft | **Ramps:** |
| **Condition:** | **Intermittent** ☐ |

**PLATE 3**

# Bicycle Level-of-Service Schematic




This is a graphical display of the bicycle level-of-service (LOS) scores which are based on many factors (see text). The LOS is a relative indication of bicycling conditions on a street segment.

A *superior* rating means that the street is generally satisfactory for bicycling and few improvements are necessary under present conditions.

Lesser ratings indicate some combination of problems such as lack of space, high traffic level, poor pavement, etc.

The map helps identify which segments need attention. Because LOS does not take into account intersection design, access, destinations, potential use, and cost, it is only one aspect of project selection.

The map shows clearly that Springfield's west and east sides as well as its north and south halves are not connected by viable bikeways. There is also poor connectivity between many adjacent neighborhoods.

Many of the roads that rated fair to very poor (59%) have deteriorated pavement, little or no space for bicyclists, and other problems. These are the focus of the recommended projects, especially where they connect good and superior streets.

## *Factors Affecting Bicycle Use*

Many physical, personal and institutional factors influence bicycle use (see Table 3-2). It is unrealistic to take all possible factors into account because their relationships are complex and the data needed for analysis are extensive. However, in the context of city planning, three concerns are paramount: barriers, land use, and standards.

**Table 3-2.** Factors Affecting Bicycle Use

| *Physical* | *Personal* | *Institutional* |
|---|---|---|
| Availability | Acceptance | Legal Status |
| Convenience | Awareness | Prohibitions |
| Distance | Cost | Priority |
| Safety | Lifestyle | |
| Theft | Status and Power | |
| Access | Skill | |
| Trip Time | | |
| Local Environment | | |
| Climate | | |
| Terrain | | |
| Purpose | | |

### ❖ *Barriers*

A person traveling in Springfield by bicycle notices several barriers, including a lack of connections between the east and west regions of the city, few highway crossings, congested arterials that lack appropriate bikeways, no shoulders on some perimeter streets, and a fragmented bikeway system. These deficiencies increase trip distance and time, and expose bicyclists to traffic hazards.

#### *EAST-WEST CONNECTION*

Springfield's natural setting and land-use pattern limits travel options through the middle of the city. Hwy 126 (Eugene-Springfield Hwy.) and Hwy 126 Bus. (Main St.), which join in eastern Springfield, are the only through east-west corridors (see Plate 4).

Hwy 126 is a limited-access facility with wide shoulders and provides safe, if unattractive, bicycling to skilled riders. Its high-speed traffic and few access points do not attract many riders.

Main St. is a 5-lane arterial (or couplet at its western end) and provides direct access to numerous neighborhoods, shopping areas, employers, and the downtown. It is nearly unavoidable to bicyclists needing to travel east-west. The shared outside travel lanes, at 13 to 14 ft, do not provide an adequate buffer from traffic for most bicyclists at the 40–45 mph posted speed and heavy truck use.

At least 5 different alternatives to Main St. have been proposed over the years:

1. A 2-mi path on the north side of OR-126 between Marcola Rd. and High Banks Rd.
2. A 4.5-mi path heading east from where ‘G’ St. ends at 28th St. and continuing all the way to the east city boundary. Much of this opportunity appears to have been lost.
3. A short path linking the two halves of Daisy St. across the Weyerhaeuser Truck Rd.
4. Bikeway development of the Weyerhaeuser and Booth Kelly Truck Rds.
5. Improvement of Jasper Rd.

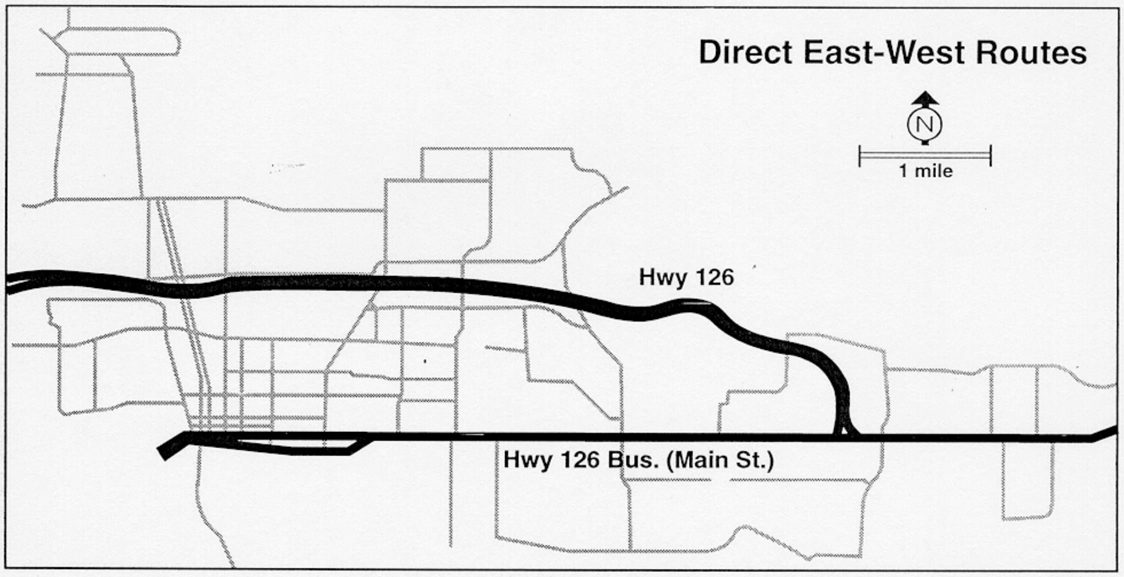
6. A pathway following the Mill Race.

Each of these potential projects has merit but none eliminate the need for travel along Main St.

Existing corridors that continue for at least one mile in the east-west direction are important to inter-neighborhood bicycle travel; most, however, need basic improvements (bike lanes, shoulders, intersection design, directional information, etc.):

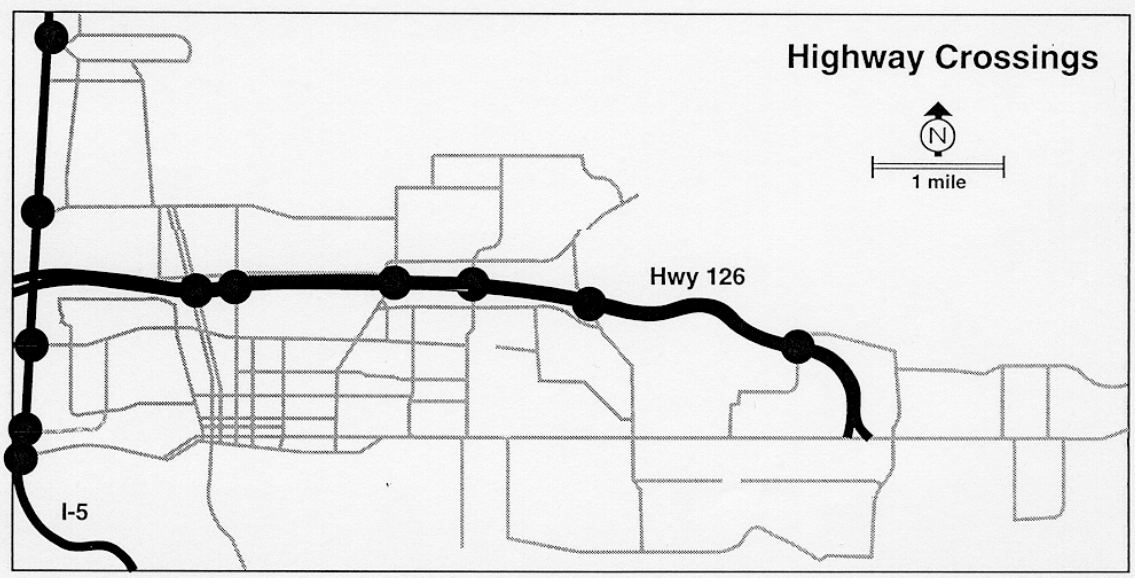
Harlow Rd./Hayden Bridge Rd. — lacks bikeway east of 5th St.
Yolanda Ave./Hayden Bridge Rd. — lacks bikeway.
EWEB Trail — narrow, poor intersections, lacks connections.
By-Gully Path — poor connection to streets.
‘Q’ St./Marcola Rd. — has bike lanes, lacks connections.
Olympic St. — lacks bikeway east and west.
Centennial Blvd. — lacks bikeway east of 5th St.
Centennial Blvd./Commercial St. — lacks bikeway.
‘D’ St. — sidewalk bikeway, lacks connections.
‘E’ St. — shared roadway, lacks connections.
‘G’ St. — lacks bikeway.
High Banks Rd./Thurston Rd. — bike lanes interrupted at 58th St.
Daisy St. — street interrupted at Weyerhaeuser Truck Rd.
Jasper Rd. — lacks bikeway.

**PLATE 4**
# Barrier Schematics




Although a motorist can jump onto Hwy 126 or Main St. to travel across town directly, the bicyclist must look for indirect routes that avoid these unfriendly facilities.

Limited crossing opportunities of Hwy 126 and I-5 reduce options for bicyclists. All crossings need to be bicycle-friendly to limit unnecessary out-of-direction travel.



## HIGHWAY CROSSINGS

The two limited-access highways, Interstate-5 and Hwy 126 (Eugene-Springfield Hwy.), create significant obstacles to bicycle and pedestrian traffic (see Plate 4).

> *Roads are typically viewed as* ***transportation links, but they are also barriers, especially*** *to nonmotortzed travel. The barrier effect reduces walking and bicycling, and increases driving. It represents an increase in accident risk, and a degradation of the pedestrian and bicyclist environment, Barrier effect costs tend to be inequitable because they are imposed most on* ***vulnerable and disadvantaged populations,*** *including children, the elderty, and handicapped people.*
> -Todd Litman, *Transportation Cost Analysis, 1995*

Many trips into and out of Springfield are to the west and must cross I-5, at Springfield's west boundary. There are 6 crossings in 3 mi (the I-5/I105/OR-126 interchange is another crossing available to motorists but is unsuitable for bicycles). Two of the six crossings (Beltline Rd. and Franklin Blvd.) leave much to be desired. Beltline, in particular, is a high capacity interchange that is compromised by many nearby commercial and industrial developments and by an adjacent intersection with Gateway St.

The most pleasant crossing of both I-5 and the Willamette River takes place on a multi-use path in Alton Baker Park Eastgate Woodlands; however, this route can involve out-of-direction travel and the accesses to the street system are not fully developed. The remaining crossings-Harlow Rd., Centennial Blvd. and Game Farm Road N.-accommodate bicycles to a greater extent.

Many trips within Springfield in the north-south direction must hurtle Hwy 126. There are only 6 crossings in 6 mi, causing considerable out-of distance travel. Only 2 of the 6 streets, 5th St. and 28th St., have bikeways (52nd St. has bike lanes north of the highway).

Hwy 126 Business (Main St.). which runs the entire length of Springfield, is also a barrier to non-motorized cross-traffic because of its width, traffic levels and speeds.

## ARTERIALS

The highways mentioned above not only create barriers to cross traffic, they also concentrate traffic at their access points and on the arterial streets serving these accesses. The resulting traffic congestion stresses the street system to the point that motor-vehicle needs tend to dominate other uses. Ironically, the streets where bikeways are most needed are often those that are so overtaxed by traffic that there is little flexibility for providing bike lanes and crossing opportunities.

Although Springfield has successfully incorporated bike lanes on about 23% of its arterials (see Plate 1), many others with inadequate facilities put the bicyclist at a disadvantage when trying to find a safe, direct route. Besides the east-west gaps mentioned above, most north-south arterials lack bikeways: Game Farm Rd. S., Mohawk Blvd./14th St., 28th St., 32nd St., 42nd St., and 57th St.; only Gateway Street and Pioneer Parkway have bikeways.

The cumulative effect of these barriers is to diminish bicycling within Springfield. The barriers can be addressed through planning that emphasizes the relationship between land use and a functional bikeway system, discussed below, and through design treatments that help overcome barriers (refer to *Section 5: Implementation).*

***FRAGMENTED SYSTEM***

The existing bikeways, except for the 'Q' St./Marcola Rd. corridor, are generally short, do not interconnect well, and do not serve many of the popular destinations. Out of the 17 public schools in the city, 11 lack bike lanes on the adjacent street (an arterial or collector in all cases). Out of the 7 largest parks in the urban area, only 3 can be reached by bike lane or multi-use path. Only 4 of 11 major shopping areas are adjacent to bikeways. By bicycle, the classic refrain applies: "You can't get there from here!" (see Plate 1.)

### ❖ *Land Use*

A city's land-use policies-in particular, density, connectivity, zoning and site planning-have a profound effect on its citizen's transportation choices. Although bicycling is adaptable to most urban conditions, it works best where destinations are close and easily reached.

> *...sprawl may seem inexpensive for a new homebuyer or a growing business on the suburban fringe but the ultimate cost-to those homeowners to the government and to society at large-is potentially crippling.*
> *-Beyond Sprawl by* **the Bank of America et. al 1995.**

Springfield's older core encourages walking and bicycling through a dense grid of streets that offer many possible routes to a given destination. The newer development to the east and north features longer blocks that concentrate traffic on fewer streets with limited route choices, diminishing both accessibility and safety for pedestrians and bicyclists.

Sprawl is also costly. For example, a study of Delaware communities over a 25-year horizon concluded that sprawl development versus the pattern of mixed-uses, open space, and growth around existing centers would cost $28.8 million in local road costs, $9.1 million in annual water treatment costs, $8.3 million in annual sewer treatment costs, and result in an 8.4% increase in housing costs and a 6.9% increase in annual costs of local public-sector services (Burchell, R.W., et. al, Impact Assessment of DELEP CCMP versus Status Quo on Twelve Municipalities in the DELEP Region, Delaware Estuary Program, 1995).

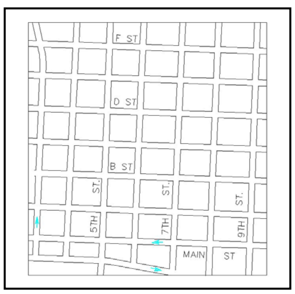
The challenge that faces Springfield is to promote efficient land use as it continues to grow, to modify the existing neighborhoods in the City to improve their convenience for bicyclists and pedestrians, and to work with the Oregon Department of Transportation to improve non-motorized access near the highways.

## *DENSITY*

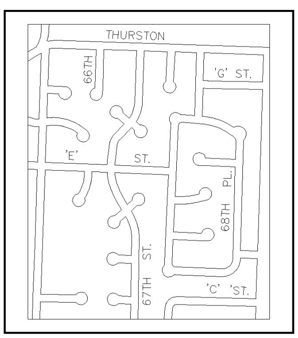
The density of development has a direct relationship on the level of pedestrian and bicycle use in an area, and an inverse relationship on the level of car use. This is because walking and bicycling are most attractive for short trips-from 0.25 to 2.5 mi for most people. In the downtown area of Springfield, where density is relatively high, bicycle use is also higher because many destinations are a short distance away. Spread the same population out over a larger area, such as in eastern Springfield, and people rely on their cars more.

In urban areas, transit use becomes closely tied to density because transit stops must be within walking distance to attract users. The ability to reach a bus stop or rideshare lot by walking or bicycling can reduce the need for a car. Springfield should plan for enhanced transit opportunities by encouraging in-fill development and by maintaining the quality of existing neighborhoods.

Safety is also a factor in low-density development. According to an April *1996* study released by the Northwest Environmental Watch, suburbs are more dangerous than inner cities, even when considering violent crimes, because the increased driving in suburbs results in a higher rate of traffic deaths and injuries.




*A dense grid of streets provides many route and mode choices and disperses traffic.*




*Fragmented blocks with many cul-de-sacs result in longer travel distances, concentrate traffic, and encourage car use*

City ordinances relating to maximum and minimum lot size, dwellings per acre, secondary dwellings ("mother-in-law" apartments), street widths and automobile Parking should be designed to maintain sufficient density within the urban area to Dense grid of make walking and bicycling practical.

"Skinny streets" promote higher density, more efficient use of space and appropriate traffic speeds. Many of Springfield's local streets have a *36-ft* or wider pavement width which consumes space, increases development costs, magnifies drainage problems, requires more maintenance, promotes speeding and cut-through driving, and reduces the space for sidewalks and planting strips. A *30-ft* pavement width is well suited to local streets, and widths as narrow as 22 ft have been successfully used in Oregon cities.

## *CONNECTIVITY*

A dense, well-connected street network is crucial for walking and bicycling because it offers a choice of routes and limits out-of-direction travel. In addition, the traffic in a dense, interconnected system of narrow streets is far less hostile to pedestrians and bicyclists than the same amount of traffic in a sparse network of wide collectors and arterials. For example, it is more difficult for a cyclist to cross six lanes of traffic on a single major arterial than it is to cross the same amount of traffic spread out on three two-lane streets.

A grid pattern of streets with short blocks is optimum. This pattern is found in central Springfield and functions well for local travel.

In other parts of the City, the grid pattern is missing. Although street layout is partly due to the highways and rivers, newer development is not well-integrated into the transportation system. With better facilities and connections, people could walk and bicycle within and from these areas. Without facilities, there is little choice but to drive.

The *Model Pedestrian and Bicycle Ordinances* developed by the Oregon Chapter of the American Planning Association contain suggested policies and ordinances to accommodate pedestrians and bicyclists in future development. The City should strive to keep block lengths short (600 ft maximum) so that there are many intersections. This need not be a square grid; for variety or to adjust to topography, T-intersections and short curves can be utilized. Cul-de-sacs and isolated developments should be discouraged or, if approved, should include public easements to connect bikeways and walkways with adjacent development (existing or future).

### *MIXED-USE ZONING*

Another land-use issue that has enormous influence on the choice of walking or bicycling for transportation is the availability of shops, banks, jobs, schools and transit stops within walking or cycling distance.

Studies show that the average person considers maximum walking distance to be around one-half mile and cycling distance to be about 2.5 miles, and that greater distances encourage substituting a car. If new developments are proposed that are located further than one-half mile from most services, then the development should be zoned to include a small commercial area for basic services. This type of mixed-use development can have the added advantage of establishing a neighborhood feeling, which is often missing in newer developments built without such a center.

Several areas of Springfield have a good mix of land development, with employment, stores, schools, and other conveniences placed within walking or bicycling distances of residential areas. However, newer portions of Springfield reflect the automobile-based zoning pattern typically established following World War II, with long blocks, missing sidewalks, and single uses (residential) with lower density.

### *SITE PLANNING*

Large setbacks from the street are a great discouragement to pedestrians and bicyclists, especially when the setback is a parking lot. Parking lots can be a safety hazard, as well. Access is enhanced when public and commercial buildings are oriented to the street, with small or no setbacks where possible, and with car parking located behind the building.

Large stores and malls with large parking lots such as exist on Gateway St., Main St. and other locations are difficult to reach on foot or by bicycle, even though the adjacent streets have sidewalks and bikeways, because there is no clear path to the store entrances. Curbed, lighted pathways should be provided across parking areas. Where customers must cross a car lane, the path should be clearly marked with paint, texture, or both. The path should follow a convenient and logical route to the building's main entrance. Connections to future transit stops should also be considered when planning the pathway.

Bicycle parking should be conveniently located close to the building's main entrance (see *Section 5: Implementation* for bicycle parking needs).

Driveway numbers and widths should be kept to a minimum, especially on arterials and collectors, to improve cyclist safety, to limit sidewalk crossings, and to increase roadway capacity by regulating excessive turning movements. Some blocks on Springfield's major streets (e.g., Main St. and Mohawk Blvd.) have as many as 6 curb cuts on a side, and long sections of curb are over 50% driveway.

### ❖ *Integrating Bikeways into Street Standards*

The application of good bikeway design practices to city streets is a challenge. Although the AASHTO "Green Book" and Oregon transportation standards contain useful guidelines for bikeways, these are only partially expressed in Springfield's local standards.

#### *HOW STREET STANDARDS CAN BE IMPROVED*

Most cities, including Springfield, have street standards that rank the types of streets by function and volume of motor vehicle traffic. A typical arrangement: highway, arterial, collector, and local street. Often there are subcategories, such as major and minor arterials, to further distinguish street type; large cities may have many classifications.

Various street characteristics may be covered in the standards: right-of-way, pavement width, length, access, speed, construction, parking, and the presence of sidewalks and bike lanes. Unfortunately, these standards compromise pedestrian and bicycle needs in key ways:

- The focus on motor vehicle capacity alone to determine street classifications tends to give other needs secondary consideration. Multiple lanes, large intersections, channelization, and other automotive street features are provided as a matter of policy, even when transit, pedestrians and bicycling might be better transportation choices to preserve street function and neighborhood quality. Street classifications should treat non-motorized needs on an equal level.

- *12-ft* lane widths are derived from highway application and are wider than necessary for the lower speeds desirable in urban areas; speeding is a common problem. Narrower lanes, 10 and 11-ft for arterials and collectors and less for local streets, have proven to work well in slowing traffic while maintaining capacity.
- Multiple travel lanes in one direction, 5-lane sections with a center turn lane, and even multiple turn lanes may be specified on arterials, even in cases where traffic volumes do not warrant them. This is expensive, consumes right-of-way, increases crossing distance and the barrier effect, and increases driving by as much as 80% (Kenneth Small, *Urban Transportation Economics,* Harwood, 1992). Street projects that increase capacity should be examined carefully for need and compliance with the Transportation Planning Rule.
- Corner radii designed for large trucks and high-speed operation are inappropriate for most city streets that must serve pedestrians and child bicyclists; a 15-ft radius on collectors and some arterials is reasonable.
- Standards may not reflect current walkway and bikeway guidelines. For example, shared travel lanes on high-traffic streets (such as the reconstructed section of Hayden Bridge Rd.) are not adequate for bicyclists. City and County standards should be updated to incorporate contemporary bikeway designs.
- Roads in semi rural areas within cities are often lacking in basic pedestrian and bicycle facilities, yet there is no intermediate standard with which to provide needed sidewalks, bike lanes or shoulders. Standards should be flexible to allow needed improvements.

> It is the ease *of* access to other people *and* facilities that determines the success *of* a transportation system, rather than the means or speed *of* transport. It is relatively easy to increase the speed at *which* people move *around,* much harder to introduce *changes* that *enable* us to *spend* less time gaining access to the facilities that we

***INTEGRATED PLANNING***

The street standards described above discourage walking and bicycling. There are no easy answers for how to balance the needs of all users. Each project must be evaluated separately. Fortunately, many design practices (e.g., shoulders and pavement repairs) benefit all users and are sound investments. Also, traffic projections should be based on desired outcome rather than assuming a level of traffic and building for it (the Transportation Planning Rule has a goal of reducing vehicle miles traveled).

The project recommendations in Section 6 aim to provide Springfield with the most equitable and cost-effective solutions. For some projects, the city's existing street standards have been modified. Refer to *Section 5: Implementation* for applicable bikeway design principles.

### *Anticipated Use*

The above factors help explain why bicycling, as well as transit and walking, have declined in recent years while automobile miles per capita have increased about three times faster than population.

If current trends continue, Springfield will fail to meet the trip reduction goals of the 1991 Transportation Planning Rule: no increase during first 10 years, a reduction of 10% in 20 years, and a reduction of 20% in 30 years. To meet trip reduction goals, it appears that the City must take more aggressive actions to promote other modes, including bicycling.

Among the alternatives to single-occupant vehicle use, bicycling offers an important advantage. Like travel by personal automobile, bicycle travel offers freedom of scheduling and route choice. This independence is highly valued by Americans and is a principal deterrent to use of ridesharing and transit. Walking offers the same freedom of scheduling, of course, but with a much more limited range.

*Each time a driver makes a trip by bicycle instead of by automobile, not only the cyclist but society as a whole reaps the benefits. One of the greatest ironies of the 20th century is that around the globe, vast amounts of such priceless things as land, petroleum, and clean air have*

Under congested urban circumstances, traveling by bicycle can even be faster than traveling by any other mode, as commuter races in many cities have proven.

Besides flexibility and speed, bicycles also offer affordable, quiet, clean, and healthy transportation. Bicycle use promotes community livability because it takes up little space, is unthreatening, and offers mobility to most residents. Bicycling makes economic sense because it is the most cost-effective personal transportation choice and provides ready accessibility to businesses.

There is much untapped potential for bicycle use. The average vehicle occupancies for home-to-work trips, for shopping trips, and for all household trips, in 1990 were 1.1, 1.7, and 1.6, respectively. This means that at least 90% of home-to-work trips, 30% of shopping trips, and 40% of all household trips were made by single-occupant vehicle. Significant reductions in automobile use are possible if the bikeway system is improved. Further improvements can be expected if land-use policies, subdivision ordinances, and zoning are revised and efforts are made to persuade residents to make trips by bicycling, walking and transit.

Using existing traffic models, it is not possible to predict bicycle use or how many motorists would switch to bicycling if the bicycle system were improved. This is partly because the short distance of most bicycle trips falls outside the range of traffic models, and the complexity of the models would increase to unmanageable proportions if short trips were included. Also, models do not consider critical factors such as land-use, the incentives to use various modes, and the interrelationship of the modes.

Although anticipated use cannot be estimated with certainty, the general measures that must be taken to promote bicycling are known.

Successful programs combine facility improvements, equitable incentives for all modes, and long-term program support.

Comparative data from other cities provide a rough estimate of how increasing levels of bicycle promotion affect ridership. Moderate efforts to improve facilities and awareness, such as have occurred in Corvallis and Eugene, Oregon and Palo Alto, California, result in a bicycle trip share of about 6% to 9% (1990 journey-to-work data). Greater effort, still concentrating on the bicycle system, has achieved numbers up to about 25% (e.g., Davis, California at 22%). In cases where transit use is also heavily supported and automobile use is not favored, bicycle trip share increases to as much as half of all trips (Groningen, The Netherlands).

National surveys suggest the potential of bicycle commuting. For example, a 1990 national poll indicated a tenfold increase was possible if better facilities were available. Federal, state and local policies have all begun to strongly emphasize planning for and encouraging non-motorized options.

The current relatively low bicycle use in Springfield is not so much an indication of preference as of a lack of choices. By enhancing local conditions for cycling, ridership should increase measurably. A reasonable goal for Springfield might be for 10% of all short trips (under 2 miles) be taken by bicycle in 20 years (including trips to school by children and other trips not counted in the Census data) or at least 5% of commute trips as measured by Census journey-to-work data.

However, experience in other cities shows that per capita automobile trips will ultimately increase unless complementary measures are taken to lessen the many incentives that automobiles enjoy (e.g., free parking, excess road capacity, and unrestricted access).

## *Benefits of Bicycling*

The analysis in this section has highlighted several weaknesses-barriers, land use, and street standards-in Springfield's bicycle system and suggested ways to overcome them. What would elimination of these weaknesses gain the city?
A comprehensive, integrated bicycle system as reflected in *Section 5: Implementation* and *Section 6: Projects will:*

- Help connect neighborhoods and regions within the city that are now isolated from one another.
- Improve accessibility to businesses, schools, parks and other important destinations.
- Help preserve neighborhood quality by reducing traffic impacts.

- Help address the transportation needs of those who because of age, income, disability, or choice do not drive and are normally omitted from transportation policy decisions.
- Provide for human-scale facilities (bikeways and pathways) where valuable social interaction as well as transportation can take place.
- Reduce the personal and community costs of transportation.

  Help protect the transportation system from disruption caused by over reliance on one mode.
- Increase the safety, comfort, and behavior of bicyclists and pedestrians.
- Improve the street system for all users through shoulder and intersection improvements.
- Provide a healthy activity through which many residents can improve their long-term fitness.
- Act as a traffic calming feature and help reduce speed.

# Section 4
# GOALS AND POLICIES

## Bicycle Plan Goals and Objectives

Springfield will provide a network of safe, convenient and attractive bikeways as an integral part of the City's transportation system with the objectives to increase bicycle ridership and safety.

The following action items are directed towards meeting the goals and objectives:

1. The street system will be the primary framework for the Springfield bikeway network.
2. Springfield will establish bikeways on all new collector and arterial streets and, in conjunction with resurfacing or reconstruction, all existing collector and arterial streets identified in this plan as needed to accommodate bicycle travel.
3. Springfield will be responsible for planning, constructing and maintaining all on-street bikeways within rights-of-way and specific multi-use paths by agreement.
4. Willamalane Park and Recreation District will be responsible for planning, constructing and maintaining all recreational trails and specific multi-use paths by agreement.
5. East and west Springfield will be connected with a direct bikeway.
6. Springfield will participate with EWEB and Willamalane Park and Recreation District to determine the long-term jurisdiction of the EWEB multi-use path and to help develop agreements for repair, maintenance and operation.
7. Springfield will establish a bicycle travel data collection program by 1998, including biannual counts on all major bikeways.
8. Springfield will implement Springfield Development Code amendments to promote safe, secure and convenient bicycle parking facilities at all public facilities including City Hall, schools and transit facilities.
9. Incorporate the relevant design standards and guidelines of the Springfield Bicycle Plan into the Springfield Development Code, Standard Construction Specifications and maintenance operational procedures of the city.

10. The Springfield Bicycle Committee will promote cycling by directly participating in special events such as the Filbert Festival, Business Bicycle Challenge and school safety programs.

11. Springfield will participate with the City of Eugene to make periodic updates and reprints of the Lane County/Eugene-Springfield area bike map.

12. Springfield will promote bicycle education and safety programs and develop informational resources through the resources and activities of the Springfield Bicycle Committee.

13. The Springfield Bicycle Committee will be the local clearinghouse for bicycle safety information concerning equipment, documents, projects and programs.

## Relevant Policies

All levels of government recognize walking and bicycling as elements of the transportation system and encourage planning for their use. Adopted policies make clear the important role walking and bicycling play in a balanced transportation system.

### ❖ Federal Policies

The Federal government has taken a strong stand in promoting walking and bicycling as alternatives to driving.

***NATIONAL BICYCLING AND WALKING STUDY***

The Federal Highway Administration conducted the National Bicycling and Walking Study to explore various issues and present existing data in a way that local agencies can use. The studies have been published, and the results provide useful insight into the benefits of pedestrian and bicycle transportation and the means required to promote their use.

***ISTEA***

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 requires States to staff a bicycle and pedestrian coordinator, requires metropolitan areas to plan for pedestrians and bicyclists, and makes funds available to the States for a variety of pedestrian and bicycle projects. The Federal highway classification system has been revised and new funding categories developed. The funding aspects of ISTEA are discussed in *Section 5: Implementation*.

### ❖ State Policies

The Oregon Department of Transportation (ODOT) has long led the way in bicycle planning, and has more recently begun to provide leadership for pedestrian planning. ODOT provides cities with clear and strong directions about provisions for pedestrians and bicyclists.

***BICYCLE AND PEDESTRIAN PROGRAM***

Oregon has had a statewide bicycle program for over 20 years that is supported by the 1971 "Oregon Bicycle Law" that mandates necessary gas-tax expenditures on bicycle and pedestrian facilities (refer to *Section 5: Implementation*). The *Oregon Bicycle and Pedestrian Plan* describes how the program "serves the needs of bicyclists within the State by supporting bicycling as a form of transportation and recreation that enhances the livability of Oregon." In 1993, the Bicycle Program became the Bicycle and Pedestrian Program, and the latest version of the State Plan addresses the needs of pedestrians as well as bicyclists.

***TRANSPORTATION PLANNING RULE***

The Oregon Transportation Planning Rule, OAR Chapter 660, Division 12, implements Statewide Planning Goal 12 (Transportation). The rule requires cities and counties to plan for nonautomotive choices, including bicycling and walking, through the following measures:

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

  - Bicycle parking facilities as part of new multifamily residential developments of four units or more, new retail, office and institutional developments, and all transfer stations and park-and-ride lots.

  - Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks and shopping. This shall include:

    1. Sidewalks along urban arterials and collectors.

    2. Bikeways along arterials and major collectors.

    3. Where appropriate, separate bike or pedestrian ways to minimize travel distances within and between the areas and developments listed above.

  - Routes shall be:

    1. Reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage pedestrian or cycle travel for short trips.

    2. Provide a direct route of travel between destinations.

    3. Meet travel needs of bicyclists and pedestrians considering destination and length of trip.

- Local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

The Rule has a goal of no increase in metropolitan (e.g., Eugene-Springfield) vehicle miles of travel (VMT) per capita in the first 10 years, a reduction of 10% in 20 years, and a reduction of 20% in 30 years.

#### *OREGON TRANSPORTATION PLAN*

Oregon has created a 20-year Transportation Plan to meet the requirements of Goal 12 and the ISTEA. The Plan stresses that people must have choices and that transportation systems must support land-use plans. This includes improved circulation systems for bicycles and pedestrians whereby housing, day care, schools, commercial areas and employment can be reached easily and safely. The plan has the goal to double person trips by bicycle and walking.

### ❖ *Local Policies*

The following materials were reviewed while preparing this Plan. Relevant policy statements and information are noted.

#### *GENERAL PLANS*

- *Eugene/Springfield Metropolitan Area General Plan*, 1987 Update, Lane Council of Governments.

The General Plan provides the long-range planning framework for metropolitan Lane County and the cities of Eugene and Springfield. More detailed plans, programs and policies support it, such as the Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan) which contains a bicycle element. The General Plan contains the following bicycle-related findings in its Transportation Element:

1. When compared to scattered urban growth, the compact urban growth form increases opportunities to reduce intraurban trip lengths, to reduce transportation energy consumption, and to promote trips by means other than the automobile.

2. In July 1979, there were nearly 100 miles of bikeways in the metropolitan area. Nevertheless, while some locations are adequately served by bicycle and pedestrian facilities, others are not.

3. The bicycle network is not yet completely interconnected, which inhibits use of that system.

- *Springfield Comprehensive Urbanization Report (Draft)*, Lane Council of Governments, June 1993.

An annexation strategy is presented for the unincorporated area within Springfield’s urban growth boundary. Over 50 mi of roads exist in the unincorporated area, including about 12 mi of arterials and collectors.

- *1995 Park, Recreation, and Open Space Plan*, Willamalane Park and Recreation District, June 1995.

This plan features "recreation corridors" linking areas within Springfield and from the City to nearby park facilities. Goal 12 states:

> "Willamalane shall facilitate cooperative development of a bikeway, pathway, and greenway network that integrates alternative transportation with urban and natural systems and creates an open space network for the community."

Among other things, the Plan notes the need for more east-west pathways and for comprehensive pedestrian and greenway plans in the Springfield urban area.

About 4.5 mi of existing multi-use paths and 15 mi of planned corridors in the Springfield urban growth area are identified. The planned corridors include extensions to the EWEB Trail, a path along Pioneer Parkway, two trails along the McKenzie River, Springfield Millrace, Booth Kelly Road, Dorris Ranch, and a trail along the Willamette River. Other corridors are planned in the county near Springfield.

- *Comprehensive Plan* (partial copy provided), Willamalane Park and Recreation District, 1980.

This recreation plan notes:

> "Springfield's bikeways are the most important series of urban corridors extending recreational experiences and opportunities out away from the area's recreation nodes and integrating them with other functions in the community. Springfield and the Willamalane District are ideally suited for bicycle recreation and transit because of the area's predominantly flat terrain…."

***TRANSPORTATION PLANS***

- *Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan)*, Lane Council of Governments, May 1986.

TransPlan supports the Metropolitan Area General Plan. Many of its policies are tied into promoting bicycle use. It lists urban bikeway needs of regional significance, leaving local links to city bikeway plans and neighborhood refinement plans. In order to encourage bicycle use for utilitarian purposes, direct routes are chosen to minimize travel time and link the most destinations. Most recommended facilities are bike lanes and carry minor price tags. Because construction is generally tied to other events, such as adjacent property development or street improvements, project phasing is not analyzed.

TransPlan identifies 61 new bikeway projects in or partially in Springfield, including 41 bike lanes (about 38 mi), 6 off-street paths (about 8 mi), 13 signed routes, and 1 undetermined.

- *Springfield Capital Improvement Program, 1995-2000*, City of Springfield, February 22, 1995.

· *'96/'00 Capital Improvement Program*, Lane County.

- *Springfield Bikeway Plan*, Springfield Bicycle Committee and the City of Springfield, April 5, 1982.

The Bikeway Plan, which was adopted by the City Council, addresses needs identified in the 1982 Metro Area General Plan. The goal of the Bikeway Plan:

> "Springfield will develop a system of safe, convenient, and attractive bikeways as an integral part of the overall Springfield transportation system by providing adequate support facilities, educational and enforcement services and informational resources."

The Plan stresses annual review and monitoring of progress. The City's general fund was noted as a past source of bikeway construction funds, along with the Highway Fund. Comprehensive route selection criteria focused on urban transportation needs first and recreational routes second. A 3-phase, 22-project bikeway improvement program was recommended. Parking, education and enforcement needs were also discussed. Class I–III bikeway designs (no longer used in Oregon) were combined with 3 levels of service to describe facility designs.

- Springfield Master Bicycle Plan, Goals and Objectives, May 1995.

***OTHER PLANNING DOCUMENTS***

- *East Kelly Butte Neighborhood Plan*, City of Springfield, August 1982.

This Refinement Plan is for a mainly residential area in west Springfield. It strives to “increase bicycle safety in all areas,” and to add bikeways on Mill St., Centennial Blvd., and possibly a path between 2nd St. and 3rd St. This plan predates TransPlan.

- *East Main Refinement Plan*, City of Springfield, April 4, 1988.

This Refinement Plan covers the mixed-use area, including the large Weyerhaeuser operation, between 42nd St. and where OR-126 (Eugene-Springfield Hwy.) splits from Main St. The Access, Circulation & Parking Element notes that “Main St. is both a unifying feature and a barrier.” Problems noted include too many driveways, inadequate bicycle and pedestrian facilities, and high accident rates for all modes. The Plan has the goal to: “Provide safe, efficient, and convenient bicycle facilities, in order to promote the bicycle as an effective means of transportation within the East Main area.” A policy is to “seek development of alternatives to Main St. for bicycle routes.”

- *Gateway Refinement Plan*, City of Springfield, November 1992.

Northwest Springfield is the subject of this Refinement Plan. Because the McKenzie River borders this area, bicycle goals appear in both Transportation and Recreation Elements. A goal is to “Promote bicycling by developing a complete bicycle network.” New facilities are discussed both on-street (Game Farm Rd., Laura St., Baldy View Ln., Deadmond Ferry Rd., and Raleighwood Ave.) and off-street (abandoned railroad corridor, McKenzie River path, Gamebird Park path, and SCS Channel #6 path). A potential ped/bike crossing of I-5 is mentioned. The need to enhance bicyclists’ safety around Guy Lee School (Harlow Rd.) is also highlighted.

- *McKenzie-Gateway Medium Density Residential Site Conceptual Development Plan*, City of Springfield, July 1994.

A residential development adjacent to the McKenzie River in northwest Springfield is described. It requires that bicycle and pedestrian access be provided as part of a well-connected street system or by off-street accessways where necessary, and that existing pathway plans be accommodated. An extension of Pioneer Parkway to Beltline Rd. (both arterials) is shown in a proposed cross-section that includes bike lanes and buffered sidewalks.

- *Mid-Springfield Refinement Plan*, City of Springfield, July 1986 (Amended March 1987).

This Refinement Plan covers a mixed-use area, including substantial industrial uses, between 28th St. and 42nd St. south of OR-126 (Eugene-Springfield Hwy.). The Plan notes that the "area lacks bicycle path access to Downtown and to the regional bikeway system." A goal is: "Promote walking and bicycling through the construction of sidewalks and bicycle paths in accordance with TransPlan."

- *Q Street Refinement Plan*, City of Springfield, March 1987.

This Refinement Plan encompasses a mainly residential area bounded by Pioneer Parkway, Hayden Bridge Rd., 19th St., and OR-126 (Eugene-Springfield Hwy.). New bikeways are designated for Hayden Bridge Rd. (5th St. to 19th St.) and for 19th St. Continued development of the EWEB path is planned, as are reductions in vehicular access points along the major streets. Pioneer Plaza was constructed after this plan.

- *Springfield Development Code*, City of Springfield, August 1994.

Section 2.020, *Meaning of Specific Words and Terms*, defines bicycle terms:

> *Bicycle Space.* A space for one standard bicycle within a lighted and secure bicycle rack, placed in a paved area.
>
> *Bike Lane.* A lane on a public street that is designated and marked for the exclusive use of bicycle traffic.
>
> *Bike Path.* A two-way facility that is physically separated from streets and highways and primarily intended for bicycle travel. *(Note: this is an obsolete term that has been replaced by multi-use path in the* Oregon Bicycle and Pedestrian Plan.*)*
>
> *Bike Way.* Any trail, path or part of, a highway, shoulder, sidewalk, or any other travelway specifically signed and/or marked for bicycle travel.

Section 31.200, *Site Plan Review - Parking Area Improvement Standards*, specifies bicycle parking to be applied during the building permit review process, or when there is a change of use, including an internal alteration of a building, which does not require a building permit:

(9) At least one secured bicycle rack of an approved design that will hold a minimum of 3 bicycles shall be provided for each parking lot. Parking lots having more than 15 parking spaces shall be required to have one additional secured bicycle space for each additional 15 automobile spaces or fraction thereof. Bicycle parking areas shall be visible and accessible. However, these

areas shall not be located within parking aisles, planting areas, or pedestrian ways.

Section 32.020, Streets - Public, specifies street standards and classifications. Widths are as follows:

| Street Type | Right-of-Way, ft | Curb-to-Curb, ft |
|---|---|---|
| Major Arterial | 100 | 76 |
| Minor Arterial | 70 | 48 |
| Collector | 70 | 36 |
| Local, <15% slope | 50 | 36 |
| Local, ≥15% slope | 40 | 28 |

The cross-section for collectors and minor arterials also specifies 6-ft bike lanes and 5-ft sidewalks (buffered by a 4.5-ft planting strip). Minor arterials have a center turn lane, and collectors have a center turn lane if there are multiple access points.

Section 32.040, *Sidewalk and Planter Strip Standards*, specifies sidewalks and accessways, e.g.:

(1)(c) To provide safe, convenient and direct access for pedestrians and bicyclists to adjacent residential areas; transit stops; neighborhood activity centers, including schools, parks, shopping centers, and other commercial and industrial areas; or where required by adopted plans. The Director shall require the dedication and improvement of accessways to connect to cul-de-sacs, or to pass through blocks. Public accessways shall be 20 feet wide with a 10 foot paving width and planter strips of 4.5 feet….

Section 32.090, *Bikeway and Pedestrian Trails*, discusses both on and off-street facilities:

(1) Developments abutting existing or proposed bikeways identified in the TransPlan shall include provisions for the future extension of these facilities through the dedication of easements or rights-of-way. The developer shall bear the cost of bikeway improvements except when other property owners are benefitted, other equitable means of cost distribution may be approved by the City. Minimum width for striped on-street bike lanes shall be 5 feet. Independent bike paths shall have a minimum width of 12 feet for two-way traffic.

(2) Developments abutting existing or proposed pedestrian trails identified on the adopted Willamalane Park and Recreation District Comprehensive Plan shall provide for the future expansion of such pedestrian trails through the dedication of easements or right-of-way….

***REPORTS***

- *City of Springfield Road Classification Listings*, October 27, 1994.
- *City of Springfield Street Names Master List*, February 10, 1994.
- *1990–1995 Bicycle Accident Report*, June 27, 1995.
- *ADT Traffic Count Report*, April 25, 1995.

***MAPS***

- *Eugene/Springfield Bikeways Map*, City of Eugene, City of Springfield and Lane County, August 1994.

The map shows about 18 mi of bike lanes and 7 mi of multi-use paths in Springfield (although 2 mi of path are actually sidewalks).

- *Eugene-Springfield, Oregon—Streets, Bike Routes, and Points of Interest and Southern Willamette Valley—Roads and Recreation*, Imus Geographics, Eugene, 1992.

The map shows about 12 mi of bike lanes and 4.5 mi of multi-use paths in Springfield.

- Springfield "Smith Map" base, 1":1000' and 1":500', City of Springfield, June 1995.

***COMMUNITY PROFILES***

- *Springfield Chamber of Commerce Membership Directory*, 1995.
- *Springfield Community Environmental Scan*, Lane Council of Governments, August 1991.
- *Springfield/Eugene Community Profile*, Eugene/Springfield Metropolitan Partnership, Inc., March 1993. B

# Section 5
# IMPLEMENTATION

Effective implementation of the Bicycle Plan hinges on the support of the community and the local government. The Bicycle Plan should be flexible enough to respond to changing conditions and funding opportunities. Funding will play a large role in the acceptance of the Plan, as will a systematic approach to improving bicycling conditions. A set of priorities is recommended that rely heavily on integrating bicycle facility construction into normal road construction and maintenance. The recognized ingredients of successful programs are also examined, followed by a discussion of typical costs and funding options. To complete the program, facility standards and promotion techniques are discussed.

## *Priorities for System Implementation*

Success of a bicycle system depends on following through with the actions necessary to implement the plan. Priorities to ensure success should be:

- Adopt the goals and policies of this Plan.
- Coordinate efforts between agencies (city, county, state, park). This is necessary to ensure progress in implementing the Plan.
- Develop dependable funding sources and actively seek additional sources. If necessary, redirect road budget to bikeways.
- Adopt implementing ordinances, codes and standards necessary to carry out the Plan. The ultimate effectiveness of the Plan hinges on this step.
- Promote efficient land use through planning that places more destinations close together, connects them with direct bikeways and walkways, and makes them accessible to bicyclists and pedestrians.
- Adopt transportation standards and traffic modeling that consider bicycling needs. If necessary, accept lower vehicle capacity.
- Maintain public awareness and support of the Plan. Public relations and education about the Plan's objectives are essential to continued success. Enforcement also promotes awareness and safety.
- Work with the Oregon Department of Transportation to improve nonmotorized access in the highways corridors.

- Schedule the projects described in Section 6 in the City or County Capital Improvement Program, or in the State Transportation Improvement Program, as appropriate to the project.
- Establish regular maintenance programs for all bikeways and related facilities.
- Review project scheduling and implementation annually to keep priority projects on top of the list, delete completed projects, and add or revise projects to keep up with changes in demographics, land-use patterns and the transportation system.

## *Program Support*

Successful bicycle programs have several characteristics in common: a coordinator on planning or public works staff, an advisory committee, public and government backing, and clear agency responsibilities.

### ❖ *Bicycle and Pedestrian Coordinator*

The Coordinator's primary responsibility is to maintain a strong and active pedestrian and bicycle program. Even the best of plans need a knowledgeable staff person to oversee implementation and see to it that projects are completed. The Coordinator also acts as a spokesperson for pedestrian and bicycling matters. The Federal government recognized these needs in the 1991 Transportation Act when it required States to staff a Coordinator.

A staff member within the City is assigned the task of Bicycle Coordinator as 10% of their time. Considering the Springfield area's size, duties should be at least 25% of the person's time and should include pedestrian coordination. It will be difficult to implement the program with less support.

### ❖ *Bicycle Advisory Committee*

As discussed in Section 1, the Springfield area has an advisory committee, which played a strong role in the development of this Plan. The Springfield Bicycle Committee should help coordinate Plan implementation and foster cooperation in the community. They can also advise City staff, participate in agency work sessions, and educate the public in pedestrian and bicycle issues.

### ❖ *Public and Government Backing*

The ultimate success of a bicycle program depends on how it is received by the public and their government officials. Without public involvement, there is a much lesser chance that the officials will choose to follow through with bicycle programs. Without government support, even popular programs can falter. Strong community support for bicycling is achievable with a focused organization, the ability to set and follow through with long-term goals, and the proper political timing.

There are many things that citizens, clubs, employers, the Chamber of Commerce, and the area can do to garner support and increase bicycling. Sponsoring events such as noncompetitive rides and bike-to-work days have proven effective in introducing people to bicycling and helping overcome the psychological barriers. Foremost is the creation of safe places to ride, which is what most of this Plan is about. Facilities must be promoted with education and encouragement programs that can be carried out by the public and private sectors alike.

### ❖ *Agency Responsibilities*

Many agencies are involved in the Springfield area's bikeway system:

*…citizens in many nations are beginning to see that the costs of automobile dependence are already outweiging the benefits. If cities are to achieve the dream of clean, efficient, reliable transportation once promised by the automobile, they will have to steer instead toward sustainable alternatives.*

*– Marcia Lowe, Worldwatch Institute*

- *City of Springfield* is the lead agency for this plan. The City is responsible for planning and development within its urban growth boundary (UGB) via an urban transition agreement with Lane County. City-maintained bikeways include on-street facilities and certain multi-use paths.

- *City of Eugene* is a neighboring city and part of the metropolitan planning organization (MPO) of which Springfield is a part. Regional bikeway planning is administered through the transportation system plan (TransPlan) for the Eugene-Springfield MPO.

- *Lane County* is responsible for facilities outside the UGB and non-city areas within the UGB via an urban transition agreement with Springfield. County construction projects within the UGB conform to the plans and standards of the City.

- *Oregon Department of Transportation* (ODOT) is responsible for state facilities such as Hwy 126 and Hwy 126 Business. ODOT also participates in the MPO transportation system plan.

- *Willamalane Park & Recreation District* is the park and recreation provider within Springfield's UGB. Designated recreational trails and multi-use paths are the sole jurisdiction and responsibility of the District; they are not required to be constructed to City standards and are not maintained by the City.

- *Springfield School District* is responsible for bicycle access and parking on its property, and the district participates in transportation planning by evaluating and establishing safe travel corridors to schools.

Cooperation among these agencies is essential for a successful bicycle program. Bikeways should be consistent over the urban area whatever the responsible agency. A bikeway that suddenly ends, has gaps, or has not been maintained frustrates bicyclists, creates safety problems, and discourages use. Springfield should take the lead in identifying implementation issues and coordinating solutions. Where it is cost-effective, agencies and private organizations should pool resources to construct and maintain bikeways.

## *Typical Costs*

### ❖ *Facility Costs*

Estimated costs for typical bicycle facilities built today in Oregon are given in Table 5-1. These figures include engineering, installation, minor contingencies, striping and signing. They do not include administration, special grading and fill operations, unusual construction (e.g., bridges and tunnels) or land acquisition, all of which can contribute to the final price and can vary greatly.

Separated, multi-use paths tend to cost much more than indicated because of special design considerations (bridges, intersections, fences, drainage, etc.) not usually encountered on projects within the right-of-way.

Bicycle projects are markedly cheaper than automotive projects because bicycles are smaller, lighter, and travel at a lower speed. For example, construction costs for a new four-lane urban arterial may run about two million dollars per mile, with the area used for bike lanes representing only about 10%. On-road bikeways also benefit other users—the space is used by turning vehicles, for safety (crash avoidance), as emergency parking, and as a buffer for pedestrians.

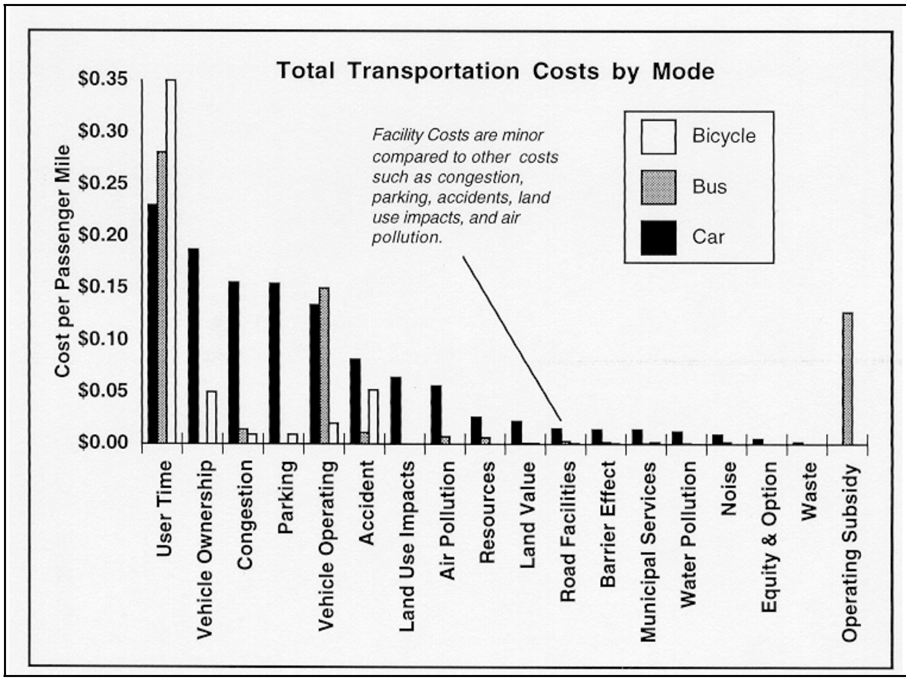
**Table 5-1. Typical Facility Unit Costs**

| Facility | Description | Cost |
|---|---|---|
| Striping | 8-in. stripe on clean surface | $0.40/linear ft |
| Stencil | Bike symbol after every intersection | $30 each |
| Sign | Typical sign | $100 each |
| Traffic signal | 4-legged intersection | $130,000/intersection |
| Pedestrian signal | Crosswalk | $2500/unit |
| Pedestrian/ bicycle bridge | 10-ft wide | $560/linear ft |
| Sidewalk | 6-ft wide (4-in concrete/2-in aggregate) without curb | $30/linear ft |
| Curb | 12-in high | $5/linear ft |
| Curb cut | Cut and ramp per ADA | $450/unit |
| Curb extension | 15-ft radius with 2 ramps | $2500/unit |
| Sweeping | Once a month at 5 mph | $40/hr |
| Repair | 10-ft wide path, seal every 5 years | $0.70/linear ft |
| Repair | 10-ft wide path, resurface every 10 years | $5/linear ft |
| Shoulder | 4-ft wide on both sides to highway standards (4-in asphalt/9-in aggregate) with 4-in stripe | $24/linear ft |
| Bike lane | 5-ft wide on both sides to highway standards (4-in asphalt/9-in aggregate) with curbs and 8-in stripe | $45/linear ft |
| Multi-use path | 10-ft wide (2-in asphalt/4-in aggregate) with clearing and preparation, no fences | $16/linear ft (see note) |
| Multi-use path | 10-ft wide (3-in asphalt/6-in aggregate) with clearing and preparation, no fences | $22/linear ft (see note) |
| Multi-use path | 12-ft wide (3-in asphalt/6-in aggregate) with clearing and preparation, no fences | $28/linear ft (see note) |
| Multi-use path | 10-ft wide (4-in concrete/3-in aggregate) with clearing and preparation, no fences | $55/linear ft (see note) |
| Parking | Short-term | $50/bike |
| Parking | Long-term and sheltered for 10 bikes | $300/bike |

Note: Cost does not include special engineering problems such as steep grades, retaining walls and drainage that increase costs. Because these design features are usually present, costs for paths are frequently 3 to 4 times the amount given here. Land acquisition not included.

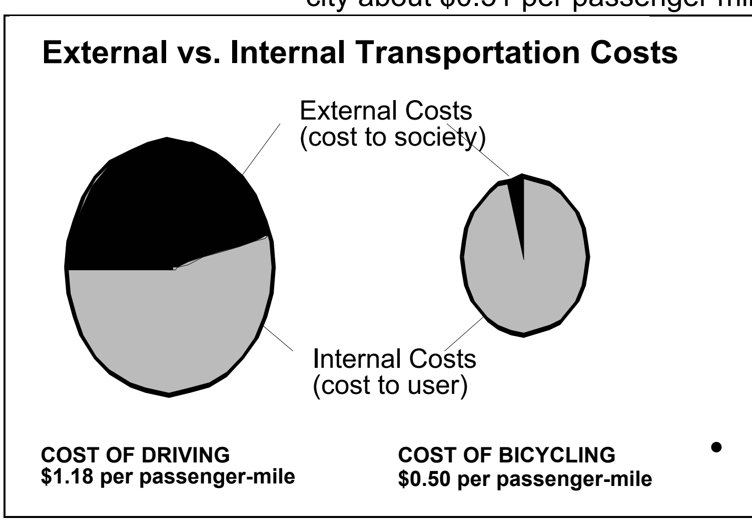
### ❖ *Non-Facility Costs*

Facility costs (road construction and maintenance, land acquisition, financing expenses, and roadway support facilities, such as maintenance yards) represent a small fraction of transportation costs, about 2% (reference Litman, Transportation Cost Analysis). Decisions made about transportation policies and projects often omit the much larger costs borne by the community (called external costs) such as congestion, about half of parking and accidents, land use impacts, and air pollution.




Many people assume incorrectly that fuel taxes and vehicle fees pay all roadway facility costs. If this was true, the city could be indifferent to increases in traffic because increased user revenues would offset costs, but in practice roadway costs exceed revenues so that the city must either endure increased traffic congestion or subsidize roadway construction.

When comparing the cost of bicycling to driving, it is particularly important to include the external costs, because they are low for bicycling (4% of total cost during peak periods) and high for driving (45%). External costs, because they are imposed on other individuals or the community at large, tend to have little affect on individual's travel decisions and so encourage inefficient travel. Shifting trips from driving to bicycling can save the city about $0.51 per passenger mile during peak periods in external costs plus about $0.17 in internal costs (Litman).




The above figures can be used to provide an estimate of the savings a complete bicycle system provides the community during peak commute periods. Although commute trips represent only one in five trips, most congestion occurs during commute hours (7-9 A.M. and 4-6 P.M.) and this is what road expansion primarily addresses.

Using the following conservative estimates:

- 6% bicycle use for commute trips (up 5% from the present 1% if the entire bicycle system was implemented),
- round -trip commutes averaging 5 miles (a reasonable bicycling distance),
- 20,000 total workers (1990 census data), and

> *Can anybody remember when the times were not hard and money was not scarce?*
> – Ralph Waldo Emerson

- 250 working days per year,

the bicycle system can be expected to reduce automobile commuting by about 1,250,000 miles per year (20,000 X 5% X 5 mi X 250 days). The bicycle system would save $637,500 for the community and $212,500 for the users. So long as the system costs less than $850,000 per year, it can be deemed cost-effective. This does not include other benefits from non-work trips, enhanced community livability, and improved personal health.

Looked at another way, every 1% of bicycle use instead of automobiles on a one-mile street with 10,000 vehicles/day saves $22,265 per year (at $0.61 per vehicle mile average) when all costs are included. The cost implications of not providing appropriate bicycle facilities can be significant.

### Funding

*Bicycle facilities and programs can be funded through a broad combination of local, state, federal and private sources:*

- Local: road construction and maintenance budget, the general fund, system development charges, and joint projects with utilites and other agencies.
- State: highway projects, Bicycle and Pedestrian Fund distribution, matching Local Assistance Grants, and support from other agencies.
- Federal: surface transportation, maintenance and air quality programs.
- Other: donations, grants, development costs, and miscellaneous.

As with any transportation facility, it is to Springfield's advantage to develop a consistent funding source for critical projects and maintenance, and to actively seek additional sources for the remaining projects. Available money should be leveraged to the greatest extent possible by using it for matching grants and joint projects.

#### ❖ Local Government Funding

Bike lanes and shoulder bikeways, which make up the majority of the bikeway systems, are usually placed within the standard roadway width and so add minor cost to the road department's budget. As new arterials and collectors are constructed or old ones are reconstructed to current standards, bikeways are incorporated into the project designs.

Bike lanes can often be incorporated into existing roads at minimal cost during periodic re-striping. In this way, a bikeway system can develop incrementally over time in step with the road system. To speed the process, some communities earmark up to 10% of their street construction budget for pedestrian and bicycle projects.

In private developments, pedestrian and bicycle facilities are made a condition of approval, just as are the roads and parking lots. In some cases, System Development Charges (SDCs) or transportation impact fees can be imposed. If the impact of a development on adjacent streets is not immediate, the developer may participate in future improvements through a Local Improvement District (LID).

When a bicycle project steps beyond the normal road standards, other local government funding may be needed. Examples of expenses outside the normal road budget are construction of a separated path or building a bikeway to higher standards than required. Parks, recreation, tourism, transit, and planning departments are often supporters of such projects and may have funds available. The area's general fund can be tapped for special projects. Also, bond levies are used by some municipalities to finance projects.

In all bikeway construction projects, it is important to coordinate with other road work so as to keep expenses— administration, material unit costs, mobilization, traffic control—to a minimum by sharing them with larger road projects. For example, shoulder widening to accommodate pedestrians and bicycles in a rural area might be prohibitively expensive unless done at the same time as a scheduled pavement overlay; this can reduce shoulder costs by as much as half.

### *State Funding*

The principle State funding resource for bikeway projects is the State Highway Fund that is gathered from weight-mile taxes, fuel taxes, licensing and registration fees, and truck load violations. These moneys can only be spent on bikeway or walkway construction projects within a publicly owned road or highway right-of-way. Eligible expenditures include administration, development, construction, and maintenance of bicycle and pedestrian facilities within the road right-of-way.

By law (ORS 366.514), a reasonable amount of the ODOT moneys must be used for qualifying bicycle and pedestrian expenditures. According to ODOT, reasonable amounts relate to the need for bikeways and walkways; when there is a need, the governing jurisdiction must expend the funds necessary to construct the appropriate facilities.

The majority of the State funds are used by communities for pedestrian and bicycle program administration and engineering efforts, or as leverage to obtain matching grant funds. When used for construction projects, the funds should only be directed towards those expenses that exceed what would be routinely included. For example, simply providing basic road space for bicyclists as part of new construction is routine, but retrofitting lanes on a street, developing feeder routes and adding grade-separated crossings is beyond ordinary and qualify as legitimate bicycle expenses.

The Oregon Bicycle and Pedestrian Program Office allocates funds and assists municipalities in developing and implementing pedestrian and bicycle plans. It identifies worthy projects and reviews state highway construction plans to ensure that proper facilities are incorporated. A portion of the funds is distributed to the cities and counties by two means:

- An annual sum proportional to population. Springfield received $20,808 in FY 1994 and $136,947 from FY 1985–94. Because the allocation in any given year may be too low to be useful, this money can be accumulated in a special reserve fund for up to ten years.

- Local assistance grants that are awarded annually to selected applications. Applications must be submitted annually by September 1 and grants are awarded later in the year. Proposed construction projects are reviewed in the field and rated according to criteria developed by the Oregon Bicycle and Pedestrian Advisory Committee. The priorities established for Springfield's projects are based on these criteria.

Walkways and bikeways may also be funded as projects on State right-of-ways:

- The construction of walkways and bikeways associated with new, reconstructed or relocated highways. The cost is typically a small fraction of the overall project.

- Independent walkway and bikeway projects such as multi-use paths and shoulder widening for bikes. Improvements to State routes are eligible. Requests for this funding must come from the Regional ODOT office to the Bicycle and Pedestrian Program Office. It is appropriate for the municipalities within the ODOT region to request walkway and bikeway projects from ODOT.

Walkway and bikeway projects are included in the State's 6-Year Transportation Improvement Program. Proposed projects are submitted to the DOT Region Engineer who evaluates the proposal and considers it for inclusion in the next preliminary 6-Year Program.

The Oregon Traffic Safety Division helps fund educational and safety programs such as Portland's Community Traffic Safety Initiative and the State-sponsored Smart Cycling courses. Other potential State funding sources for community infrastructure improvements, including walkways and bikeways, are the Oregon Community Development Block Grant Program and the Oregon Special Works Fund.

### ❖ *Federal Funding*

The National Transportation Policy is to promote the increased use of walking and bicycling, to accommodate bicycle and pedestrian needs in designing transportation facilities for urban and suburban areas, and to increase pedestrian safety. Federal-aid money is available for pedestrian and bicycle facilities as part of a normal federal-aid highway construction project at the same financial match ratio as the other highway work.

Walkway and bikeway projects independent of other construction projects, as well as nonconstruction projects related to pedestrian and bicycle use, can be funded with an 80% federal share as provided in 23 USC, Section 217. Such projects must be principally for transportation rather than recreation, however.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 authorized expenditures of $151 billion over 6 years and opened up new funding opportunities for pedestrian and bicycle projects. Reauthorization of ISTEA may bring similar benefits.

In addition, Land and Water Conservation Fund (Public Law 88-578) money is available for the acquisition of lands and waters or for the development of public outdoor recreational facilities.

Lastly, if roadway conditions create an immediate hazard for pedestrian and bicycle travel, federal safety program funds can be used, including Hazard Elimination Program funds.

### ❖ *Other Funding*

Bicycle facilities and programs are a community investment shared by all sectors—private, business and government. Each can contribute in many ways, including land dedications, donations of engineering and public relations talent, special grants, sponsorship of fund-raising events, and so on. Developers can also choose to include extra bikeway projects, beyond what is required, in their project designs. Businesses can voluntarily construct showers and offer incentives for their employees. These sources should be actively sought and nurtured.

For example, a creative use of funding is the City of Myrtle Point's relationship with the high school which provides low-cost sidewalk repair in exchange for students' on-the-job training.

There are other inventive means for obtaining materials, funds or right-of-ways. Some methods that have been used in other cities include:

- Environmental impact mitigation.
- Street vacation moneys.

- Enforcement of franchise agreements for railroad crossings.
- Utility tax for public works

- Utility easements.
- Tax-deductible gifts in the form of signs, equipment and trail segments.

## *Facility Standards*

Although bicyclists share many goals with pedestrians and motorists, they have special needs on busy roads, at complex intersections, and at the end points of their trip. This section is divided into bikeways, shared facilities (called multi-use paths) and supplementary facilities (parking, showers, etc.).

### ❖ *Oregon Standards*

Bikeway standards are basic guidelines used for design, construction, signing and striping. The Oregon Bicycle and Pedestrian Program has developed standards, based on over two decades of experience, for the wide range of urban and rural applications in the state.

**Table 5-2 Bikeway Types**

| Bikeway Type | Description | Application | Width |
|---|---|---|---|
| *Shared Roadway* | Bicyclists share the normal vehicle lanes with motorists | City residential streets and low-traffic rural roads | 14-ft desirable<br>12-ft min.<br>15-ft max. |
| *Shoulder Bikeway* | Smooth, paved shoulder with 4-in.stripe | Highways and minor arterials and collectors | 6-ft desirable<br>4-ft min. un curbed<br>5-ft min.curbed |
| *Bike Lane* | Preferential lane on roadway with 8-in.stripe, signs and pavement markings | Arterials and collectors as well as other high-volume routes | 6-ft desirable<br>4-ft min. uncurbed<br>5-ft min. curbed |
| *Multi-Use Path* | Separated from roadway by open space or barriers and closed to motorized traffic | Along busy highways, through roadless corridors, and in urban areas with extensive traffic control | Normally two-way<br>12-ft desirable<br>10-ft min.<br>8-ft if low use<br>5-ft min. one-way |

The *Oregon Bicycle and Pedestrian Plan* covers the types of bikeways and their applications (summarized in Table 5-2). It discusses design considerations, examples of good and bad practices, a glossary of terms, and guidelines for separated multi-use paths, retrofit bike lanes, shoulder widening, interchange areas, maintenance activities, and exceptions to AASHTO standards. It is a voluable reference source for planners, engineers and maintenance personnal.

## ❖ *Design Practices*

To varying extent, bicycles will be ridden on all roads where they are permitted. All new roads, except for some freeways where bicyclists may be legally prohibited, should be designed and constructed under the assumption that they will be used by bicyclists. Bicycle-safe design practices, as described here, should be followed to avoid the necessity for costly retrofitting. Refer to the *Oregon Bicycle and Pedestrian Plan* for more information, roadway cross-sections, and typical pavement markings (see also Plate 5).

Roadways that were not designed with bicycle travel in mind can be improved to more safely accommodate bicycle traffic and, at the same time, to improve overall road function for all users. Roadway conditions should be examined and, where necessary, safe drainage grates and railroad crossings, smooth pavements, clear sight distance, and signals responsive to bicycles should be provided. In addition, adding bicycle lanes, shoulder improvements and wide curb lanes should be considered.

The following items summarize particular aspects of bikeways that merit special attention.

### *WIDE CURB LANES*

On highway sections without bicycle lanes, a right lane wider than 12 ft can better accommodate both bicycles and motor vehicles in the same lane. In many cases where there is a wide curb lane, motorists will not need to change lanes to pass a bicyclist.

Wide curb lanes also provide more maneuvering room when drivers are exiting from driveways or in areas with limited sight distance. In general, a lane width of 14 ft of usable pavement width is desired for a wide curb lane. Usable pavement width would normally be from curb face to lane stripe, or from edge line to lane stripe, but adjustments need to be made for drainage grates, parking, and longitudinal ridges near the gutter.

Widths greater than 14 ft can encourage the undesirable operation of two motor vehicles in one lane, especially in urban areas. Consider striping bicycle lanes when wider widths exist and ADTs are greater than 2,000 (refer to Table 5-3).

**Table 5-3.**

| *Traffic Volume* | *Average Daily Traffic* | *Appropriate Bikeway* |
|---|---|---|
| *Light* | *Less than 2,000* | *Shared roadway or shoulder bikeway* |
| *Medium* | *2,000-5,000* | *Shoulder bikeway or Consider bike lane* |
| *Heavy* | *5,000-10,000* | *Bike lane* |
| *Very heavy* | *More than 10,000* | *Bike lane* |

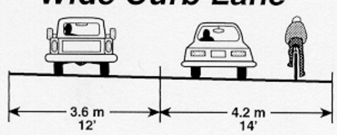
**PLATE 5**

# Design Practices

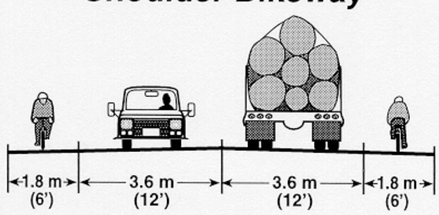
*Source: Oregon Bicycle and Pedestrian Plan*

## Shared Roadway

## Wide Curb Lane

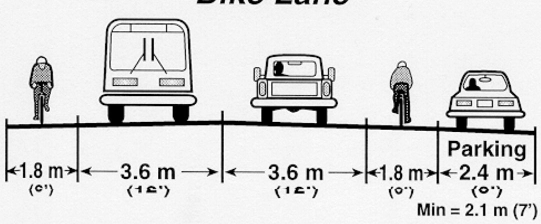



## Shoulder Bikeway



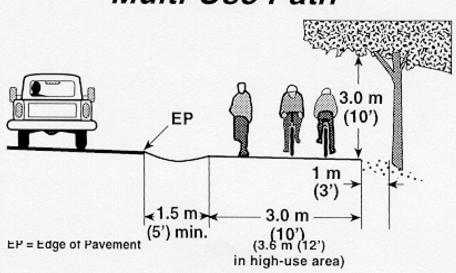

Min: 3.5 m (5') against curb, parking or guardrail, 1.2 m (4') open shoulder

## Bike Lane

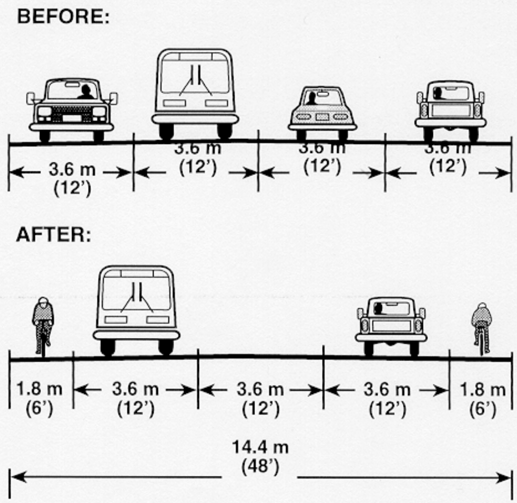



Min: 1.5 m (5') against curb, parking or guardrail; 1.2 m (4') open shoulder

## Multi-Use Path




## One Way to Retrofit Bike Lanes




## Bike lane marking at right-turn lane

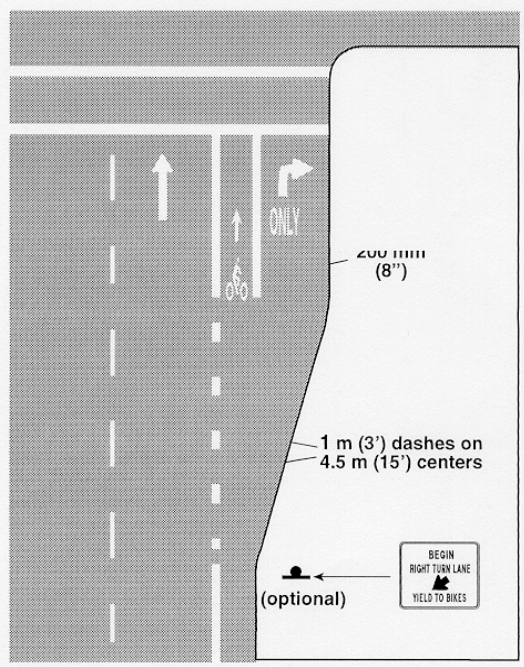
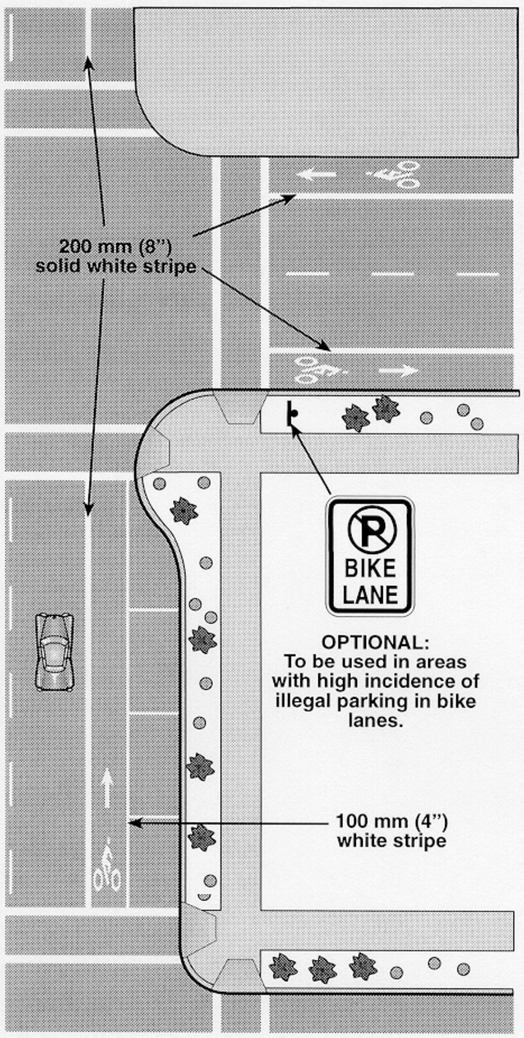


**PLATE 5 (cont'd)**

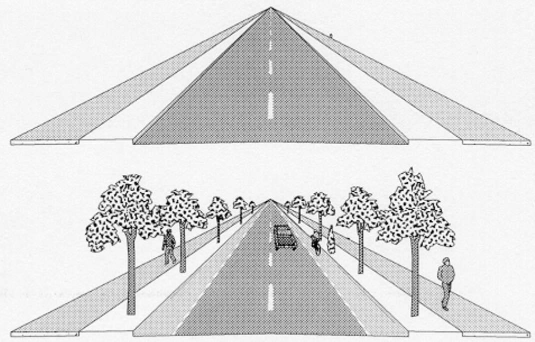
# Design Practices

*Source: Oregon Bicycle and Pedestrian Plan*

## *Bike Lane Striping and Signing*



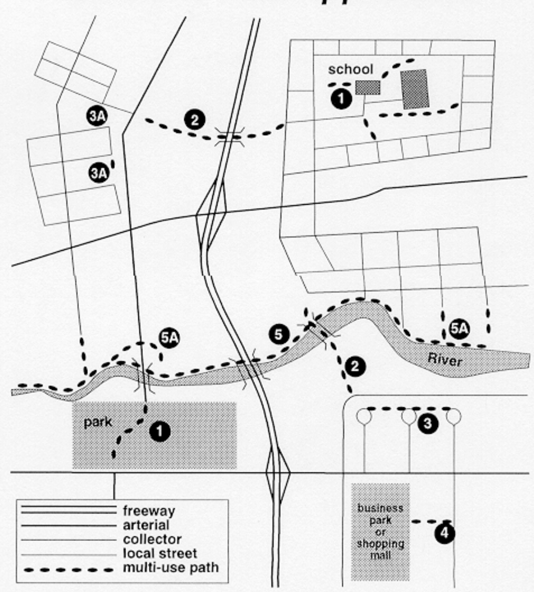

## *Traffic Calming*



Reducing traffic speed to urban limits is an important aspect of roadway design. Motorists typically drive at a speed they perceive as safe which is based on road design, especially width. One of the simplest and most effective techniques to reduce speed is to create the illusion of less width by coloring the bike lane (or using a different surface) and planting trees in a buffer strip.

## *Multi-Use Path Application*

Paths separated from the roadway can enhance bicycle mobility and access if carefully designed to take advantage of shortcuts, bridge gaps, and reduce conflicts with motor vehicles. Connections to the street system and popular destinations are critical. ▶




(1) Short cut-through of park or as access to school, etc.
(2) Bridge obstacles such as freeways, creeks, etc.
(3) Connect cul-de-sacs and dead-end streets, or as shortcuts (3A).
(4) Connect residential areas to business areas.
(5) Along a river, abandoned right-of-way or other natural corridor, with links to street system (5A).

### *SHOULDERS*

Adding or improving shoulders can often be the best way to accommodate bicyclists in rural areas. Smooth paved shoulder surfaces must be provided. Pavement edge lines supplement surface texture in delineating the shoulder from the motor vehicle lanes. If improperly designed, rumble strips can be a deterrent to bicycling on shoulders.

Shoulder width should be a minimum of 4 ft when intended to accommodate bicycle travel. Roads with shoulders less than 4 ft wide are considered shared roadways. Additional width is desirable if motor vehicle speeds exceed 35 mph, if the percentage of trucks, buses, and recreational vehicles is high, or if static obstructions exist at the right side.

Shoulders also provide many other benefits:

- • Space for motor vehicles to:
- avoid running off the roadway in poor weather,
- avoid crashes,
- park in emergencies, and
- pull over for right turns, looking at a map, etc.
- Improved sight distance.
- Increased vehicle capacity
- Fewer crashes.
- Lateral clearance for signs and guardrails.
- Space for maintenance operations.
- Increased pavement life due to:
- better storm water discharge and less seepage into the pavement,
- structural support, and
- less debris thrown onto travel lanes from vehicle wheels.

Where funding is limited, adding or improving shoulders on uphill sections first will give slow moving bicyclists needed maneuvering space and decrease conflicts with faster moving motor vehicle traffic.

### *BIKE LANES*

Bike lanes separated by a stripe are appropriate to delineate road space for bicyclists and motorists, and to encourage more predictable movements by each. Bicycle lane markings can increase a bicyclist's confidence that motorists will not stray into their path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right, thereby improving overall traffic flow.

Normal bike lane width is 6 ft. A width as narrow as 4 ft is acceptable on uncurbed roadways, and 5 ft can be used on curbed roadways or next to parking. An 8-in white stripe is used with pavement markings (see stencil at left). Raised pavement markings and raised barriers can cause steering difficulties for bicyclists and should not be used to delineate bicycle lanes.

Bicycle lanes should always be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic. Two-way bicycle lanes on one side of the roadway are unacceptable because they promote riding against the flow of motor vehicle traffic. Wrong-way riding is a major cause of bicycle crashes and violates the Rules of the Road stated in the Uniform Vehicle Code.

Bicycle lanes on one-way streets should be on the right side of the street, except in areas where a bicycle lane on the left will decrease the number of conflicts (e.g., those caused by heavy bus traffic, awkward intersections, etc.).

Bicycle lanes should always be placed between the parking lane and the motor vehicle lanes. Bicycle lanes between the curb and the parking lane create hazards for bicyclists from opening car doors and poor visibility at intersections and driveways, and they prohibit bicyclists from making left turns; therefore this placement should never be considered.

Where parking is permitted but a parking lane is not provided, the combination lane, intended for both motor vehicle parking and bicycle use, should be 14 ft wide. However, because it is likely the combination lane will be used as an additional motor vehicle lane, it is preferable to designate separate parking and bicycle lanes.

Angled vehicular parking should be avoided in combination with bicycle lanes. The backing up of vehicles and poor visibility until a vehicle is partially backed out promotes collisions with bicyclists.

Bicyclists do not generally ride near a curb because of the possibility of debris, hitting a pedal on the curb, an uneven longitudinal joint, or a steeper cross-slope. If the longitudinal joint between the gutter pan and the roadway surface is uneven, a minimum of 4 ft should be provided between the joint and the motor vehicle lanes.

For a highway without a curb or gutter, bicycle lanes should be located between the motor vehicle lanes and the roadway shoulders. Bicycle lanes may have a minimum width of 4 ft where the shoulder provides additional maneuvering width. A width of 5 ft or greater is preferable; additional widths are desirable where substantial truck traffic is present, where prevailing winds are a factor, on grades, or where motor vehicle speeds exceed 35 mph.

Adequate pavement surface, bicycle-safe grate inlets, safe railroad crossings, and traffic signals responsive to bicycles should be provided on all roadways-but especially where bicycle lanes are designated.

On-street bike lanes have proven to be among the safest of facilities when built to standard. The cities with the highest ridership also tend to have extensive bike lane systems. The perception of danger due to the proximity of motorized traffic is unsupported by crash statistics. Bike lanes offer the most direct route to most destinations.

### *INTERSECTIONS*

For bicycle lanes to work properly at intersections, both bicycles and motor vehicles must be provided with clear paths through the intersection and for turns according to established Rules of the Road. Bicyclists proceeding straight through and motorists turning right must cross paths. Where there is a dedicated right-turn lane, it is preferable that the crossing movement occur in advance of the intersection by provision of a merging area (the *Oregon Bicycle and Pedestrian Plan* shows a typical design). Where there is no right-turn lane, the bike lane may be striped up to a crosswalk, if one exists, or to where the curb radius begins.

To a lesser extent, the same is true for left-turning bicyclists; however, in this maneuver, the vehicle code allows the bicyclist the option of making either a "vehicular style" left turn (where the bicyclist merges leftward to the same lane used for motor vehicle left turns) or a "pedestrian style" left turn (where the bicyclist proceeds straight through the intersection, turns left at the far side, then proceeds across the intersection again on the cross street). Where there are numerous left-turning bicyclists, a separate turning lane increases safety and should be considered.

Freeway-style ramps present a special problem. One design for a bike lane crossing is noted in the *Oregon Bicycle and Pedestrian Plan*.

### *TRAFFIC CONTROL DEVICES*

At intersections, bicycles should be considered in the timing of the traffic signal cycle, as well as the traffic detection device. Normally, a bicyclist can cross an intersection under the same signal phasing arrangement as motor vehicles; however, on multi-lane streets special consideration should be given to ensure that short clearance intervals are not used. If necessary, an all-red clearance interval may be used. To check the clearance interval, a bicyclist's speed of 10 mph and a perception/reaction/braking time of 2.5 seconds should be used.

Loop detectors for traffic-actuated signals should be sensitive to bicycles, marked so that bicyclists can activate them, and located in the bicyclist's expected path, including left turn lanes. Signals should be timed to allow slow bicyclists to clear the intersection; about one second per every three feet of width is sufficient. Where programmed visibility signal heads are used, they should be checked to ensure that they are visible to bicyclists who are properly positioned on the road. Special signal heads for the bike lanes can be used in special cases such as very large intersections.

At signal-controlled intersections with high bicycle traffic (none currently exist in Springfield), it may be desirable to have a staggered stop bar for automobiles where the bike lane stop is several feet in front. This gives bicycles a head start on a green light which makes crossing the intersection easier. With this design, cars are not permitted to turn right on red a good idea at any intersection with substantial pedestrian and bicycle traffic.

It is also desirable to avoid unnecessary stop signs along bikeways. If a stop is necessary to slow down automobiles, as is often the case in residential areas or near schools, consideration should be given to employing traffic calming measures instead. There are various roadway designs, such as narrow lanes, constrictors or roundabouts, that slow traffic without stopping it (see discussion of local streets below).

### *LOCAL STREETS*

Although this Plan focuses on arterials and collectors, local streets should not be overlooked. The side streets in residential, business and rural areas are the feeders for the bikeway network. The relatively quiet local streets are also favored by children and inexperienced adult riders who do not travel far from home.

Although the traffic volume and speed on arterials and collectors argue for bike lanes or wide travel lanes, the conditions on local streets are usually less demanding so that cars and bicycles can mix safely.

However, mixing vehicles requires a street design that does not allow the automobile to dominate. Local streets that are too wide and straight encourage speeding and cut-through traffic.

Many techniques are used to make local streets more inviting and safer for bicyclists, pedestrians, children, residents and visitors. The basic concept is known as "traffic calming” and starts from the premise that motorists are admitted only when they move slowly and with respect for other’s rights. The general idea is to design streets to operate at a pedestrian’s scale and speed. Standard traffic-calming techniques include:

- Skinny streets and queuing streets where cars must slow down or pull over to pass oncoming cars (usually 28 ft wide or less).
- One-lane entry drives at intersections and narrow constrictors mid-block.
- One-way entries (or streets turned into dead-end routes for cars in extreme cases) to discourage drive-through traffic.
- Benches, trees and landscaping in the road right-of-way.
- Parking bays.
- Roundabouts.
- Varied paving materials.
- Varied road widths.
- Creation of calm zones where traffic is limited to 10 mph or less.

Traffic calming can also be applied to arterials and collectors that are too narrow to support bike lanes. With slower traffic, bicyclists can cope with sharing the travel lane. Experience shows that car capacity is not degraded because the slower speeds result in less braking and accelerating. The smoother flow also produces less noise and pollution.

Traffic injuries and crash severity crop, as well. (A study in The Netherlands found that roundabouts were able to both increase capacity and reduce crashes by one-third over signalized intersections.) In commercial areas, the slower speeds make it easier for motorists to sport stores.

### *BIKE ROUTES (BAD DESIGN PRACTICE)*

Signing bike routes was very popular 10 to 20 years ago among cities trying to create a bicycle "system." Unfortunately, there was rarely anything done to improve cycling conditions or to logically connect routes. The signs became counterproductive, telling the bicyclist nothing that they did not already know, often leading them onto obscure secondary streets away from destinations, and leading motorists to believe that bicycles did not belong on non-signed streets.

By today's bikeway standards, bike routes are not useful facilities and route signs should be removed or replaced with directional signs (see discussion below under Supplemental Facilities). For example, connecting the By-Gully Path to Centennial Blvd. could be accomplished with directional signs showing bicyclists where to turn on the local streets.

### *SIDEWALK BIKEWAYS (BAD DESIGN PRACTICE)*

Sidewalk bikeways had some popularity in the '70s when cities were first experimenting with designs. With experience, the approach was abandoned in all but a few rare cases and is highly discouraged in contemporary facility standards. (One exception is that small children are generally permitted to bicycle on sidewalks.)

Two principles apply. First, pedestrians are the most vulnerable road user. The pedestrian environment, which is already severely compromised, must be protected. Pedestrians do not mix well with higher-speed cyclists.

Second, bicyclists are safer as roadway vehicle operators, rather than as pedestrians. This is reflected in the Oregon Statutes which recognize bicycles as vehicles.

## ❖ *Multi-Use Paths*

Separated, multi-use paths are usually located on exclusive rights-of-way with minimal cross flow by motor vehicles. Paths serve a variety of users: joggers, pedestrians, bicyclists, skaters and even equestrians. Paths can provide a shortcut through a residential neighborhood (e.g., between two cul-de-sac streets). In a park, they can provide enjoyable recreation. Paths can be located along abandoned railroad rights-of-way, riverbanks and other similar areas. Paths can also provide access to areas that are otherwise served only by limited-access highways.

There are many similarities between design criteria for paths and those for highways (e.g., horizontal alignment, sight distance, access management, and signing and markings).

On the other hand, some criteria (e.g., horizontal and vertical clearance, grades, and pavement structure) are dictated by characteristics of pedestrians and bicycles that are substantially different from those of motor vehicles. The designer should always be conscious of the

similarities and the differences between pedestrians, bicycles and motor vehicles in path design (refer to the *Oregon Bicycle and Pedestrian Plan*).

For example, the Americans with Disabilities Act requires that grade not exceed 5%, although bicycles can handle grades of up to 10% for short distances. The maximum allowable cross-slope for a pedestrian facility is 2%, whereas bicycles prefer a cross-slope between 2%–5% to assist drainage and turning at speed in curves. In practice, hilly routes may necessitate grades and cross-slopes beyond ADA requirements. In such cases, a warning sign (e.g., W7-5, Hill) may be advisable.

Poor path design can cause crashes and conflicts between different user types. Of particular concern is reducing the number and complexity of intersections while maintaining access. It is also important to maintain adequate width (10 ft standard and 12 ft in high-use areas) and sight distance. Lighting may also be a concern in areas used at night, especially where security is an issue or at intersections.

### ❖ *Supplemental Facilities*

The motorist benefits not only from roads leading to nearly any destination, but also from extensive signals, parking, signing, and special services. Motoring would not be nearly as popular without these added features.

Likewise, a complete bicycle system incorporates not only bikeways but also parking, commuter facilities, rest areas for tourists, and bicycle-oriented signing. Where there is transit, both modes benefit greatly when bicycles can be carried by the transit vehicle.

#### *PARKING FACILITIES*

Just as omnipresent parking is essential to widespread automobile use, convenient and secure bicycle parking is needed to promote bicycle use. Any bicycle trip involves parking; the lack of secure and convenient parking is often the missing link in bicycle facilities and is a great deterrent to bicycle use. Local governments should require bicycle parking in new developments just as they do for automobile parking (sample ordinances are in the *Model Pedestrian and Bicycle Ordinances*).

Bicycle parking falls into two basic categories of user need: commuter (or long term) and convenience (or short term). The minimum needs for each differ in their placement and protection, as shown in Table 5-4.

A basic guideline for capacity is that bicycle parking should be about 10%

to 20% of motor vehicle parking. For example, a use that requires 35 motor vehicle parking spaces would require facilities for parking four to eight bikes. Some uses, such as a public library or popular ice cream store, may require a higher ratio of bike parking to motor vehicle parking.

**Table 5-4.** Bicycle Parking Categories

| Placement | Comments | Protection |
|---|---|---|
| | **Commuter (Long-Term) Parking** | |
| • Employment areas<br>• Schools and colleges<br>• Multifamily dwellings<br>• Public transit transfer stations | • Weather-protected area that is covered and drained.<br>• Securing device that supports the frame or handlebars rather than the wheels only.<br>• Securing device that easily allows bicycles to be locked to it through the frame and both wheels.<br>• Lighting consistent with automobile parking lighting. | • Security ranks over convenience, although bicycle parking should be at least as conveniently located as automobile parking.<br>• Bicycle parking should not conflict with motorized uses in a dangerous or congested manner. |
| | **Convenience (Short-Term) Parking** | |
| • Shopping centers<br>• Hospitals and health care offices<br>• Libraries and museums<br>• Public service government agencies<br>• Recreation and entertainment areas | • Device that allows the frame and both wheels to be secured by the bicyclist's own lock.<br>• Parking location free of unnecessary conflicts with motor vehicles and pedestrians.<br>• Well-lit location that is as closely situated to the most easily monitored access to an entry in order to reduce theft. | • Weather-protected bicycle parking is not always necessary or cost effective for the short-term user.<br>• Note that these locations are also a place of employment and should have some long-term parking. |

There are many acceptable designs in use throughout the State. Several such designs are noted in Bicycle Parking Facilities, Oregon Department of Transportation, Dec. 1992.

Bicycle parking should be provided in all types of new development (both public and private) and for changes in use, and for expansions and other remodeling that increase the required level of automobile parking.

***COMMUTER FACILITIES***

Besides parking, showers and changing rooms at large employers (at least 10,000 square feet and 25 employees) should be required in new construction or major remodelling to promote bicycle commuting.

Many employers find that such facilities pay for themselves quickly in increased employee fitness and health, not to mention morale. Capital costs also argue for encouraging bicycle commuting: a car parking space may cost from $2000 to $5000, several times more if in a multilevel

structure; interest on debt, operations, maintenance, and other costs add significantly to the initial cost.

***TRANSIT LINK***

Bicycles and transit are logical partners. A person can bicycle right from their home to their destination, but the suitable distance is short (a few miles). Transit routes offer the most efficient way to travel longer distances but are not convenient to most residents.

However, if bikes and transit work as a team, they make an attractive alternative to the car—just as flexible and convenient, cheaper, more relaxing, and even faster on some routes. Together, these modes can carry people across large metropolitan areas without reliance on automobiles.

To take advantage of bicycles, transit stations should have convenient bikeway access and long-term bicycle parking (secure and sheltered). Feeder bikeways to the stations should be well marked and lead directly to the parking. Bicycle parking, even lockers, are a small fraction of the cost of park-and-ride lots.

In most cases, transit vehicles can be adapted to carry bicycles, so that commuters can bicycle at both ends of their trip. This greatly increases the attractiveness of using transit. At least 15 U.S. cities, including Portland (TriMet) have buses with bike racks, typically front-mounted units operated by the bicyclist.

***SIGNING***

Signs serve three basic purposes: regulating usage, directing users along established corridors, and warning them of unexpected conditions.

Because of a pedestrian's or bicyclist's lower line-of-sight, the bottom of signs intended to inform these users should be about 5 ft above the travel surface. If a secondary sign is mounted below another sign, it should be at least 4 ft above the travel surface. The signs should provide at least 2 ft lateral clearance from the edge of the bikeway. Standards for signing are contained in the *Oregon Bicycle and Pedestrian Plan* and the MUTCD and are summarized below:

- *Regulatory Signs* are used to inform pedestrians, bicyclists and motorists of traffic laws or regulations. Common regulatory signs are:

    R5-3 (Motor Vehicles Prohibited),
    R1-1 (Stop, 18x18 in.),
    R1-2 (Yield, 24x24x24 in.),
    R4-4 (Yield to Bikes) and
    R9-2a (Cross Only On Signal).

Bike lanes may be signed with R7-9 and R7-9a (No Parking) where parking is a problem; many jurisdictions paint curbs yellow to indicate that parking is prohibited.

- *Directional Signs* are used to guide users to destinations such as libraries, schools, museums, shopping districts, etc. The basic sign portrays a pedestrian or bicycle and includes information such as a directional arrow, destination name and distance. Because a directional sign tells the user that there are advantages to using the route, care should be taken to assure its suitability.

Bikeway direction-of-travel signs are used at junctions and places where a bikeway differs from the standard motor-vehicle route. Two common situations where directional signs are employed are to lead bicyclists on a popular bikeway through a section that is difficult to follow, and to steer bicyclists around a section of roadway that is poor for cycling when a better alternate roadway is close by. In both cases, the purpose is to maintain continuity in the bikeway system.

- *Warning Signs* are used to inform bicyclists and other users of potentially hazardous conditions such as turns and curves, intersections, stops, hills, slippery surfaces, and railroad tracks. Common signs are described in the *Oregon Bicycle and Pedestrian Plan*.

### ❖ *Maintenance*

It often seems easier to plan for and build a project than to maintain it. Yet, with the commitment to maintenance, bicycle projects will not be used to their full potential. Inevitable accumulations of debris along the road edges as well as surface deterioration renders bikeways unpleasant and dangerous.

Upswept shoulders are one of the most common complaints from bicyclists. Broken glass, rough overlays, and cracks force bicyclists into the travel lane to find a smooth surface, which causes animosity in motorists who do not understand the dilemma. A street that is in poor condition along its edges is effectively that much narrower than its measured width, placing more demand on the remaining road.

Good maintenance standards are evident within Springfield; however, some roadways, especially edges used by cyclists, are in poor condition (see Section 6: Projects). A regularly scheduled inspection and maintenance program is essential, and all road work should be performed with an understanding of how it affects pedestrians and bicyclists. In particular, the following activities should be stressed.

## *SWEEPING*

Sweeping sidewalks, roadway shoulders and bike lanes consistently is probably the easiest step that can be taken to improve conditions for non-motorized modes. Roadway sweeping is usually the responsibility of the City, County, or State, depending on the jurisdiction of the road. Although it may not be cost-effective to sweep every roadway frequently, the following actions can improve the situation:

- Establish a seasonal sweeping schedule and sweep high use areas after each major storm.
- Pave gravel driveways to the road right-of-way as suggested in the *Oregon Bicycle and Pedestrian Plan*. This adds a small cost (about $200 plus material per driveway) to road construction and greatly benefits both bicyclists and residents.
- Publicize a phone number where glass and other hazards can be reported.

## *VEGETATION REMOVAL*

Trees, shrubs, and other vegetation and their roots encroaching into and under paths and roadway edges cause safety and maintenance problems: loss of clearance, reduced sight distance, debris, and pavement breakup. Pruning, mowing and leaf removal should be part of routine maintenance. New construction should employ 12-inch root barriers where necessary.

## *DRAINAGE GRATE INVENTORY AND REPLACEMENT*

The City has made about 3,500 grates bicycle safe. The City should maintain its drainage grate inventory, particularly in advance of doing overlay work, and make sure that all grates comply with the standards outlined in the *Oregon Bicycle and Pedestrian Plan*. Grates should be raised to the level of the roadway and be given a smooth joint with the street surface. This is especially critical at intersections where the curb cut is adjacent to a drainage grate, to insure that problems are not created for the disabled. When doing reconstruction, in-street drainage grates should be replaced by curb inlets.

## *OILING AND CHIP SEALING*

Attention should be given to maintaining the full pavement width and not allowing the edges to ravel or deteriorate. Because work that extends partially into the shoulder leaves a dangerous raised ridge, oiling and chip sealing should extend the full width or stop at the shoulder stripe.

The preferred chip seal size is 3/8 in. to #10 or smaller for bike lanes and shoulder bikeways. All utility access points, manhole covers and drainage grates should be raised to match the new surface within 0.75 in. All edges should be feathered to provide a smooth transition from the bikeway to other surfaces.

### *OVERLAYS AND PATCHING*

Spot maintenance work can degrade bikeways if care is not taken. Where the work is in the bikeway, a smooth surface with feathered edges is important. Ideally, the work should extend the entire width of the bikeway to avoid discontinuities parallel to the bicycle travel. When a grader blade is used, the last pass may leave a rough tire track in the patch, so either a smooth tire should be used or the area should be rolled.

Even work confined to the travel lanes can cause problems because loose asphalt often ends up in the bikeway where it adheres to the existing surface and creates a rough spot. Work should be compacted sufficiently and loose materials should be swept away before they become a problem. Leaving the work of flattening a patch to passing vehicles is dangerous to bicyclists.

### *WIDENING AND RE STRIPING*

Improvement and periodic re-striping of roads present an excellent opportunity to improve cycling conditions. Bikeways should be resurfaced, as a minimum, to the same width as the existing pavement and, where possible, should be widened to standard.

Wide travel lanes can often be re-striped to 11 or 12 ft to provide wider shoulders for bicyclists with no loss in automobile safety and movement (indeed, 11-ft lanes in urban areas are recommended by many authorities to reduce vehicle speed). An extra foot in shoulder width gains a lot of safety and comfort for bicyclists.

Existing gravel shoulders may have sufficient width and base to support shoulder bikeways. Minor excavation and the addition of 3 to 4 in. of asphalt is often all that is required. Care should be taken to avoid a joint at the edge of the existing pavement by feathering the new asphalt or creating a clean saw cut at the transition.

Four-lane arterials and collectors without bike lanes can often benefit from re-striping to two travel lanes with outside bike lanes and a center turn lane. In many cases, this has proven to increase safety and convenience for all users—motorists, bicyclists and pedestrians—while maintaining vehicle capacity.

### *RESPONSIBILITY*

The agencies responsible for the control, maintenance, and policing of bicycle facilities should be established prior to construction. The costs involved with the operation and maintenance should be considered and budgeted for when planning a facility. The State dedicates about 7.5% of its bicycle and pedestrian budget to maintenance.

Neglected maintenance renders bikeways unusable, and the facilities become a liability to the community. Regular inspections should be scheduled. Users should be encouraged to report needed maintenance.

A central contact person with authority to authorize maintenance work should be designated to receive such reports.

Any construction, public or private, should be designed so as not to compromise the maintenance of existing or planned bikeways. Site plan reviews and inspections should verify that suitable surfaces, drainage, driveway aprons and sweeper access exists.

## *Promotion*

### ❖ *Education*

Bicycling means different things to different people. Some see it as one answer to the problems besetting our automobile-dominated communities. Others see it as pleasant recreation or a means to physical fitness. Some consider it an annoyance and a dangerous sport. To children, it may be a way to get around until they can drive a car. In some countries, bicycling is simply a part of daily life. Education's role is to bring together these disparate views in a way that can promote cycling within the community.

A bicycle system's facilities are its most visible and expensive element. Indeed, some transportation agencies have felt that their job was finished once the bicycle facilities were provided. This approach generally works with motorists because they must be a minimum age and pass a competence exam before they can drive. They also have the benefit of an extensive, highly structured road system complete with traffic control and directional devices.

Bicyclists, on the other hand, include a much broader cross-section of the population. A would-be bicyclist may venture out on the roads with few skills and little judgment. Or, this inexperience may keep a person from even considering bicycling as a choice. The result is that fine facilities may be misused or ignored and may even be perceived as unnecessary.

Getting people to use bicycle facilities and to use them safely requires follow-through in various programs that promote awareness, safety, skills and enforcement. Although these programs might be best handled by private or community groups instead of government agencies, it is important that they be encouraged and supported.

There are numerous strategies for pursuing education including information packages, training courses, commuter programs, special incentives, event sponsorship, and other promotional efforts.

### ❖ *Safety*

In 1993, Oregon bicycle-motor vehicle urban crash statistics show 49% occurred at intersections, 23% were the result of bicycles or motor vehicles entering or leaving roadways at mid-block locations, 12% were caused by wrong-way riding, 6% were caused by the bicyclist or motorist turning or swerving, and 10% were from miscellaneous causes (only 3%

involve being hit from behind). Figures in 1986 and 1990 were similar. The reports note several things:

- Most cycling crashes do not involve motor vehicles.
- In bicycle-motor vehicle collisions, the blame is almost equally shared between bicyclists and motorists, although the number one cause of collisions is the motor vehicle failing to yield at intersections.
- Young bicyclists are most often responsible for crashes caused by disregard or ignorance of the law.

Springfield's *1990–95 Bicycle Accident Report* shows that 84 of the 96 reported bicycle crashes (88%) occurred on arterials and collectors. The leading causes of crashes were failure to yield right of way (39%), inattention (13%, with 8% driver and 5% bicyclist), and disregarding stop sign or signal (8%). There were 76 injuries and 1 fatality. Most crashes occurred between 6 AM and 6 PM (69%) and during dry weather (91%). The highest concentrations of reported crashes are along Main St. (24), Centennial Blvd. (15), Mohawk Blvd./14th St. (7), 'Q' St. (7), and Gateway St. (5). Most crashes are clustered in commercial zones where congestion, poor bicycle access, and conflict points with turning traffic typically cause problems.

Facility improvements and selective enforcement should be emphasized along corridors where frequent bicycle activity or crashes are noted. At present, Springfield's crash data indicate that Main St. and Centennial Blvd. should receive first attention.

Bike lanes, properly designed and maintained, save lives and help avoid many nonfatal crashes. For example, the Netherlands has the most cars per square mile of any European country, but they also have the most bike lanes and tracks (over 6,000 mi) and enjoy the lowest cycling deaths per mile traveled of all industrialized countries.

### ❖ *Information Packages*

A bicycle information packet is one tool that is easily and cheaply provided by the City. The contents should include a map, suggested routes (both recreational and commuter), local services, contacts, and perhaps riding safety tips. Its purpose is to help bicyclists choose appropriate routes for their skill level, to orient visitors and to encourage first-time riders. The Bicycle and Pedestrian Program Office has samples both color and black and white maps using preferred symbols and styles.

### ❖ *Enforcement*

State motor vehicle law states: "Every person riding a bicycle or an animal upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of another vehicle…." (ORS 814.400). There are 32 other statutes pertaining to bicycles listed in the *Oregon Bicycle and Pedestrian Plan*. The DMV provides a brochure, "Bicycle Rules of the Road," that tells the rules for riding on Oregon's highways.

Many bicyclists and motorists do not know that bicycles are vehicles and need to behave as such on the roadways. Most of the problems relating to bicycles—improper use, poor facilities, safety, etc.—are because someone is not treating them like the vehicles they are.

Law enforcement is a recognized tool to promote an awareness of the laws and to ensure bicycle safety. Bicyclists who run stop signs and traffic signals, ride the wrong way on a street, or ride at night without lights are responsible for many crashes. Drunk driving and failure to yield are leading motor vehicle violations. Frequent violations that go unpunished deteriorate the trust between the different user groups and can contribute to lack of support for good facilities.

Enforcement is not a cure-all for bicycling problems; however, it reinforces the attitude that all modes are partners on the road. The long-term effects of consistent enforcement are smoother and more efficient traffic flow with reduced crashes.

It is sometimes difficult for an officer who has been specially trained for police work to regard citing bicycle violators as a high priority item compared to dealing with criminal activities. The normal first reaction is that it is no fun citing kids, especially since contemporary police policy is generally directed toward improving the image of law enforcement with young people.

The task of bicycle safety enforcement can be eased considerably when the police are supported strongly by the community. It is also important to have active safety education programs directed toward bicyclists and motorists, constant engineering efforts geared toward reducing illogical or compromising situations, and coordination with the courts to assure understanding of enforcement goals in the light of judicial prerogatives.

The Oregon Traffic Safety Commission provides a 15 minute video, "Ride on By," for the law enforcement community. The narrator explains in detail why enforcement in the bicycle arena is so important. It helps overcome embarrassment about pulling over bicyclists.

It is useful to bridge the gap between token enforcement and a strong effort by conducting a public awareness campaign, followed by a warning phase leading into total enforcement and citations. Newspaper, radio, and school educational programs could all be used effectively. Cities that have tried this technique have found they receive only a small number of complaints when the program is implemented.

The Springfield Bicycle Committee should work with the Chief of Police to increase enforcement on the most common dangerous offenses: running stop lights and stop signs, riding the wrong way and riding at night without lights.

# Section 6
# PROJECTS

## Introduction

Several past planning efforts have identified bicycle needs and projects. The City of Springfield, the Metropolitan Area, and the Willamalane Park and Recreation District have each adopted plans (refer to *Section 4: Goals and Policies*) that aim to improve bicycle transportation opportunities.

The projects contained in these plans are comprehensive. The effort here is to coordinate and improve on these projects in light of recent bicycle planning experience, contemporary design solutions, and importance to the overall bikeway system.

The project list may seem quite long at first glance. However, all 48 projects can be completed in 20 years at the rate of only 2 to 3 projects a year. Many of the projects are straightforward and inexpensive, such as striping bike lanes on a wide street.

Many other projects involve widening a street that is below standard for all users. Capital improvement programs by the state, county and city are examined for opportunities to enhance bicycling conditions for minimal cost by sharing mobilization, materials and other costs with major road work.

Several path projects are more difficult to describe because they involve land or easement acquisition and because they tend to fall outside any one agency's responsibility and funding.

## Background

### ❖ Previously Identified Projects

TransPlan includes a 38-mi grid of bike lanes added to 6 mi of lanes existing in 1986. This is supplemented by 8 mi of new independent paths added to 3 mi of existing path. By the end of 1995, over 7 mi of bike lanes (about 20% of identified bike lane projects) and 1 mi of path (15% of identified paths) were completed. In addition, new streets not on TransPlan added about 2 mi of bike lane, for a total 9 mi of new bike lanes.

The 1995 Willamalane plan looks primarily at multi-use paths near the edge of the Springfield urban growth boundary. While the focus is on connecting park facilities, the transportation potential of the path system is not overlooked. If completed, the trail system would, except for two gaps, completely ring the city and help link many neighborhoods together.

## ❖ *State Capital Improvement Projects*

Several construction projects in the Springfield area that affect bikeways are scheduled in the Statewide Transportation Improvement Program through 1998:

FY 1996 Safety; intersection of OR-126 and 69th St.; construct signal and interconnect with other signals; $371,000.

FY 1996 Enhancement; southwest connector path, Alton Baker Park Eastgate Woodlands to South 2nd St.; construct bicycle and pedestrian path; $516,000. This project will be complete by the Winter of 1998

## ❖ *County Capital Improvement Projects*

Several projects that affect bikeways are scheduled in the Lane County Capital Improvement Program through 2000:

FY 1997 Modernization (major collector); 2nd St. S., Springfield City Limits to Dorris Ranch, 0.53 mi; widen road and resurface to urban standards (2–3 lanes, curbs, sidewalks, bike lanes); $990,000. This project will be completed by the Spring of 1998.

FY 1997 Modernization (major collector); South 57th St. and Mt. Vernon Rd. from MP 0.53 to MP 1.16, 0.63 mi; widen, improve sight distance, improve railroad crossing, and add curbs, sidewalks and bicycle lanes; $935,000.

## ❖ *City Capital Improvement Projects*

Several projects that affect bikeways are scheduled in the Springfield Capital Improvement Program through 2000, including drainage grate replacement, signal installation, signal detector repair, and overlays. Each of these efforts should follow the practices in *Section 6: Facility Standards* to promote safe and efficient bicycle travel.

## ❖ *Special Notes*

***AVERAGE DAILY TRAFFIC***

The ADT figures consist of City and State counts from 1993–94 and estimates where no counts were available. Although not entirely current, the ADT data represent only one of many factors and are of sufficient accuracy for a 20-year bicycle plan. Higher or lower ADTs might change the timing of proposed projects but would not affect the basic recommendations.

***LANE NOTATIONS***

Lane configurations are presented as a number series, in feet, from curb-to-curb (or edge-to-edge). For example, 7P-5B-11-12C-11-6B (52) is a 7-ft parking lane, 5-ft bike lane, two 11-ft travel lanes with a 12-ft center turn lane, and a 6-ft bike lane for a total roadway width of 52 ft. Lanes are normally listed from west-to-east or north-to-south.

## *COSTS*

The estimated cost represents what it would take to add the improvement to the existing road. Most projects can be accomplished at reduced cost by combining them with other work such as an overlay. In many cases, the recommended work includes general roadway improvements, such as shoulders, that benefit all users and should be done as part of general roadway upgrades.

Costs include only engineering, installation, minor contingencies, striping and signing as discussed in *Section 5: Implementation*. Because costs vary over time, the figures provided are rough estimates intended to help set priorities and secure funding.

No cost total is provided because there are many variables (project scope and phasing, for example) and because many projects are not specifically bikeway projects (shoulders and multi-use paths, for example). Planning issues are rarely isolated, and neither are the costs of implementing transportation policies.

## *PRIORITIES*

The two project levels—wide-area and local-area—indicate the relative importance to the overall bikeway system. The local-area projects are further categorized by region: north (north of Hwy 126), central (south of Hwy 126 and north of Main St.), and south (south of Main St.). The projects within each level or category are listed in the general order of priority with the highest first.

The most important attributes in rating a project are its potential use, barrier removal, connectivity, and cost effectiveness. Appropriate design to full standard (refer to *Facility Standards* in Section 5) is assumed unless otherwise stated; projects built to lesser standards should be examined to determine if the compromise jeopardizes safety or functionality.

Priorities are merely a guide for pursuing projects by incorporation into the capital improvements list. It is difficult to know exactly what developments will be proposed and what funding opportunities will be realized. Projects should be sequenced to take advantage of other road work being performed. Since timing is often crucial, if conditions are favorable to proceed, a project should not be overlooked simply because it is down on the list. One thing is certain: a strong set of bicycle-friendly ordinances, codes and standards guiding construction will ensure that whatever happens will have adequate provisions for bicyclists.

## Capital Improvement Projects

Tables 6-1 and 6-2 summarize the projects; detailed descriptions are contained in Appendix E. Site-specific projects (see Table 6-1) are organized in two categories to indicate their significance to the system: wide-area and local-area. Local-area projects are further categorized by region (northern, central and southern). Within each category, projects are listed from near-term to long-term. Table 6-2 lists the same projects by numeric order.

Citywide projects, such as bicycle parking, are discussed at the end of this section.

### ❖ *Wide-Area Projects*

Wide-area projects correct problems in major corridors that serve cross-town traffic. Examples are removal of a significant barrier, elimination of a serious hazard, completion of a critical link, or greatly improved access.

Some of these projects involve arterials that feature high traffic volumes, large intersections and lack of facilities. Despite the obstacles, these streets are central to a functional bikeway system because they offer direct routes with minimal stops to many destinations. Because of the traffic volume, bike lanes are usually the appropriate on-street facilities. Two urban trail opportunities and one existing trail that needs improvements are also featured. In total, 25.4 mi of wide-area projects combined with existing bikeways (28 mi of bike lanes and multi-use paths) form a coarse grid of about one mile spacing throughout the urban area (see Plate 6).

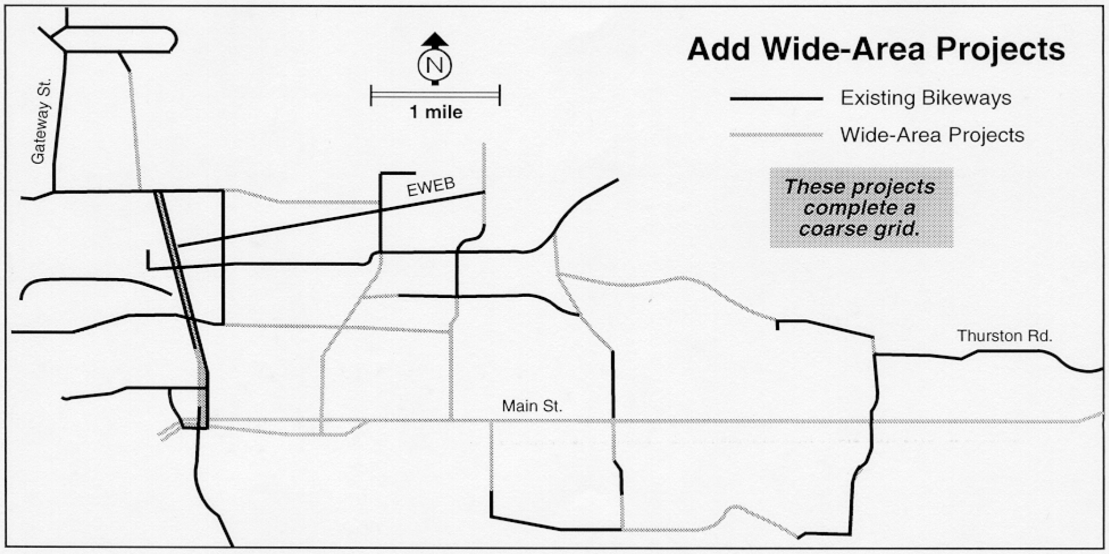
Wide-area projects may be difficult to accomplish immediately due to the magnitude of the task or the interaction with other projects, but they should be pursued methodically.

### ❖ *Local-Area Projects*

Local-area projects involve elements of the bikeway system that link neighborhoods or access major corridors. They typically feature projects that will improve overall conditions and attract bicyclists by bridging gaps, by improving intersections, or by adding bike lanes, shoulders or trails. About 26.9 mi of local-area projects fill in the bikeway grid as shown in Plate 6.

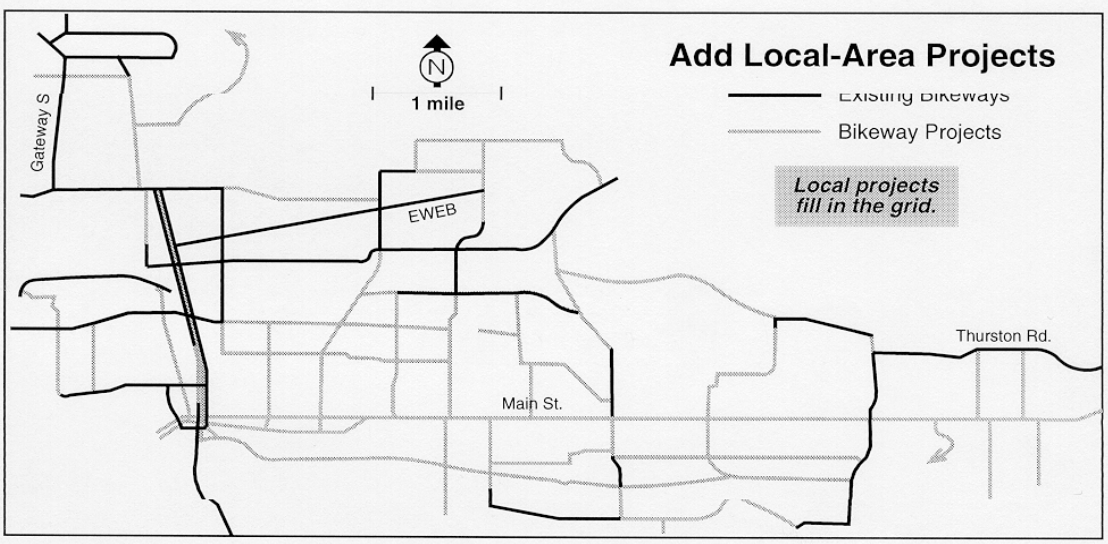
**PLATE 6**

## Project Schematic




*On arterials and collectors the appropriate facilities for bicyclists are bike lanes. Bike lanes help define the road space, provide bicyclists with a path free of obstructions, decrease the stress level of riding in traffic, and signal to motorists that cyclists have a right to the road.*

*Bike lanes are appropriate on minor collectors if traffic speeds and volumes are higher than normally encountered: speeds above 25 mph or ADT over 3,000. Bike lanes on minor collectors are also appropriate to connect up existing bike lanes or to extend bike lanes to destination points that generate high bicycle use, such as schools, parks and multifamily housing units.* – Oregon Bicycle and Pedestrian Plan



## Table 6-1. Project Summary (Priority Numeric Order)

| Street | From | To | Dist. mi | Description | TransPlan Relationship | Cost, $K (Source) | Project # | Priority |
|---|---|---|---|---|---|---|---|---|
| | | | | **Bikeway Projects** | | | | |
| Main & S. 'A' | West UGB | East UGB | 7.1 | Stripe bike lanes. | 708 | 35 (State) | 1 | I |
| 42nd Street Pathway | Weyhaeuser | Marcola Rd. | 1.1 | Multi-use Pathway | 355, 733a | 500 - (Federal ISTEA - City) | 2 | I–Done |
| S. 42nd Street | Main | Jasper | 0.8 | Bike Lanes – shoulders | 355, 733b | 85-315 (City & County) | 3 | I |
| 28th Street | Olympic | Main | 1 | Stripe bike lanes. | 352, 728 | 7 (City) | 4 | I |
| 31st Street | Hayden Bridge | 'U' | 0.6 | Bike lanes - shoulders | 379, 727 | 95-350 (City & County) | 5 | I |
| 58th Street | High Banks | Thurston | 0.2 | Stripe bike lanes. | 745a | 1 (City) | 6 | I |
| Game Farm Road South | Diamond Ferry | Harlow | 1 | Bike lanes - shoulders | 275, 671 | 175-555 (County) | 7 | I |
| Rainbow Drive | Centennial | W. 'D' | 0.5 | Stripe bike lanes. | 697 | 2.5 (City) | 8 | II-Done |
| 69th Street | Thurston | Main | 0.5 | Add bike lanes. | 283, 747 | 400 (City) | 9 | II |
| Centennial Blvd. | 5th | 28th | 1.6 | Add bike lanes. | 254, 330, 710b | 770 (County) & 14 (City) | 10 | II-Done |
| S. 32nd Street | Main | RR Xing | 0.4 | Add bike lanes. | 353, 729 | 125-200 (City) | 11 | II-Done |
| Jasper Road | S. 42nd | Mt. Vernon | 1.4 | Bike lanes - shoulders | 354, 730 | 420-795 (City & County) | 12 | II |
| McKenzie River Connector | Marcola | High Banks | 2 | New multi-use path. | 688 | 1,200 (State & Federal) | 13 | II |
| Aspen Street | Centennial | W. 'D' | 0.6 | Stripe bike lanes. | 383, 695 | 72-247 (City & County) | 14 | II |
| Yolanda Avenue | 23rd | 31st | 0.6 | Add bike lanes. | 684 | 480 (County) & 3 (City) | 15 | III |
| Mohawk Blvd. & 14th Street | Marcola | S. 'A' | 1.5 | Stripe bike lanes or wide outside lanes. | 136, 725a, 725b | 12 (City) | 16 | III-Done |
| 52nd, 'G' & 51st Streets | High Banks | Main | 1.2 | Stripe bike lanes or shared on 51st. | 291, 380, 734, 737 | 115-540 (City) | 17 | III |
| EWEB Trail | Pioneer Pkwy | 31st | 2.4 | Resurface and improve crossings. | — | 71 (County - City - Willamalane) | 18 | III |
| 35th Street & Commercial | Olympic | 42nd | 1.2 | Stripe bike lanes. | 244, 284, 732, 741 | 7 (City) | 19 | III |
| By Gully Path | Mill St. | 5th St | 0.6 | Extend to PPK & 5th | 698 | 80 (City & Willamalane) | 20 | III |
| 36th Street | Main | Commercial | 0.3 | Striped bike lanes. | 739 | 124-225 (City) | 21 | III |
| 42nd Street | Marcola | RR tracks | 1.1 | Bike lanes - shoulders | 355, 733a | 200-600 (City) | 22 | — |
| Beltline Road | I-5 | Game Farm South | 0.7 | Stripe bike lanes & intersection improv. | 329 | 15.3 (City) | 23 | — |
| 23rd Street | Hayden Bridge | Yolanda | 0.3 | Bike lanes - shoulders | 681 | 40-140 (County) | 24 | — |
| Olympic Street | Mohawk | 21st | 0.3 | Stripe bike lanes. | 722a, 722b | 1.7 (City) | 25 | — |
| Gateway-McKenzie Path | North UGB | Pioneer Pkwy | 1.6 | New multi-use path. | — | 185-465 (Federal - Private) | 26 | — |
| Hayden Bridge Road | 5th | 19th | 1.2 | Stripe bike lanes. | 170, 694 | 6.5 (County) | 27 | — |

| Street | From | To | Dist. mi | Description | TransPlan Relationship | Cost, $K (Source) | Project # | Priority |
|---|---|---|---|---|---|---|---|---|
| Hayden Bridge Road | 23rd | Marcola | 1.5 | Bike lanes / shoulders. | 378, 680 | 300-925 (County) | 28 | —Done |
| Springfield-Coburg Path | Game Farm E. | North UGB+ | 0.3 | New multi-use path. | 265 | 35-90 (County-Eugene)) | 29 | — |
| W. ‘D Street’ | Aspen | Pioneer Parkway | 1 | Signs &intersection improvements. | 384, 700 | 30 (City) | 30 | — |
| Luara Street | Scotts Glen | Harlow Road | 0.4 | Stripe bike lanes. | 713 | 200 (County/City) | 31 | — |
| 5th Street | Centennial | ‘G’ | 0.3 | Stripe bike lanes. | — | 1.7 (City) | 32 | — |
| 21st Street | Olympic | Main | 1 | Stripe bike lanes. | 726 | 5.6 (City) | 33 | — |
| 66th Street | Thurston | Main | 0.5 | Stripe bike lanes. | 749 | 3.1 (City) | 34 | — |
| Mill Street | Fairview | S. ‘A’ | 1 | Stripe bike lanes. | 705 | 6.6 (City) | 35 | — |
| ‘G’ Street | 5th | 28th | 1.6 | Stripe bike lanes. | — | 9.5 (City) | 36 | — |
| Daisy Street | 42nd | 58th | 1.6 | Add connecting path. | 192, 738 | 13 (City) | 37 | —Done |
| S. 28th - 32nd Path | S. 28th St. | S. 32nd | 0.4 | Multi-use path | — | 25-50 (City) | 38 | — |
| Millrace Path | 5th | 28th | 1.6 | Multi-use path. | 706a | 45-185 (City) | 39 | — |
| Booth-Kelly Haul Road | 28th | Weyer-haeuser | 2.1 | Multi-use path. | 347, 706b | 55-245 (City) | 40 | — |
| Weyerhaeuser | Booth-Kelly | 58th | 0.9 | Multi-use path. | 285, 733b | 25-105 (City) | 41 | — |
| Weyerhaeuser Haul Road | Main | Booth-Kelly | 0.4 | Collector or new multi-use path. | 376, 706c | Unknown | 42 | — |
| South 28th Street | Main | S. ‘M’ | 0.8 | Add shoulders. | 728 | 126 (County) | 43 | — |
| South 67th Street | Main | Ivy | 0.6 | Add shoulders. | 751 | 42 (City) | 44 | — |
| South 70th Street | Main | Ivy | 0.6 | Add shoulders. | 753 | 115 (City) | 45 | — |
| Ivy Street | 67th St. | 70th St. | 0.3 | Shared roadway | None | None | 46 | — |
| Potato Hill (Subdivision) | S. 63rd | S. 57th | 1.5 | Bike lane or shared roadway. | 798 | None - 360 (City) | 47 | — |
| Mt. Pisgah - Springfield | Clearwater Lane | Mt. Pisgah | 3 | Shared roadway to Multi-use path. | ZZ-1 | Unknown - (City & County) | 48 | — |

Table_6-1.wpd - 10/98
Updated – 12/03

There are 37.6 mi of bike lanes, shoulders and other on-street improvements that, built to full standard, would cost about $5.6 million. About half of this mileage is simple restriping with minor cost (under $150,000); 7 mi of that are State facilities with the remainder City or County. About $5.6 million of the total represents adding roadway width (such as shoulders)—projects that are on the TransPlan Street and highway Project List and which benefit all users.

There are 14.7 mi of multi-use paths that would cost about $2.7 million. Paths are shared with other non-motorized users, such as pedestrians, and in some cases may be primarily pedestrian facilities.

If the entire project list built out in 20 years, it would cost about $425,000 per year, plus about $100,000 per year for maintenance. Responsibility, under current jurisdictions, would be distributed primarily among the County (45%), City (40%), and State (15%), although Willamalane and private sources would also play a part.

Table 6-3 categorizes the projects as Priority I, II and III based on the following criteria:

- Potential use.
- Importance to the bikeway system (barrier removal, connectivity, etc.).
- Cost-effectiveness.
- Coordination with other road work.
- Ease of technical implementation.
- Ease of political implementation.

Four fold-out maps following this section show:

- Existing and Programmed Bikeways (programmed means that funds are committed; these projects are counted as completed).
- Priority Projects (I, II and III).
- Existing, Programmed and Priority Projects.
- Additional Projects added to above map (additional projects are not assigned a priority).

Note that successful bicycle programs are much more than a project list, albeit this is often the most visible aspect and the only element that appears in capital improvement lists. Refer to *Section 5: Implementation* for important information on implementation, maintenance, and promotion.

## Table 6-2. Project Phasing

***Priority I (1997–2002)***

| | | | |
|---|---|---|---|
| 28th St. | - 1.0 mi | 58th St. | - 0.2 mi |
| 31st St. | - 0.6 | Game Farm S. Rd. | - 1.0 |
| 42nd St. Pathway | - 1.1 | Main St. & S. 'A' St. | - 7.1 |
| S. 42nd St. | - 0.8 | | |

***Subtotal = 11.7 miles***

***Priority II (2003–2008)***

| | | | |
|---|---|---|---|
| S. 32nd St. | - 0.4 mi | Jasper Rd. | - 1.5 mi |
| 69th St. | - 0.5 | McKenzie Connector Path | - 2.0 |
| Aspen St. | - 0.6 | Rainbow Dr. | - 0.5 |
| Centennial Blvd. | - 1.6 | | |

***Subtotal = 7.1 miles***

***Priority III (2009–2013)***

| | | | |
|---|---|---|---|
| 35th St. & Commercial Ave. | - 1.2 mi | By Gully Path | - 0.6 |
| 36th St. | - 0.3 | EWEB Trail | - 2.4 |
| 52nd St., 'G' St. & 51st St. | - 1.2 | Mohawk Blvd. & 14th St. | - 1.5 |
| Yolanda Ave. | - 0.6 | | |

***Subtotal = 7.8 miles***

***Additional***

| | | | |
|---|---|---|---|
| *5th St.* | *- 0.3 mi* | *Hayden Bridge Rd. (west)* | *- 1.2* |
| *21st St.* | *- 1.0* | *Laura St.* | *- 0.4* |
| *23rd St.* | *- 0.3* | *Ivy St.* | *- 0.3* |
| *S. 28th St.* | *- 0.8* | *Mill St.* | *- 1.0* |
| *S. 28th-32nd Path* | *- 0.4* | *Millrace Path* | *- 1.6* |
| *66th St.* | *- 0.5* | *Mt. Pisgah-Springfield Path* | *- 3.0* |
| *S. 67th St.* | *- 0.6* | *Olympic St.* | *- 0.3* |
| *S. 70th St.* | *- 0.6* | *Potato Hill* | *- 1.5* |
| *Beltline Rd.* | *- 0.7* | *Springfield-Coburg Path* | *- 0.3* |
| *Booth-Kelly Rd.* | *- 2.1* | *Weyerhaeuser Rd. (east)* | *- 0.9* |
| *W. 'D' St.* | *- 1.0* | *Weyerhaeuser Rd. (west)* | *- 0.4* |
| *Daisy St.* | *- 1.6* | *42nd Street* | *-1.1* |
| *'G' St.* | *- 1.6* | | |
| *Gateway McKenzie Path* | *- 1.6* | | |
| *Hayden Bridge Rd. (east)* | *- 1.5* | | |

***Subtotal = 26.5 miles***

***48 PROJECTS***
***GRAND TOTAL = 53.1 MILES***

### ❖ *Sidewalks and Curb Ramps*

The above projects concentrate on the major streets because this is where most of the traffic occurs, be it by car, bicycle or pedestrian. However, both walking and bicycling are often made as short trips, perhaps just a few blocks, and make use of any street that provides the most direct route. It does not make sense to neglect the sidewalks or, in the case of bicyclists, the pavement conditions on local streets.

The sidewalk system on Springfield's local streets is often fragmented or in poor repair. Many streets outside the city center were constructed without sidewalks. The City depends on new development to fill in the gaps, but this is a long process in new areas where in-fill occurs randomly, and it can take many decades, if it happens at all, in mature neighborhoods. The result is a broken, unattractive system that serves few people and wastes the investment. Frustrated walkers will turn to their cars or will walk on the roadway, in either case creating safety problems for bicyclists and lowering capacity. Sidewalks must be built in connected segments, as roads are, to have utility.

The City should in-fill sidewalks, move obstacles in the sidewalk or provide access around them, and install curb ramps where needed. Priority should be given to arterials and collectors, areas near schools and parks, and the downtown.

Cities have devised various ways to fund sidewalk construction: system development charges, local improvement districts, bond measures, and a portion of room taxes to name the most popular methods. Springfield should establish a dependable funding source so that it can guarantee that new developments and older neighborhoods alike have functional sidewalks.

A system for retrofitting curb ramps is also needed. Beside the above sources, gas-tax monies can be used for projects in the street rights-of-way, such as ramps and extensions.

### ❖ *Bicycle Parking*

As it is with automobile use, secure and convenient parking is critical to bicycle popularity. Some existing racks were noted in Section 3. The city should undertake a study of parking needs and develop a program to add racks and associated facilities. *Section 6: Facility Standards* contains parking guidelines.

In particular, racks should be installed in front of downtown businesses (some already have been), markets, convenience stores, and at all public facilities (schools, post office, library, city hall, theaters, restaurants, and parks). Employers should also be encouraged to provide sheltered parking for their employees.

Transit hubs and park-and-ride lots should have high-security parking, preferably lockers.

It is recommended that the City find a local source for racks and offer to install them for free with the permission of adjacent property owners. The local High School might be a source for labor. A Pedestrian-Bicycle Coordinator (refer to *Program Support* in Section 5) or similar City staff person can meet with interested parties to answer questions, obtain written permission and select rack locations. A rack would remain City property but the City would not assume any responsibility for bikes parked at it.

Racks may also be installed on private property if purchased by the property owner.

### ❖ *Maintenance*

Functional bikeways depend on regular maintenance. Sweeping, surface repair, drainage grate improvements, calibration of signal sensors, restriping, and control of vegetation are essential to useful, attractive and enduring facilities. Regular maintenance is often the easiest and most cost-effective means of enhancing the existing bikeway system. Construction projects should not be undertaken without a commitment to long-term maintenance. *Section 6: Facility Standards* contains guidelines for proper maintenance.

### ❖ *Traffic Counts*

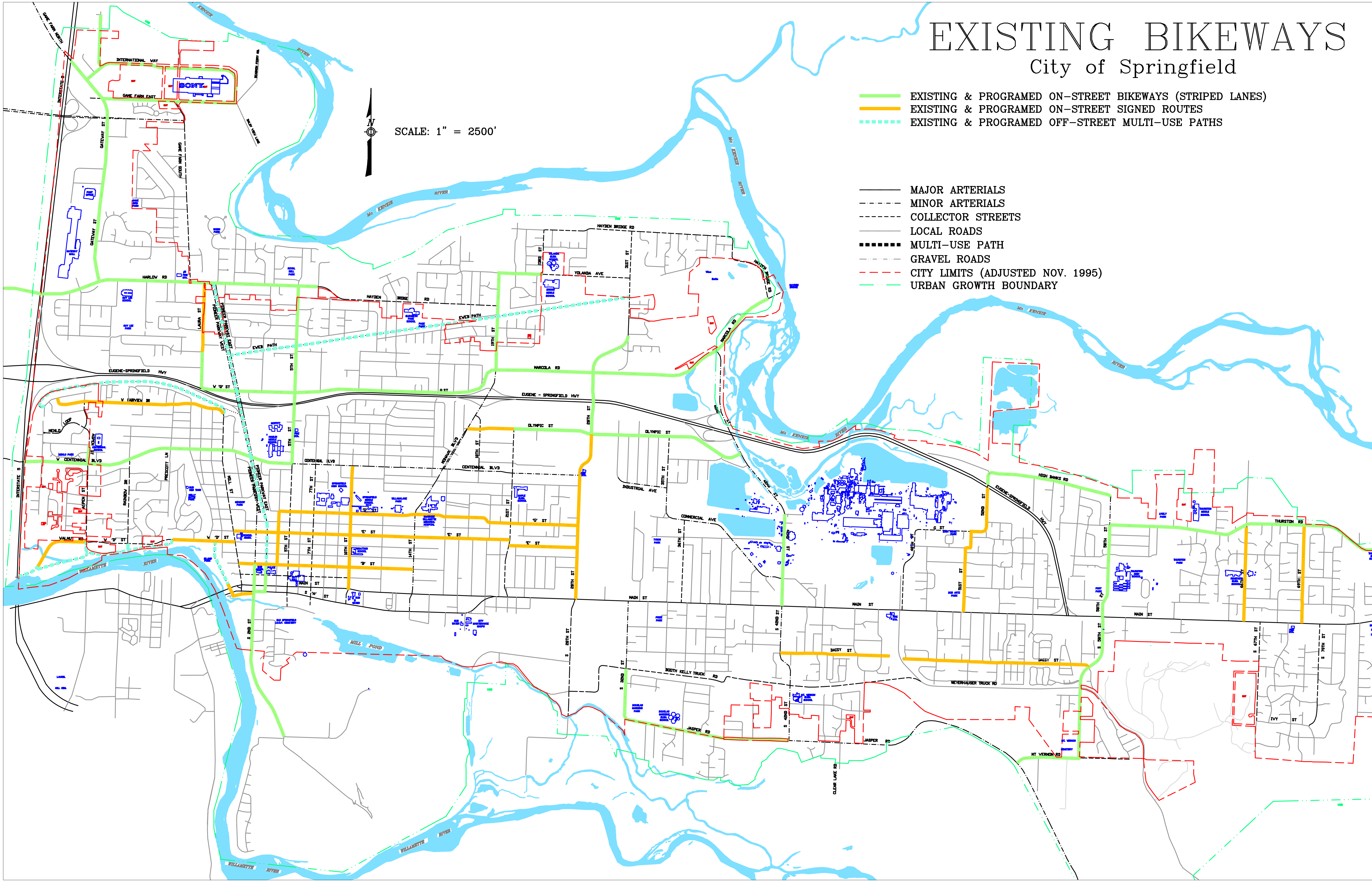
Bicycle traffic counts are not only a measure of progress, they also help support the need for projects. People are often amazed at how many bicyclists there are because this unobtrusive means of transport is so often “invisible.”

As with all data gathering to be used for comparison over time, keep the variables as few as possible. Try to take some counts in the same places at the same times for the same periods. Keep the methodology consistent.

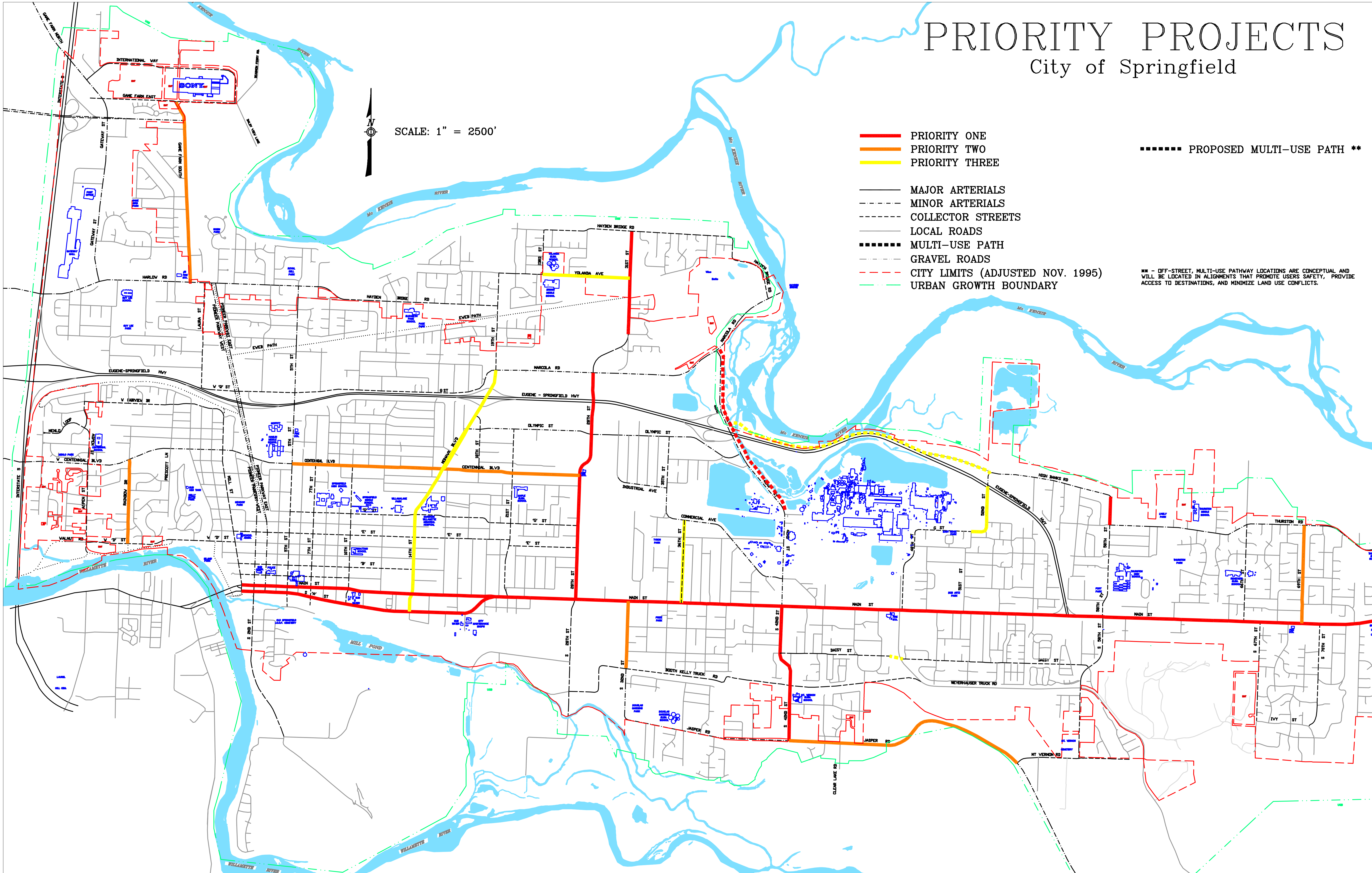
Introduce new areas each year so that the entire system is eventually counted. It is especially useful to take before-and-after counts of new bikeways. Conduct utilization counts of bicycle racks as well.

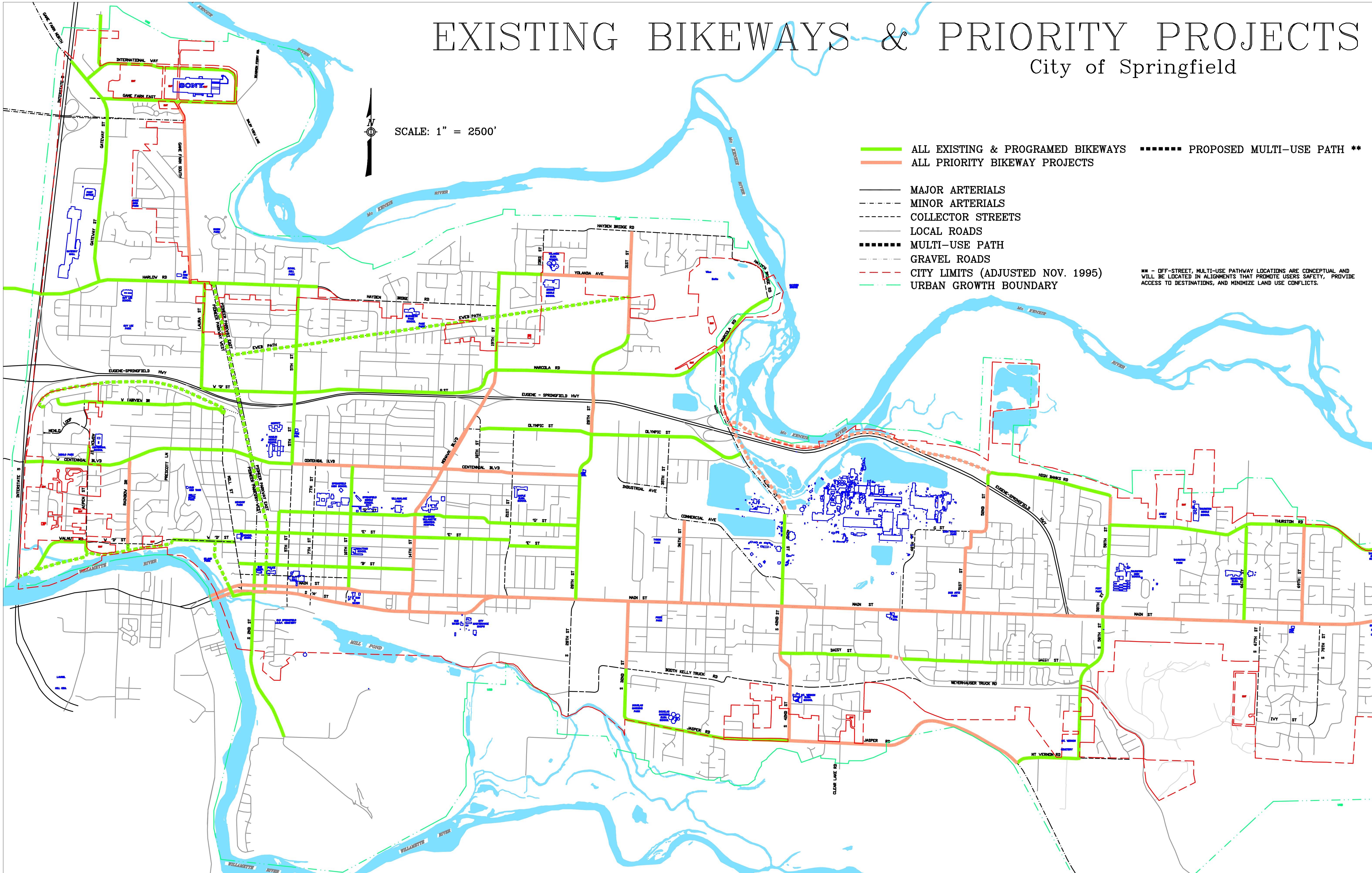
Besides a simple count of riders, you can often add other useful information: helmet usage, wrong-way riders, bicyclists on sidewalks, light usage (if at night), and pedestrians.

*Successful bicycle programs include more than just miles of facilities. Bicycling is one element of a comprehensive transportation system, and depends on a knowledgeable staff that has the support of enlightened citizens.*


EXISTING BIKEWAYS
City of Springfield
EXISTING & PROGRAMED ON-STREET BIKEWAYS (STRIPED LANES)
EXISTING & PROGRAMED ON-STREET SIGNED ROUTES
EXISTING & PROGRAMED OFF-STREET MULTI-USE PATHS
SCALE: 1" = 2500'
MAJOR ARTERIALS
MINOR ARTERIALS
COLLECTOR STREETS
LOCAL ROADS
MULTI-USE PATH
GRAVEL ROADS
CITY LIMITS (ADJUSTED NOV. 1995)
URBAN GROWTH BOUNDARY

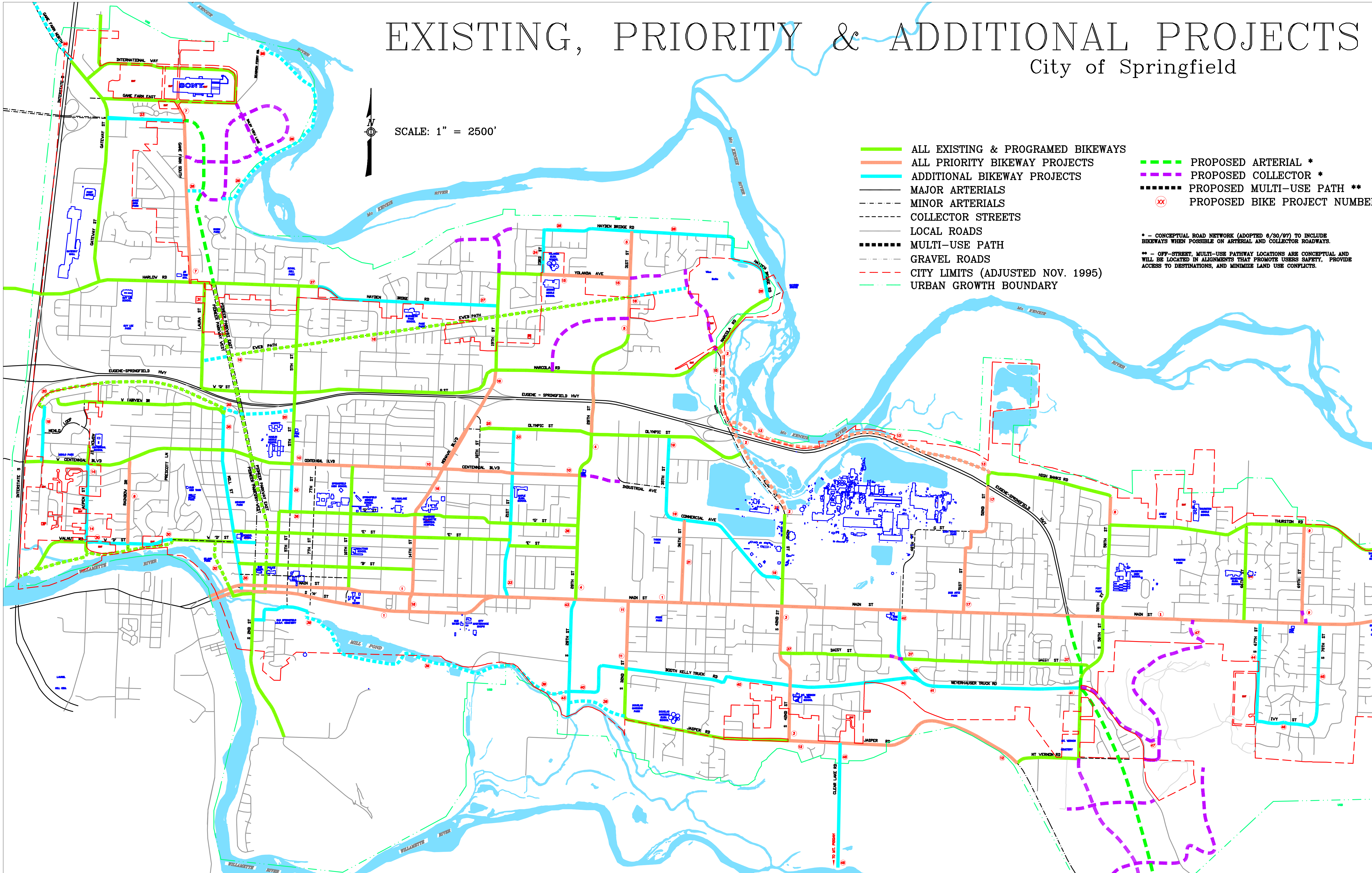
# PRIORITY PROJECTS
## City of Springfield




EXISTING BIKEWAYS & PRIORITY PROJECTS
City of Springfield
SCALE: 1" = 2500'
N
ALL EXISTING & PROGRAMED BIKEWAYS
ALL PRIORITY BIKEWAY PROJECTS
PROPOSED MULTI-USE PATH **
MAJOR ARTERIALS
MINOR ARTERIALS
COLLECTOR STREETS
LOCAL ROADS
MULTI-USE PATH
GRAVEL ROADS
CITY LIMITS (ADJUSTED NOV. 1995)
URBAN GROWTH BOUNDARY
** - OFF-STREET, MULTI-USE PATHWAY LOCATIONS ARE CONCEPTUAL AND WILL BE LOCATED IN ALIGNMENTS THAT PROMOTE USERS SAFETY, PROVIDE ACCESS TO DESTINATIONS, AND MINIMIZE LAND USE CONFLICTS.

# EXISTING, PRIORITY & ADDITIONAL PROJECTS

City of Springfield



# *Appendix A*
# *ORDINANCE GUIDELINES*

The following ordinances are recommended to implement the Bicycle Plan.

## *Provision of Bicycle Parking*

The lack of safe and convenient storage facilities for bicycles is a discouragement to their use. Poorly designed and installed bicycle parking can be a waste of resources and a further discouragement to bicycling as a transportation mode, as well as an irritant to noncyclists. The following ordinances differentiate between the downtown area of a small city and the outlying and more rural areas. These ordinances are typically placed in the PARKING AND LOADING section of the land use code.

*A. Number and Type of Bicycle Parking Spaces Required*

*1. General Minimum Standard. All uses that require off-street motor vehicle parking shall, except as specifically noted below, provide one bicycle parking space for every 10 required motor vehicle parking spaces, with a minimum of two bicycle parking spaces per use (one sheltered and one unsheltered).*

*2. Special Minimum Standards*

*a) Multi-Family Residences. Every residential use of 4 or more dwelling units shall provide at least one sheltered bicycle parking space for each unit. In those instances in which the residential complex has no garage or other easily accessible storage unit, the required bicycle parking spaces shall be sheltered under eaves, overhang, an independent structure, or similar cover.*

*b) Parking Lots. All public and commercial parking lots and parking structures shall provide a minimum of one bicycle parking space for every 10 motor vehicle parking spaces.*

*c) Schools. Elementary, middle, and high schools, both private and public, shall provide one bicycle parking space for every 10 students and employees, all of which shall be sheltered under an eave, overhang, independent structure, or similar cover.*

*d) Colleges. Colleges, universities, and trade schools shall provide one bicycle parking space for every 10 motor vehicle* *spaces plus one space for every dormitory unit. 50% of the bicycle parking spaces shall be sheltered under an eave, overhang, independent structure, or similar cover.*

*e) Downtown Areas. In downtown areas with on-street parking, bicycle parking for customers shall be provided along the street at a rate of at least one space per use. Spaces may be clustered to serve up to six bicycles. At least one cluster per block shall be provided. Bicycle parking spaces shall be located in front of the stores along the street, either on the sidewalks on in specially constructed areas such as pedestrian curb extensions. Inverted "U" style racks are recommended (see illustration). Bicycle parking shall not interfere with pedestrian passage, leaving a clear area of at least 5 feet between the parked bicycle and the store front. Customer spaces are not required to be sheltered. Sheltered parking (within a building, or under an eave, overhang, or similar structure) shall be provided at a rate of one space per 10 employees, with a minimum of one space per store.*

*f) Rural Schools, Service Centers, and Industrial Parks. Where a school, service center, or industrial park is located more than 5 miles from the closest urban area or residential development with a density of less than one dwelling unit per 20 acres, a minimum of one bicycle parking space per use shall be required.*

*3. Calculating the Number of Required Bicycle Parking Spaces*

*a) Fractional numbers of spaces shall be rounded up to the next whole space.*

*b) For facilities with multiple uses (such as a commercial center), the bicycle parking requirements shall be calculated by using the total number of motor vehicle parking spaces required for the entire development.*

*B. Bicycle Parking Design*

*1. General Description*

*a) Sheltered Bicycle Parking. Sheltered bicycle parking is primarily for long-term parking such as for employees. Sheltered bicycle parking may be provided within a storage room, bicycle locker, or racks inside a building; in lockers or racks in an accessory parking structure; beneath an awning, eave, or other overhang; or by other facility as determined by* *the Hearings Body or Planning Director that protects the bicycle from direct exposure to the elements and provides long-term security.*

*b) Unsheltered Bicycle Parking. Unsheltered bicycle parking is primarily for short-term parking such as for shopping or visiting a library. Unsheltered parking may be provided by single or clustered bicycle racks (see illustration for acceptable types of racks).*

*2. Location*

*a) Required bicycle parking that is located outdoors shall be located within 50 feet of main entrances and no further from the entrance than the closest motor vehicle parking space.*

*b) Bicycle parking shall be separated from motor vehicle parking by a barrier, curb, or sufficient distance to prevent damage to parked bicycles.*

*c) Where bicycle parking facilities are not directly visible and obvious from the public right(s)-of-way, sign(s) shall be provided to direct bicyclists to the parking. Directions to sheltered facilities inside a structure may be signed or supplied by the employer, as appropriate.*

*3. Dimensional Standards*

*a) Each bicycle parking space shall be at least 2 by 6 feet with a vertical clearance of 7 feet.*

*b) An access aisle at least 5 feet wide shall be provided and maintained beside or between each row of bicycle parking, and between parked bicycles and a storefront.*

*c) Each required bicycle parking space shall be accessible without removing another bicycle.*

*4. Surface. The surface of an outdoor bicycle parking facility shall be the same as the motor vehicle parking surface, if the motor vehicle parking area is paved. If the motor vehicle parking area is unpaved, the bicycle parking area will be paved with a minimum of one inch thickness of crushed rock or similar material.*

5. *Security*

   a) *Bicycle parking facilities shall offer security in the form of either a lockable enclosure within which the bicycle can be stored, or a stationary object (i.e. "rack") upon which the bicycle can be locked. Racks that require a user-supplied lock shall accommodate both cable or chain locks and U-shaped rigid locks and shall permit the frame and both wheels to be secured (removing the front wheel may be necessary). All bicycle racks, lockers, or other facilities shall be permanently anchored to the ground or to a structure.*

   b) *If lighting is supplied to the motor vehicle parking area, the bicycle parking are shall also be lit.*

6. *Other means that provide the level of bicycle parking described above may be approved by the Hearings Body or the Planning Director.*

## *Safe, Convenient Bicycle/Pedestrian Circulation and Access*

In order for walking and bicycling to be viable forms of transportation, especially in the smaller urban centers where they can constitute a significant portion of local trips, the proper facilities must be supplied. In addition, certain development design patterns, such as orienting commercial uses to the street and placing parking behind the building, make a commercial district more accessible to nonmotorized transportation and to transit.

At a minimum, sidewalks should be provided along arterials and collectors in urban areas, bikeways be provided along arterials and major collectors, and separate bicycle and pedestrian facilities be provided where these would safely minimize trip distances by providing a "short cut." The following recommended ordinances should be placed within the appropriate section of the ZONING or SUBDIVISION ORDINANCE.

### ❖ *Definitions*

It may be necessary to include all or some of the following DEFINITIONS to bring the Zoning or Subdivision Code up to date:

1. *Access Corridor. A separate travel way for pedestrians and bicyclists to minimize travel distances within and between subdivisions, planned unit developments, residential areas, transit stops (if appropriate), or within and between nearby neighborhood activity centers such as schools, parks, and services.*

2. *Bicycle. A vehicle designed to operate on the ground on at least two wheels, propelled solely by human power, upon which any*

*person or persons may ride, and with at least one wheel more than 14 inches in diameter.*

3. *Bicycle Facilities. A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities and all bikeways.*

4. *Bikeway. Any road, path, or way that is some manner specifically open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes. The five types of bikeways are:*
   a. *Multiuse Path. A paved 10 to 12-foot wide way that is physically separated from motorized vehicular traffic and may be shared with other nonmotorized modes.*

   b. *Lane. A 4 to 6-foot wide portion of the roadway that has been designated by permanent striping and pavement markings for the exclusive use of bicycles.*

   c. *Shoulder Bikeway. The paved shoulder of a roadway that is at least 4 feet wide.*

   d. *Shared Roadway. A travel lane that is at least 14 feet wide and is shared by bicyclists and motor vehicles.*

   e. *Trail. An unpaved path that accommodates all-terrain bicycles.*

5. *Pedestrian Facilities: A general term denoting improvements and provisions made to accommodate or encourage walking, including sidewalks, accessways, and paths.*

## ❖ *Zoning Ordinance*

***SITE PLAN***

Required elements for a SITE PLAN should include bicycle parking and bicycle and pedestrian circulation elements such as accessways, walkways, and transit facilities (if appropriate). The site plan should be required to show the location of bicycle parking, walkways, accessways, and transit facilities (if appropriate). Typical language would be as follows:

*Required Minimum Standards*

*A. Nonmotorized Access.*

1. *Bicycle Parking. The development shall include the number and type of bicycle parking facilities required in Section ___ (Off-Street Parking and Loading) of this Title. The location and design of bicycle parking facilities shall be indicated on the site plan.*

2. *Pedestrian Access and Circulation*

*a) Internal pedestrian circulation shall be provided in new commercial, office, and multifamily residential developments through the clustering of buildings, construction of hard surface walkways or similar techniques.*

*b) Internal walkways shall connect building entrances to one another and from building entrances to public streets and existing and planned transit facilities (if appropriate). On-site walkways shall connect with walkways, sidewalks, bikeways, and other pedestrian and bicycle facilities on adjacent properties. Routing walkways across parking lots shall be avoided; site design shall locate walkways to provide the most direct routes for pedestrians and shall locate parking areas to accommodate the walkways.*

*c) Internal walkways shall be at least 5 feet in paved unobstructed width. Walkways that border parking spaces shall be at least 7 feet wide unless concrete bumpers, curbing, landscaping or other similar measures are provided to prevent parked motor vehicles from obstructing the walkway. Walkways shall be as direct as possible.*

*d) Driveway crossings by walkways shall be minimized. Where the walkway system crosses driveways, parking areas, and loading zones, the walkway must be clearly identifiable through the use of elevation changes, speed bumps, a different paving treatment, or other similar method. Marking a walkway with paint only (without other treatment) is to be avoided.*

*e) The primary building entrance and any walkway that connects a transit stop (if appropriate) shall have a maximum slope of 5%. Walkways up to 8% slope are permitted, but must be treated as ramps with railings and landings.*

*3. Commercial Development Standards*

*a) New commercial buildings shall be sited at the front yard setback line for lots with one frontage, and at both front yard setback lines for corner lots. For lots with more than two front yards, the building(s) shall be oriented to the two busiest streets. The building(s) shall have an entrance oriented toward the street.*

*b) An increase in the front yard setback may be allowed by the Hearings Body or Planning Director if the applicant can demonstrate that one or more of the following factors make it impractical to site the new building at the minimum setback:*

*i) Existing development on the site;*

*ii) Lot configuration;*

*iii) Topography of the lot;*

*iv) Significant trees or other vegetation to be retained;*

*v) Location of existing driveway access.*

*Such an increase in the front yard setback shall be the minimum necessary to accommodate the reason for the increase*
.

*c) Off-street motor vehicle parking for new commercial developments shall be located at the side or behind the building(s).*

## ❖ *Subdivision Ordinance*

***APPROVAL OF SUBDIVISION TENTATIVE PLANS AND FINAL PLATS***
Information required should include the location and design of all proposed pedestrian and bicycle facilities, including access corridors.

***DESIGN STANDARDS***
Should include a section such as:

*Streets, Sidewalks, and Bikeways*

*A. Pedestrian and Bicycle Circulation within Subdivision*

*1. The tentative plan for a proposed subdivision shall include bicycle and pedestrian facilities and improvements within the subdivision, including accessways as necessary to provide more direct connections through the subdivision. The tentative plan shall demonstrate how the subdivision's internal pedestrian and bikeway system provides safe and convenient connections to the surrounding street system.*

*2. Cul-de-Sacs and Accessways*

*a) Cul-de-sacs or permanent dead-end streets (not including temporary stubs) shall be allowed only where, due to severe topographical or environmental constraints or incompatible existing abutting street patterns, a street connection is determined by the Hearings Body or the Planning Director to be infeasible. In such instances, where feasible, there shall be an access corridor for pedestrians and bicyclists connecting the ends of cul-de-*

*sacs to streets or neighborhood activity centers on the opposite side of the block.*

b) *Access corridors for pedestrians and bicyclists shall be provided at mid-block where the block is longer than 1,000 feet and the addition of such a corridor would reduce out-of-direction travel for pedestrians and bicyclists.*

c) *Access corridors for pedestrians and bicyclists shall not be more than 400 feet long and shall be as straight as possible. The access corridor shall be a minimum of 10 feet wide, located within a 20-foot-wide right of way or easement. If the streets within the subdivision are lighted, the accessways shall also be lighted.*

d) *The Hearings Body or Planning Director may determine, based upon evidence in the record, that an access corridor is inappropriate or impracticable. Such evidence may include but is not limited to:*

   i) *The nature of abutting existing development makes the construction of an access corridor impracticable;*

   ii) *The access corridor would cross a natural area with significant habitat, and construction of the access corridor would be incompatible with the protection of natural values;*

   iii) *The access corridor would cross topography where slopes exceed 30% or the corridor grade would exceed an 18% grade; or*

   iv) *A cul-de-sac or dead-end streets abuts rural resource land at the urban growth boundary, except where the adjoining land is designated as urban reserve.*

## ❖ *Road Standards (Bikeways and Sidewalks)*

Recommended bikeway and sidewalk road standards for new road construction or the reconstruction of existing roads within urban areas are summarized in *Section 5: Implementation*. In general, the direction is as follows:

***URBAN STREETS***

1. *Urban Arterials*. All arterials should include marked and signed 6-foot wide bike lanes on both sides of the street. Arterials should include 6-foot wide sidewalks on both sides of the street, buffered from the street with a planting strip of at least 6 feet located between the sidewalk and the street. In downtown core areas, the sidewalk shall be at least 10 feet wide with no buffer required.

2. *Urban Collectors*. All collectors predicted to carry 3,000 ADT or greater shall include bike lanes at least 5 feet wide. Other collectors predicted to carry less than 3,000 ADT shall be constructed to include a wide outer lane of 14 feet to allow a shared bikeway. Collectors shall include a 6-foot wide sidewalk with a planting strip of at least 6 feet located between the street and the sidewalk.

3. Urban Local Streets. Bikeways are not needed on local streets, since motor vehicle speeds are slow. All local streets shall include a 5-foot wide sidewalk buffered from the street with a planting strip of at least 4 feet.

***RURAL STREETS***

1. *Rural Arterials*. All rural arterials should include shoulders of at least 4 feet wide (8 feet preferred when the design hour volume is above 200) on both sides. Shoulders provide adequate bicycle and pedestrian space in sparsely inhabited rural areas.

   In rural areas where rural subdivisions, schools, or commercial centers attract pedestrians, a separated path may be desirable. This path could be cinder, bark chip, or similar surface, provided that an adequate road shoulder is also provided for bicyclists and other wheeled vehicles. The path should be at least 4 feet wide where the roadway has a 6-foot shoulder for bicyclists, and should be 10 feet wide if there is no road shoulder and the path will be a shared facility (the practice of placing a two-way multiuse path along one side of a roadway is discourage for safety reasons). The path should be located on the side of the road with the fewest side roads or driveway crossings, and access points and intersections with roads should be designed for safe bicycle-motor vehicle crossing and merging movements.

2. *Rural Collectors*. All rural collectors should include shoulders of at least 4 feet wide (8 feet preferred when the design hour volume is above 200) on both sides. Shoulders provide adequate bicycle and pedestrian space in sparsely inhabited rural areas.

   In rural areas where rural subdivisions, schools, or commercial centers attract pedestrians, a separated path may be desirable. This path could be cinder, bark chip, or similar surface, provided that an adequate road shoulder is also provided for bicyclists and other wheeled vehicles. The path should be at least 4 feet wide where the roadway has a 6-foot shoulder for bicyclists, and should be 10 feet wide if there is no road shoulder and the path will be a shared facility (the practice of placing a two-way multiuse path along one side of a roadway is discourage for safety reasons). The path should be located on the side of the road with the fewest side roads or driveway crossings, and access points and intersections with roads should be designed for safe bicycle-motor vehicle crossing and merging movements.

3. *Rural Local Streets*. All rural local streets should include shoulders at least 2 feet wide (4 feet preferred) on both sides. If rural subdivision densities are greater than one dwelling per acre, or if a school or other neighborhood attraction is located within walking or bicycling distance of a rural subdivision, then either sidewalks, 4-foot shoulders on both sides of the roadway or a separated 10-foot-wide path should be provided.

# Appendix B
# RESOURCES

## *Reference Publications*

The following publications provide reference information useful for implementing this plan:


- Bank of America, et. al, *Beyond Sprawl: New Patterns of Growth to Fit the New California*, Bank of America, Environmental Policies and Programs, San Francisco, CA, January 1995.

- *Bicycle Parking Facilities: A Source Book of Designs, Manufacturers and Representatives*, Oregon Department of Transportation, Systems Planning Section, Salem, OR, December 1992.

- *Guide for the Development of Bicycle Facilities* (1991), American Association of State Highway and Transportation Officials (AASHTO), Washington, D.C., establishes national standards for the planning, design and operation of bicycle facilities. Adopted and supplemented by the *Oregon Bicycle and Pedestrian Plan*.

- *Intermodal Surface Transportation Efficiency Act* (ISTEA) (1991) establishes bicycling and walking as legitimate forms of transportation and provides support to the widespread development of bicycle and pedestrian facilities; requires states and metropolitan areas to develop multimodal transportation systems that maximize mobility while minimizing fuel consumption and pollution. ISTEA allows the use of some Federal funds for non-highway transportation projects.

- Litman, Todd, *Transportation Cost Analysis*, Victoria Transport Policy Institute, Victoria, BC, February 1995.

- Lowe, Marcia, *The Bicycle: Vehicle for a Small Planet*, Paper 90, Worldwatch Institute, Washington, DC, September 1989.

- Lowe, Marcia, *Alternatives to the Automobile: Transport for Livable Cities*, Paper 98, Worldwatch Institute, Washington, DC, October 1990.

- Lowe, Marcia, *Shaping Cities: The Environmental and Human Dimensions*, Paper 105, Worldwatch Institute, Washington, DC, October 1991.

- *Manual on Uniform Traffic Control Devices* (MUTCD) (1988), Federal Highway Administration, Washington, D.C., establishes basic national standards for the signing and marking of bikeways. Adopted and supplemented by the *Oregon Bicycle and Pedestrian Plan*.

- *Model Pedestrian and Bicycle Ordinances* (1992), Oregon Chapter of the American Planning Association, c/o J. Fregonese, Regional Planning Supervisor, Metropolitan Service District, Portland, OR, December 1992. Recommends specific ordinances for use by Oregon municipalities when implementing bicycle plans.

- Moore, Terry and Paul Thorsnes, *The Transportation/Land Use Connection*, American Planning Association, Report No. 448/449, Chicago, IL, January 1994.

- *National Bicycling and Walking Study*, Federal Highway Administration, 1994. A series of 24 case studies published under separate covers and a Final Report. Source: National Bicycle and Pedestrian Clearinghouse.

- Nelessen, A. C., *Visions for a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities*, Edwards Brothers, Ann Arbor, MI, January 1994.

- *Oregon Transportation Planning Rule 660-12* (1991) requires cities and counties to plan for non-automotive choices including bicycling and walking. In addition, street and road networks and new developments should be laid out so that short trips can be made without driving.

- *Oregon Transportation Plan* (1992) stresses that people must have choices and that transportation systems must support land-use plans. This includes improved circulation systems for bicycles and pedestrians whereby housing, day care, schools, commercial areas and employment can be reached easily and safely.

- *Oregon Bicycle and Pedestrian Plan* (June 1995), Oregon Department of Transportation, Highway Division, Bicycle and Pedestrian Program Office, Salem, OR, June 1995. Implements the pedestrian and bicycle portion of the Oregon Transportation Plan. Explains Oregon's Bicycle and Pedestrian Program and provides uniform guidance to local governments.

- *The Americans with Disabilities Act* (1991) requires accessible routes for all individuals. This affects, among many things, walkways, paths, crosswalks, ramps, and parking access aisles. Because these facilities may be shared by or affected by bicyclists, a bicycle plan must be sensitive to the needs of the disabled. ADA is a civil rights act, not a legislative requirement, and has the full power of a civil guarantee.

- *Trails for the 21st Century*, Rails to Trails Conservancy, Washington, DC, 1992.

## Organizations

The following are excellent sources for current bicycle program information:

- American Planning Association Planners Bookstore, 1313 E. 60th St., Chicago, IL 60637, (312) 955-9100.

- Bicycle Federation of America, 1818 R Street NW, Washington, D.C. 20009, (202) 332-6986.

- Bicycle Transportation Alliance, P.O. Box 9072, Portland, OR 97207, (503) 284-MOVE.

- National Bicycle and Pedestrian Clearinghouse, 1506 21st St. NW, Suite 210, Washington, DC 20036, (800) 760-NBPC.

- National Bicycle Program Manager, Federal Highway Administration, HEP-12, 400 7th Street SW, Washington, D.C. 20590, (202) 366-5007.

- Oregon Bicycle Safety Education Program, Oregon Department of Transportation, 400 State Library Building, Salem, OR 97310, (503) 378-3669.

- Oregon Bicycle and Pedestrian Program Office, Oregon Department of Transportation, Room 210, Transportation Building, Salem, OR 97310 Tel.: (503) 986-3555<br>FAX: (503) 986-3749<br>E-Mail: Michael.p.ronkin@state.or.us

- Transportation Options, c/o Central Oregon Environmental Center, 16 NW Kansas Avenue, Bend, OR 97701, (503) 385-6908.

- Victoria Transport Policy Institute, P.O. Box 38040, 794 Fort Street, Victoria, BC V8W 3N2, (604) 360-1560. **B**

# Appendix C
# INVENTORY

*May 1996*

| Street | From | To | Length mi | Width ft | Outside lane* ft | Speed, mph | ADT** |
|---|---|---|---|---|---|---|---|

*Outside lane width includes any bike lane or ridable shoulder.
**Average daily traffic from ADT Traffic Count Report, City of Springfield, April 25, 1995 or estimated.

## *Major Arterials*

| Street | From | To | Length mi | Width ft | Outside lane* ft | Speed, mph | ADT** |
|---|---|---|---|---|---|---|---|
| Hwy 126 | Pioneer Pkwy E | Main St | 5.19 | 90 | 14 | 65 | 41700 |
| Main St. | W UGB | S 20th St | 1.51 | 42 | 13 | 30 | 13852 |
| Main St. | 20th St | 42nd St | 1.64 | 64 | 13 | 40 | 26100 |
| Main St. | 42nd St | 73rd St | 3.40 | 64 | 13 | 45 | 26100 |
| Main St. | 73rd St | E UGB | .31 | 44 | 14 | 45 | 26100 |
| S 'A' St | W UGB | S 20th St | 1.57 | 39 | 13 | 35 | 13886 |
| | | | ***Subtotal =13.64*** | | | | |

## *Minor Arterials*

| Street | From | To | Length mi | Width ft | Outside lane* ft | Speed, mph | ADT** |
|---|---|---|---|---|---|---|---|
| 14th St | 'G' St | S 'A' St | .55 | 38 | 12 | 25 | 12313 |
| 28th St | Marcola Rd | Olympic St | .34 | 36 | 12 | 25 | 6361 |
| 28th St | Olympic St | Centennial Blvd | .26 | 36 | 12 | 25 | 9242 |
| 28th St | Centennial Blvd | Main St | .70 | 36 | 12 | 25 | 9361 |
| 32nd St | Main St | Jasper Rd | .66 | 24 | 12 | 40 | 5500 |
| 35th St | Industrial Ave | Commercial St | .16 | 28 | 12 | 25 | 2861 |
| 42nd St | Marcola Rd | RR tracks | 1.07 | 28 | 12 | 45 | 15897 |
| 42nd St | RR tracks | Main St | .49 | 59 | 15 | 35 | 15897 |
| 42nd St | Main St | Daisy St. | .26 | 30 | 12 | 30 | 10211 |
| 42nd St | Daisy St | RR tracks | .18 | 36 | 12 | 30 | 10211 |
| 42nd St | RR tracks | Jasper Rd | .32 | 24 | 12 | 30 | 10211 |
| 57th St | Daisy St | Mt Vernon Rd | .53 | 20 | 10 | 40 | 5000 |
| 58th St | High Banks Rd | Thurston Rd | .17 | 42 | 14 | 35 | 5797 |
| 58th St | Main St | Daisy St | .30 | 43 | 12 | 35 | 8406 |
| Beltline Rd | I-5 | Hutton St | .34 | 64 | 13 | 35 | 24931 |
| Beltline Rd | Hutton St | Game Farm S Rd | .33 | 64 | 13 | 35 | 6602 |
| Centennial Blvd | I-5 | Aspen St | .34 | 56 | 12 | 45 | 14861 |
| Centennial Blvd | Aspen St | Prescott Ln | .47 | 61 | 11 | 35 | 14861 |
| Centennial Blvd | Prescott Ln | 5th St | .22 | 43 | 12 | 35 | 14861 |
| Centennial Blvd | 5th St | 28th St | 1.64 | 36 | 11 | 35 | 11752 |
| Commercial Ave | 35th St | 41st St | .69 | 28 | 12 | 35 | 2718 |
| Commercial Ave | 41st St | 42nd St | .09 | 46 | 18 | 35 | 2718 |
| Game Farm S Rd | Beltline Rd | Hayden Bridge R | .92 | 24 | 12 | 35 | 6723 |
| Gateway St | Beltline Rd | Harlow Rd | .93 | 74 | 11 | 35 | 20858 |
| Harlow Rd | I-5 | Game Farm S Rd | .83 | 65 | 11 | 35 | 22683 |
| High Banks Rd | 52nd St | 58th St | .72 | 43 | 12 | 35 | 6523 |
| Industrial Ave | 30th St | 35th St | .28 | 24 | 12 | 25 | 2000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jasper Rd | 32nd St | 42nd St | .94 | 26 | 10 | 35 | 5500 |
| Jasper Rd | 42nd St | Mt Vernon Rd | 1.42 | 24 | 12 | 45 | 5500 |
| Marcola Rd | 19th St | Hayden Bridge R | 1.74 | 46 | 11 | 45 | 10578 |
| Mohawk Blvd | Marcola Rd | 18th St | .28 | 60 | 12 | 25 | 27220 |
| Mohawk Blvd | 18th St | 'G' St | .67 | 58 | 11 | 25 | 16972 |
| Mt Vernon Rd | Jasper Rd | 57th St | .35 | 20 | 10 | 40 | 3000 |
| Olympic St | Mohawk Blvd | 21st St | .26 | 42 | 10 | 35 | 8679 |
| Olympic St | 21st St | 28th St | .44 | 55 | 16 | 35 | 8679 |
| Olympic St | 28th St | 42nd St | .93 | 46 | 12 | 35 | 5722 |
| Pioneer Pkwy E | Hayden Bridge Wy | 'Q' St | .73 | 29 | 15 | 45 | 13312 |
| Pioneer Pkwy E | 'Q' St | 'A' St | 1.07 | 29 | 15 | 35 | 13312 |
| Pioneer Pkwy E | 'A' St | S 'A' St | .09 | 43 | 13 | 35 | 6797 |
| Pioneer Pkwy W | Hayden Bridge Wy | 'Q' St | .73 | 43 | 15 | 45 | 11463 |
| Pioneer Pkwy W | 'Q' St | 'F' St | .75 | 43 | 15 | 35 | 11463 |
| Pioneer Pkwy W | 'F' St | S 'A' St | .40 | 43 | 14 | 35 | 6709 |
| Thurston Rd | 69th St | E UGB | .53 | 43 | 12 | 40 | 2782 |
| Thurston Rd | 58th St | 69th St | 1.12 | 43 | 12 | 40 | 6626 |

***Subtotal = 26.38***

## *Collectors*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5th St | Hayden Bridge Wy | 'Q' St. | .60 | 44 | 17 | 30 | 9342 |
| 5th St | 'Q' St. | Centennial Blvd | .40 | 39 | 19 | 30 | 9342 |
| 5th St | Centennial Blvd | 'G' St | .27 | 36 | 11 | 30 | 4898 |
| 5th St | 'G' St | 'B' St | .30 | 36 | 11 | 30 | 2963 |
| 5th St | 'B' St | S 'A' St | .15 | 36 | 11 | 30 | 1191 |
| 7th St | Centennial Blvd | S 'A' St | .75 | 39 | 12 | 25 | 2328 |
| 10th St | Centennial Blvd | S 'A' St | .78 | 38 | 12 | 25 | 6602 |
| 18th St | Mohawk Blvd | Olympic St | .08 | 42 | 11 | 25 | 11752 |
| 18th St | Olympic St | Centennial Blvd | .23 | 36 | 12 | 25 | 14157 |
| 19th St | Yolanda Ave | 600' N of Marcola | .43 | 22 | 11 | 35 | 5000 |
| 19th St | 600' N of Marcola | Marcola Rd | .11 | 60 | 12 | 25 | 5000 |
| 21st St | Olympic St | Centennial Blvd | .24 | 36 | 11 | 25 | 12047 |
| 21st St | Centennial Blvd | Main St | .70 | 36 | 11 | 25 | 10498 |
| 23rd St | Hayden Bridge Rd | Yolanda Ave | .25 | 22 | 11 | 35 | 2000 |
| 28th St | Main St | S 'M' St | .80 | 24 | 12 | 35 | 4225 |
| 31st St | Yolanda St | 'U' St | .32 | 22 | 11 | 45 | 2000 |
| 31st St | 'U' St | Marcola Rd | .30 | 47 | 17 | 25 | 2500 |
| 35th St | Olympic St | Industrial Ave | .29 | 28 | 14 | 25 | 2861 |
| 36th St | Commercial St | Main St | .46 | 36 | 11 | 25 | 3000 |
| 48th St | 'G' St | Main St | .46 | 28 | 14 | 40 | 2500 |
| 52nd St | Hwy 126 | 'G' St | .25 | 22 | 11 | 40 | 4152 |
| 58th St | Thurston Rd | 'E' St | .17 | 42 | 17 | 35 | 6809 |
| 58th St | 'E' St | Main St | .34 | 42 | 15 | 35 | 6809 |
| 66th St | Thurston Rd | Main St | .55 | 35 | 11 | 25 | 2406 |
| 67th St | Main St | Dogwood St | .26 | 22 | 11 | 25 | 2000 |
| 67th St | Dogwood St | Ivy St | .30 | 35 | 13 | 25 | 1500 |
| 69th St | Thurston Rd | 'B' St | .37 | 27 | 13 | 45 | 3300 |
| 69th St | 'B' St | Main St | .17 | 20 | 10 | 45 | 3300 |
| 70th St | Main St | Ivy St | .60 | 20 | 10 | 25 | 1390 |
| 'A' St | Mill St | 10th St | .61 | 44 | 14 | 25 | 3837 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Aspen St | Menlo Loop | Centennial Blvd | .20 | 30 | 12 | 25 | 1465 |
| Aspen St | Centennial Blvd | W 'D' St | .43 | 22 | 11 | 35 | 1465 |
| 'B' St | Mill St | 10th St | .63 | 12 | 39 | 25 | 2526 |
| 'B' St | 10th St | 14th St | .35 | 35 | 11 | 25 | 2526 |
| Daisy St | 42nd St | 46th St | .43 | 35 | 10 | 25 | 2021 |
| Daisy St | 46th St | 47th St | .14 | 20 | 10 | 25 | 500 |
| Daisy St | 48th St | 58th St | 1.06 | 35 | 10 | 25 | 1231 |
| Deadmond Ferry Rd | Game Farm S Rd | International Wy | .36 | 47 | 17 | 25 | 3000 |
| 'E' St | Mill St | 21st St | 1.57 | 35 | 11 | 20 | 1642 |
| 'E' St | 21st St | 28st St | .38 | 30 | 11 | 25 | 2109 |
| Fairview Dr | Tamarack St | Mill St | .82 | 27 | 10 | 25 | 1500 |
| 'G' St | 5th St | Mohawk Blvd | .71 | 35 | 13 | 25 | 3233 |
| 'G' St | Mohawk Blvd | 28th St | .93 | 35 | 13 | 25 | 2533 |
| 'G' St | 48th St | 52nd St | .46 | 22 | 11 | 40 | 3000 |
| Game Farm E Rd | Gateway N St | Deadmond Ferry | .43 | 47 | 18 | 25 | 3000 |
| Game Farm S Rd | Game Farm E Rd | Beltline Rd | .12 | 73 | 18 | 35 | 5622 |
| Gateway N St | North UGB | Beltline Rd | .35 | 47 | 18 | 35 | 7400 |
| Hayden Bridge Rd | 5th St | 9th St | .29 | 27 | 13 | 35 | 8014 |
| Hayden Bridge Rd | 9th St | 19th St | .87 | 27 | 13 | 35 | 6720 |
| Hayden Bridge Rd | 23rd St | Marcola Rd | 1.53 | 20 | 10 | 35 | 2000 |
| Hayden Bridge Wy | Game Farm S Rd | Pioneer Pkwy E | .15 | 65 | 15 | 35 | 9397 |
| Hayden Bridge Wy | Pioneer Pkwy E | 5th St | .47 | 47 | 15 | 35 | 9397 |
| International Wy | Gateway N St | Deadmond Ferry | 1.05 | 47 | 18 | 25 | 2000 |
| Ivy St | 67th St | 70th St | .30 | 35 | 13 | 25 | 500 |
| Laura St | Hayden Bridge Rd | Scotts Glen Dr | .36 | 23 | 11 | 40 | 3245 |
| Laura St | Scotts Glen Dr | 'Q' St | .23 | 50 | 18 | 40 | 6350 |
| Menlo Loop | Tamarack St | Aspen St | .05 | 27 | 10 | 24 | 1000 |
| Mill St | W Fairview Dr | S 'A' St | 1.00 | 38 | 12 | 35 | 7346 |
| 'Q' St | Laura St | 19th St | 1.75 | 36 | 18 | 40 | 12935 |
| Rainbow Dr | Centennial Blvd | W 'D' St | .47 | 42 | 14 | 25 | 2067 |
| S 2nd St | S 'A' St | S 'G' St | .35 | 35 | 11 | 25 | 2964 |
| S 2nd St | S 'G' St | Dorris St | .52 | 20 | 10 | 35 | 2964 |
| Tamarack St | Fairview Dr | Aspen St | .16 | 27 | 10 | 25 | 500 |
| W 'D' St | Aspen St | Riverhills | .31 | 31 | 12 | 25 | 2326 |
| W 'D' St | Riverhills | Mill St | .54 | 31 | 11 | 25 | 2326 |
| Yolanda St | 19th St | 31st St | .75 | 35 | 11 | 25 | 2500 |
| | | | ***Subtotal=32.30*** | | | | |

## *Local Streets*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4th St | Broadway St | Main St | .66 | 36 | 11 | 25 | 1000 |
| 31st St | Hayden Bridge Rd | Yolanda St | .26 | 22 | 11 | 45 | 2000 |
| 52nd St | High Banks Rd | Hwy 126 | .05 | 43 | 12 | 35 | 7565 |
| Sports Wy | North UGB | International Wy | .28 | 44 | 12 | 25 | 100 |
| W 'D' St | Mill St | Pioneer Pkwy E | .18 | 35 | 11 | 25 | 2326 |
| | | | ***Subtotal=1.45*** | | | | |

## *Multi-Use Paths*

| | | | |
|---|---|---|---|
| Alton Baker EG Trail | Aspen St | W 'D' Dr | .50 |

| | | | |
|---|---|---|---|
| By-Gully Trail | Linden Ave | Mill St | 1.13 |
| EWEB Trail | Pioneer Pkwy E | 31st St | 2.35 |
| Pioneer Pathway | South ‘A’ St. | Harlow Rd. | 1.80 |
| | | | ***Subtotal=5.78*** |

# Appendix D
# BICYCLE LEVEL OF SERVICE

***NOTE: Lower numbers are better.*** Refer to *Section 3: Analysis* for explanation of ratings.
Analysis based on May 1996 inventory.

| ***Street*** | ***From*** | ***To*** | ***Classification*** | ***Score*** |
|---|---|---|---|---|
| ***Superior (below 3.00)*** | | | | |
| Sports Way | North UGB | International Way | Local | -1.77 |
| 31st St | 'U' St | Marcola Rd | Collector | -1.45 |
| International Way | Gateway N St | Deadmond Ferry Rd | Collector | -1.27 |
| 42nd St | RR tracks | Main St | Minor Arterial | -1.13 |
| Olympic St | 21st St | 28th St | Minor Arterial | -1.09 |
| Game Farm S Rd | Game Farm E Rd | Beltline Rd | Collector | -0.75 |
| Deadmond Ferry Rd | Game Farm S Rd | International Way | Collector | -0.64 |
| Laura St | Scotts Glen Dr | 'Q' St | Collector | -0.59 |
| Olympic St | 28th St | 42nd St | Minor Arterial | -0.49 |
| Thurston Rd | 69th St | E UGB | Minor Arterial | -0.30 |
| Gateway N St | North UGB | Beltline Rd | Collector | -0.26 |
| High Banks Rd | 52nd St | 58th St | Minor Arterial | -0.20 |
| Game Farm E Rd | Gateway N St | Deadmond Ferry Rd | Collector | 0.11 |
| 28th St | Marcola Rd | Olympic St | Minor Arterial | 0.49 |
| 52nd St | High Banks Rd | Hwy 126 | Local | 0.51 |
| Thurston Rd | 58th St | 69th St | Minor Arterial | 0.72 |
| 5th St | 'Q' St. | Centennial Blvd | Collector | 0.73 |
| 5th St | Hayden Bridge Way | 'Q' St. | Collector | 0.85 |
| 58th St | 'E' St | Main St | Collector | 0.91 |
| 58th St | Main St | Daisy St | Minor Arterial | 0.93 |
| 58th St | Thurston Rd | 'E' St | Collector | 1.11 |
| Marcola Rd | 19th St | Hayden Bridge Rd | Minor Arterial | 1.20 |
| Commercial Ave | 41st St | 42nd St | Minor Arterial | 1.36 |
| Centennial Blvd | Prescott Ln | 5th St | Minor Arterial | 1.73 |
| Gateway St | Beltline Rd | Harlow Rd | Minor Arterial | 2.17 |
| W 'D' St | Aspen St | Riverhills | Collector | 2.18 |
| 'Q' St | Laura St | 19th St | Collector | 2.48 |
| Centennial Blvd | I-5 | Aspen St | Minor Arterial | 2.52 |
| Hwy 126 | Pioneer Parkway E | Main St | Highway | 2.53 |
| Centennial Blvd | Aspen St | Prescott Ln | Minor Arterial | 2.74 |
| Harlow Rd | I-5 | Game Farm S Rd | Minor Arterial | 2.81 |
| Rainbow Dr | Centennial Blvd | W 'D' St | Collector | 2.88 |
| Hayden Bridge Way | Game Farm S Rd | Pioneer Parkway E | Collector | 2.88 |
| ***Good (3.00–3.99)*** | | | | |
| Hayden Bridge Rd | 9th St | 19th St | Collector | 3.09 |
| Hayden Bridge Way | Pioneer Parkway E | 5th St | Collector | 3.13 |
| 48th St | 'G' St | Main St | Collector | 3.14 |
| 42nd St | Daisy St | RR tracks | Minor Arterial | 3.15 |
| Main St. | 73rd St | E UGB | Major Arterial | 3.26 |
| Hayden Bridge Rd | 5th St | 9th St | Collector | 3.35 |
| 19th St | 600 ft N of Marcola Rd | Marcola Rd | Collector | 3.36 |
| 23rd St | Hayden Bridge Rd | Yolanda Ave | Collector | 3.40 |
| 58th St | High Banks Rd | Thurston Rd | Minor Arterial | 3.41 |
| W 'D' St | Riverhills | Mill St | Collector | 3.43 |

| | | | | |
|---|---|---|---|---|
| 67th St | Dogwood St | Ivy St | Collector | 3.51 |
| Beltline Rd | Hutton St | Game Farm S Rd | Minor Arterial | 3.53 |
| Ivy St | 67th St | 70th St | Collector | 3.56 |
| 'E' St | Mill St | 21st St | Collector | 3.65 |
| Daisy St | 48th St | 58th St | Collector | 3.71 |
| 'G' St | Mohawk Blvd | 28th St | Collector | 3.72 |
| 35th St | Olympic St | Industrial Ave | Collector | 3.79 |
| 'G' St | 5th St | Mohawk Blvd | Collector | 3.86 |
| 'E' St | 21st St | 28st St | Collector | 3.89 |
| 42nd St | Main St | Daisy St. | Minor Arterial | 3.90 |
| 7th St | Centennial Blvd | S 'A' St | Collector | 3.93 |
| 69th St | Thurston Rd | 'B' St | Collector | 3.95 |

### *Fair (4.00–4.99)*

| | | | | |
|---|---|---|---|---|
| Aspen St | Menlo Loop | Centennial Blvd | Collector | 4.01 |
| Aspen St | Centennial Blvd | W 'D' St | Collector | 4.04 |
| 28th St | Olympic St | Centennial Blvd | Minor Arterial | 4.20 |
| 28th St | Centennial Blvd | Main St | Minor Arterial | 4.21 |
| 'A' St | Mill St | 10th St | Collector | 4.23 |
| 35th St | Industrial Ave | Commercial St | Minor Arterial | 4.29 |
| Daisy St | 46th St | 47th St | Collector | 4.31 |
| 67th St | Main St | Dogwood St | Collector | 4.36 |
| W 'D' St | Mill St | Pioneer Parkway E | Local | 4.43 |
| 66th St | Thurston Rd | Main St | Collector | 4.45 |
| Pioneer Parkway W | 'Q' St | 'F' St | Minor Arterial | 4.54 |
| Commercial Ave | 35th St | 41st St | Minor Arterial | 4.54 |
| Pioneer Parkway W | 'F' St | S 'A' St | Minor Arterial | 4.59 |
| Menlo Loop | Tamarack St | Aspen St | Collector | 4.64 |
| Pioneer Parkway E | 'Q' St | 'A' St | Minor Arterial | 4.66 |
| 31st St | Hayden Bridge Rd | Yolanda St | Local | 4.69 |
| 31st St | Yolanda St | 'U' St | Collector | 4.69 |
| 5th St | 'G' St | 'B' St | Collector | 4.70 |
| 32nd St | Main St | Jasper Rd | Minor Arterial | 4.74 |
| 'G' St | 48th St | 52nd St | Collector | 4.74 |
| S 2nd St | S 'A' St | S 'G' St | Collector | 4.81 |
| Pioneer Parkway W | Hayden Bridge Way | 'Q' St | Minor Arterial | 4.83 |
| Game Farm S Rd | Beltline Rd | Hayden Bridge Rd | Minor Arterial | 4.84 |
| 5th St | 'B' St | S 'A' St | Collector | 4.85 |
| S 'A' St | W UGB | S 20th St | Major Arterial | 4.85 |
| 18th St | Olympic St | Centennial Blvd | Collector | 4.85 |
| Pioneer Parkway E | 'A' St | S 'A' St | Minor Arterial | 4.86 |
| 4th St | Broadway St | Main St | Local | 4.91 |
| Pioneer Parkway E | Hayden Bridge Way | 'Q' St | Minor Arterial | 4.95 |
| Yolanda St | 19th St | 31st St | Collector | 4.96 |
| 'B' St | Mill St | 10th St | Collector | 4.97 |
| 52nd St | Hwy 126 | 'G' St | Collector | 4.97 |

**Poor (5.00–5.99)**

| | | | | |
|---|---|---|---|---|
| 19th St | Yolanda Ave | 600 ft N of Marcola Rd | Collector | 5.00 |
| Fairview Dr | Tamarack St | Mill St | Collector | 5.01 |
| 10th St | Centennial Blvd | S ‘A’ St | Collector | 5.03 |
| Tamarack St | Fairview Dr | Aspen St | Collector | 5.06 |
| 21st St | Olympic St | Centennial Blvd | Collector | 5.07 |
| 5th St | Centennial Blvd | ‘G’ St | Collector | 5.09 |
| 28th S | tMain St | S ‘M’ St | Collector | 5.10 |
| Industrial Ave | 30th St | 35th St | Minor Arterial | 5.11 |
| Daisy St | 42nd St | 46th St | Collector | 5.12 |
| 18th St | Mohawk Blvd | Olympic St | Collector | 5.14 |
| Mill St | W Fairview Dr | S ‘A’ St | Collecto | r5.22 |
| Laura St | Hayden Bridge Rd | Scotts Glen Dr | Collector | 5.29 |
| Olympic St | Mohawk Blvd | 21st St | Minor Arterial | 5.37 |
| Mohawk Blvd | Marcola Rd | 18th St | Minor Arterial | 5.39 |
| 42nd St | RR tracks | Jasper Rd | Minor Arterial | 5.40 |
| Hayden Bridge Rd | 23rd St | Marcola Rd | Collector | 5.40 |
| 9th St | ‘B’ St | Main St | Collector | 5.45 |
| ‘B’ St | 10th S | t14th St | Collector | 5.47 |
| Jasper Rd | 32nd St | 42nd St | Minor Arterial | 5.60 |
| Beltline Rd | I-5 | Hutton St | Minor Arterial | 5.74 |
| 14th St | ‘G’ St | S ‘A’ St | Minor Arterial | 5.93 |
| Main St. | 20th St | 42nd St | Major Arterial | 5.98 |
| 70th St | Main St | Ivy St | Collector | 5.99 |

**Very Poor (6.00 and above)**

| | | | | |
|---|---|---|---|---|
| Main St. | 42nd St | 73rd St | Major Arterial | 6.12 |
| Main St. | W UGB | S 20th St | Major Arterial | 6.13 |
| Jasper Rd | 42nd St | Mt Vernon Rd | Minor Arterial | 6.14 |
| Mohawk Blvd | 18th St | ‘G’ St | Minor Arterial | 6.16 |
| 21st St | Centennial Blvd | Main St | Collector | 6.31 |
| 36th St | Commercial St | Main St | Collector | 6.56 |
| S 2nd St | S ‘G’ St | Dorris St | Collector | 6.59 |
| Centennial Blvd | 5th St | 28th St | Minor Arterial | 6.60 |
| Mt Vernon Rd | Jasper Rd | 57th St | Minor Arterial | 6.74 |
| 57th St | Daisy St | Mt Vernon Rd | Minor Arterial | 6.89 |
| 42nd St | Marcola Rd | RR tracks | Minor Arterial | 7.22 |

*Average Score* .................................................................. **4.00** (Fair)

# Appendix E
# PROJECT DETAIL

## Priority I Projects

### Main St. and S. 'A' St. (OR-126 Business, major arterial) 1

**From:** west UGB to east UGB, 8.5 mi. (6.9 mi Main St., 1.6 mi S. 'A' St.).

**Characteristics**: 26,100 ADT; 35–45 mph. East of 20th St., Main St. is 5 lanes, 64 ft wide with a 13 to 15-ft outside lane. West of 20th St., the highway is a couplet with Main St. westbound (42 ft, two 13-ft travel lanes with parking) and S. 'A' St. eastbound (39 ft, 3 travel lanes).

Hwy 126, including this business route, is a Statewide Highway, the second of 4 levels. This level requires a minimum of 11-ft travel lanes and 6-ft shoulders and a level-of-service D in urban areas per the Oregon Highway Plan.

**Destinations**: Downtown, employers, shopping, and residences.

**Connections**: Only east-west through route. Connects to 6 arterials (2 have bike lanes), Hwy 126, and 14 collectors (1 has bike lanes).

**Needs**: Main St. is noted for its high accident rate. From 1984–87, 8% of all reported bicycle crashes and 21% of all automobile crashes in the City occurred on Main St. east of 21st St. Within the East Main area from 1983–87, all pedestrian accidents and one death occurred on Main St. (refer to *East Main Refinement Plan*, April 4, 1988).

In the *1990-95 Bicycle Accident Report*, Main St. and S. 'A' St. accounted for 27 crashes out of 96 total (28%), distributed from Mill St. to 58th St., with the highest concentration (16) occurring west of 17th St. There were 6 crashes on Main St. from 14th St. to 17th St. (Note: Main St. and S. 'A' St. account for 12% of the arterial and collector miles, excluding Hwy 126.)

Problems related to bicycles on Main St. were reported in the *Roadway and Traffic Safety Management Plan*, Feb. 1982, as:

- bicyclists riding in the center turn lane
- bicyclists riding on the dirt path next to the curb
- a high-speed differential between bikes and auto traffic
- high-speed trucks in the curb lane next to the cyclists

Very little has changed since 1982, except that conditions have worsened. Previous transportation plans (refer to Section 4: Goals and Policies) have noted that Main St. is the only direct east-west corridor in Springfield, yet recommend that alternative bicycle routes be developed. These proposed routes would not parallel Main St. for more than a fraction of its length, nor would they serve bicyclists needing to reach destinations on Main St. Although each alternative is a worthy project on its own, none is an adequate substitute for Main St. Furthermore, each project has significant problems that has prevented it from being implemented (refer to the individual project discussions).

**Solution**: All of the problems noted above-crashes, high speeds, speed differentials, bicyclists in improper locations-are addressed by bike lanes. Previous plans assume that there is insufficient roadway width for bike lanes, although a small amount from each travel lane would create enough space and still maintain capacity; narrower lanes would also tend to reduce speeding while maintaining capacity (refer to Section 6 for other advantages).

ODOT‘s standard restriping configuration for 5 lanes is 12-ft center turn lane, 11-ft inside lanes, 12-ft outside lanes, and 5 or 6-ft bike lanes (even narrower lanes are often used by cities). For the 64-ft segment of Main St., 5B-11-10-12CT-10-11-5B is a workable configuration. For the couplet, Main St. westbound would be 7P-5B-11-12-7P, and S. 2nd St. eastbound could be 12-11-11-5B.

Where Main St. widens around the Hwy 126 junction, provide adequate crossing areas for bicyclists and motorists. At the entrance to Hwy 126 where bicycles merge left and cars right, use sign R4-4, “Begin Right Turn Lane, Yield to Bikes." At the exit where bicycles merge right and cars left, use OBR1-2-24, Bicycle Yield sign, for bicycles and W11-1, Bicycle Crossing, for motorists.

Past discussions about bike lanes have focused on a perceived incompatibility with high traffic volumes, especially trucks. This has not proven to be a problem in Oregon, and ODOT's policy is to provide bike lanes on all urban highways. Like any facility, a bike lane must be installed correctly and maintained to encourage responsible use and to maximize safety. A physical median should also be considered to reduce excessive turning movements and to provide a pedestrian refuge. Good intersection design is also essential, with or without bike lanes.

**Relationship to other projects**: This project expands on TransPlan #708 (designated route). Also, several signals are planned for Main St.; it would be advantageous to have bike lanes installed before the signal sensors are buried. TransPlan #130 calls for reconstruction of Main St. west of 20th St. which would require bike lanes by state law.

**Other modes served**: Bike lanes will provide a space buffer for pedestrians. Bike lanes, in conjunction with parking improvements and bicycle racks on buses, will also increase the coverage of transit stops (and park-and ride lots) by allowing more people to reach them by bicycle; Main St. is on a transit trunk route with a major station planned at 57th St. (see TransPlan).

**Cost**: Striping, stencils and signing will cost about $35,000 for 6.7 mi from Mill St. to the east UGB.

## 42nd St. (minor arterial) 2

**From:** Marcola Rd. to railroad tracks, 1.1 mi.

**Characteristics**: 16,000 ADT; 35 mph; 2 lanes; 24 ft wide; abandoned railroad corridor and waterway on east side, and some industrial development on west side.

**Destinations**: Shopping, employers, and residences.

**Connections**: Major north-south through route and Hwy 126 access. Segment of 42nd St. south of this project has bike lanes. Connects to 2 arterials (both have bike lanes), Hwy 126, and would also provide access to west end of proposed McKenzie River connector trail.

**Needs**: Bike lanes and better railroad crossing.

**Solution**: Widen and stripe bike lanes. Because of the high traffic volume, the street should be brought up to full arterial standard (curbs, sidewalks and bike lanes). However, because of the narrow width and importance of this link, shoulders may be desirable as an interim improvement if full standard is not practical in the near-term; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists.

**Relationship to other projects**: TransPlan #355 (long range, upgrade with curbs and sidewalks) and #733a (bike lanes); McKenzie River connector (see project below).

**Other modes served**: As there are no sidewalks, shoulders will also be used by pedestrians if no sidewalks are provided.

**Cost**: Adding 12 ft of roadway width for 6-ft shoulder bikeways and 12-ft travel lanes will be about $200,000. Reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $600,000. Whatever improvements are made will benefit all users.

## S. 42nd St. (minor arterial) 3

**From**: Main St. to Jasper Rd., 0.8 mi.

**Characteristics**: 10,000 ADT; 30 mph; 2 lanes; 36 ft wide with curbs and bike lanes between Daisy St. and the railroad tracks, 30 ft north of Daisy St., 24 ft south of the tracks with sharp dropoff.

**Destinations**: Shopping, residences, park, and a school.

**Connections**: Connects Jasper Rd. to Main St. and crosses Daisy St. (collector) and Booth Kelly Logging Rd. (future collector or trail).

**Needs**: Bike lanes and a better railroad crossing.

**Solution**: Because of the high traffic volume, the street should be brought up to full arterial standard (curbs, sidewalks and bike lanes). However, the narrow width and importance of this link make shoulders acceptable as an interim improvement; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists.

**Relationship to other projects**: TransPlan #355 (long range, upgrade with curbs and sidewalks) and #733b (bike lanes).

**Other modes served**: A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost**: North of Daisy St. (0.27 mi), adding 6 ft of roadway width for 6-ft shoulder bikeways will be about $25,000; reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $120,000.

South of the railroad tracks (0.32 mi), adding 12 ft of roadway width for 6 ft shoulder bikeways will be about $60,000 plus piping the drainage system; reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $195,000 plus piping the drainage system.

Whatever improvements are made will benefit all users.

### 28th St. (minor arterial) 4

**From**: Olympic St. to Main St., 1.0 mi.

**Characteristics**: 9,300 ADT; 25 mph; 3 lanes; 36 ft wide.

**Destinations**: Shopping, employers, and residences.

**Connections**: 28th St. is a major north-south through route with an under crossing of Hwy 126. With 31st St. (see project below), it connects the central north and south sections of the city. The 2425-ft segment of 31st St. and 28th St. north of this project has bike lanes. Connects to 2 arterials (1 has bike lanes) and 2 collectors.

**Needs**: Bike lanes.

**Solution**: Stripe bike lanes by removing the continuous center-turn lane which is of doubtful utility on this street due to the limited commercial development.

**Relationship to other projects**: TransPlan #352 (long range, upgrade with sidewalks and bike lanes); also, #728 (bike lanes) covers this segment of 28th St. as well as the collector segment south of Main St. (see local area project below).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 28th St. south of 'E' St. is on a transit feeder route (see TransPlan).

**Cost**: Re striping for bike lanes will be about $7,000 for striping, stencils and signs. The segment between Olympic St. and Centennial Blvd. is identified for completion between 1995–2000 by the SBC.

### 31st St. (collector) 5

**From**: Hayden Bridge Rd. to about 'U' St., 0.6 mi.

**Characteristics**: 2,000 ADT (estimate); 45 mph; 2 lanes; 22 ft wide; County maintained.

**Destinations**: Residences, EWEB trail, and 2 nearby schools.

**Connections**: With 28th St. (see project above), 31st St. forms a major north south through route with an undercrossing of Hwy 126. The segment of 31st St. and 28th St. south of this project has bike lanes. Connects to 2 arterials (both have bike lanes), 2 collectors, and a trail.

**Needs**: Bike lanes, better junction with EWEB trail, and lower speeds.

**Solution**: Widen and stripe bike lanes; provide warning signs at EWEB trail and stripe crosswalk; lower speed limit to 25 mph. Because of the moderate traffic volume and because TransPlan identifies an upgrade as a long-range project, shoulders may be desirable as an interim improvement if full standard is not practical in the near-term; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists and any shoulder would be beneficial.

**Relationship to other projects**: TransPlan #379 (long range, upgrade with curbs, sidewalks and bike lanes) and #727 (bike lanes).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 31st St. is on a transit feeder route (see TransPlan). As there are no sidewalks, shoulders will also be used by pedestrians.

**Cost**: Adding 10 ft of roadway width for 5-ft shoulder bikeways will be about $95,000. Reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $350,000. Whatever improvements are made will benefit all users.

## 58th St. (minor arterial) 6

**From:** High Banks Rd. to Thurston Rd., 0.2 mi.

**Characteristics**: 5,800 ADT; 35 mph; 2 lanes; 42 ft wide.

**Destinations**: Residences.

**Connections**: Links 2 arterials that have bike lanes.

**Needs**: Bike lanes.

**Solution**: Stripe bike lanes.

**Relationship to other projects**: TransPlan #745a (bike lanes).

**Other modes served:** None.

**Cost**: Re striping for bike lanes will be about $1,000 for striping, stencils and signs. This project is identified for completion between 1995–2000 by the SBC.

## Game Farm Rd. S. (collector/minor arterial) 7

**From**: Deadmond Ferry Rd. to Harlow Rd., 1.0 mi.

**Characteristics**: 4,900 ADT; 35 mph; 2 lanes; 24 ft wide; collector for 650-ft segment north of Beltline Rd.

**Destinations**: Residences and employers.

**Connections**: Connects developing area in north Springfield to Hayden Bridge Way and the Pioneer Parkway.

**Needs**: Bike lanes.

**Solution**: Widen and stripe bike lanes. Because of the high traffic volume, the street should be brought up to full arterial standard (curbs, sidewalks and bike lanes). However, because of the narrow width and importance of this link, shoulders may be desirable as an interim improvement if full standard is not practical in the near-term; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists.

**Relationship to other projects**: TransPlan #275 (medium range, upgrade with curbs, sidewalks and bike lanes) and #671 (bike lanes).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Game Farm Rd. S. is on a transit feeder route (see TransPlan). As there are no sidewalks, shoulders will also be used by pedestrians if no sidewalks are provided.

**Cost**: Adding 12 ft of roadway width for 6-ft shoulder bikeways and 12-ft travel lanes will be about $175,000. Reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $555,000. Whatever improvements are made will benefit all users. This project is identified for completion between 2000-2005 by the SBC.

## *Priority II Projects*

### Rainbow Dr. (collector) 8

**From**: Centennial Blvd. to W. 'D' St., 0.5 mi.

**Characteristics**: 2,000 ADT; 25 mph; 2 lanes; 42 ft wide.

**Destinations**: Residences and Alton Baker path.

**Connections**: Connects the westside neighborhood north of Centennial Blvd. to the neighborhood south. It also is at the terminus of the Alton Baker path.

**Needs**: Bike lanes when the traffic volume exceeds 3,000 ADT.

**Solution**: Stripe bike lanes (7P-4B-10-10-4B-7P) and provide destination signs linking Centennial Blvd. with the Alton Baker path.

**Relationship to other projects**: TransPlan #697 (bike lanes).

**Other modes served**: None.

**Cost**: Restriping for bike lanes will be about $2,500 for striping, stencils and signs.

### 69th St. (collector) 9

**From**: Thurston Rd. to Main St., 0.5 mi.

**Characteristics**: 3,300 ADT; 45 mph; 2 lanes; 27 ft wide north of 'B' St. with curb on west side, and 20 ft wide south.

**Destinations**: Residences and shopping.

**Connections**: Connects the Thurston neighborhood to its 2 arterials.

**Needs:** Widen and stripe bike lanes, and lower speed limit.

**Solution**: When the street is reconstructed, add bike lanes. The 45 mph speed limit is inappropriate for a residential setting and should be no more than 35 mph.

**Relationship to other projects**: TransPlan #283 (medium range, widen east side of roadway) and #747 (bike lanes).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 69th St. is on a transit feeder route (see TransPlan).

**Cost**: Reconstruction to 32 ft with curbs, sidewalks and bike lanes will be about $400,000. This project is identified for completion between 2000 2005 by the SBC.

## Centennial Blvd. (minor arterial) 10

**From**: 5th to 28th St., 1.6 mi.

**Characteristics**: Three segments are complete from west to east, the forth segment from 5th to 28th remains to be constructed.:

- I-5 to Aspen St. - 1,800 ft of 56-ft wide roadway, 4 lanes, 5-ft shoulders, 15,000 ADT, 45 mph. (Complete)
- Aspen St. to Prescott Ln. - 2,500 ft of 61-ft wide roadway, 4 lanes, 4 ft shoulders, 15,000 ADT, 35 mph. (Complete)
- Prescott Ln. to 5th St. - 1,200 ft of 43-ft wide roadway, 3 lanes, 5-ft bike lanes, 15,000 ADT, 35 mph. (Complete)
- 5th St. to 28th St. - 8,675 ft of 38-ft wide roadway, 2 lanes, on-street parking, 12,000 ADT, 35 mph. (Needs Construction)

**Destinations**: Shopping, employers, residences, sports center, and 4 schools.

**Connections**: Major east-west route in western half of city. Connects to 3 arterials (1 has bike lanes) and 3 collectors.

**Needs**: Bike lanes on all segments. The present fragmented system promotes confusion and discourages use on this important corridor.

In the *1990-95 Bicycle Accident Report*, Centennial Blvd. accounted for 15 crashes out of 96 total (16%), the second highest after Main St. All crashes appear to have been at intersections or driveways, with 4 occurring at 5th St. where bike lanes end on both streets and 3 more occurring in the blocks just east of 5th St. where there are no bike lanes. (Note: Centennial Blvd. accounts for 4% of the arterial and collector miles, excluding Hwy 126.)

Improved intersection design, such as bicycle turn lanes, advance bicycle wait areas, and refuge medians may be warranted at 5th St. and the nearby intersections.

**Solution**: Stripe bike lanes throughout:

- I-5 to Aspen St. - With the addition of sidewalks as indicated by the County CIP, the available shoulder can accept bike lanes. (Completed 3/97)
- Aspen St. to Prescott Ln. - The current striping is 4-11-11-9M-11-11 4 where 9M is a median; this can be changed to 6B-11-11-5M-11-11 6B for 6-ft shoulder bikeways as an interim solution until sidewalks can be constructed. (Completed 3/97)
- Prescott Ln. to 5th St. - This segment has bike lanes.
- 5th St. to 28th St. - Bike lanes require removal of on-street parking, although it is possible to retain parking on one side with 10-ft travel lanes (7P-5B-10-10-6B) in which case the speed limit should be reduced to 25 mph (alternately, 7P-4B-11-11-5B is acceptable).

**Relationship to other projects**: TransPlan #330 (long range, upgrade with curbs and sidewalks I-5 to Prescott), #254 (signal at Prescott), and #710b (bike lanes). Note: County CIP lists modernization (sidewalks and bicycle lanes) from I-5 to Aspen St. for FY 1995.

**Other modes served**: This project, in conjunction with parking provisions at transit stops, will increase the service area of transit.

**Cost**: East of 5th St., restriping for bike lanes will be about $10,000 for striping, stencils and signs. The segments west of 5th St. are identified for completion between 1995–2000 by the SBC.

## S. 32nd St. (minor arterial) 11

**From**: Main St. to Railroad Crossing, 0.4 mi.

**Characteristics**: 5,500 ADT (estimated); 40 mph; 2 lanes; 24 ft wide.

**Destinations**: Employers, residences, parks, and a school.

**Connections**: Connects Jasper Rd. to Main St. and crosses Booth Kelly Logging Rd. (future collector or trail)

**Needs**: Bike lanes or shoulders and reduced speed.

**Solution**: Because of the high traffic volume, the street should be brought up to full arterial standard (curbs, sidewalks and bike lanes). However, because of the narrow width and importance of this link, shoulders may be desirable as an interim improvement if full standard is not practical in the near-term; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists.

The posted speed limit is inappropriate for an urban setting and should be lowered to no more than 35 mph.

**Relationship to other projects:** TransPlan #353 (long range, upgrade with curbs, sidewalks and bike lanes) and #729 (bike lanes).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 32nd St. north of Virginia St. is on a transit feeder route (see TransPlan). As there are no sidewalks, shoulders will also be used by pedestrians if no sidewalks are provided.

**Cost**: Adding 12 ft of roadway width for 6-ft shoulder bikeways will be about $125,000. Reconstruction to 36 ft with curbs, sidewalks and bike lanes will be about $400,000. Whatever improvements are made will benefit all users. This project is identified for completion between 2000-2005 by the SBC.

## Jasper Rd. (minor arterial) 12

**From**: S. 42nd St. to Mt. Vernon Rd, 1.4 mi.

**Characteristics**: 5,000–7,500 ADT; 35–45 mph; 2 lanes; 26 ft wide (6-9.5-9.5-1) west of 42nd, 24 ft wide east of 42nd.

**Destinations**: Shopping, residences, parks, and gardens.

**Connections**: Major east-west route on southern perimeter of UGB. Connects to 3 arterials and continues into rural countryside.

**Needs**: Bike lanes or shoulders.

**Solution**: Because of the high traffic volume, the street should be brought up to full arterial standard (curbs, sidewalks and bike lanes), especially west of 44th St. However, the narrow width and importance of this link make shoulders acceptable as an interim improvement; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists.

**Relationship to other projects**:
· TransPlan #354 (long range, upgrade with curbs, sidewalks and bike lanes).
· TransPlan #730 (bike lanes).
· County CIP: Jasper Rd. from MP 1.21 to MP 1.59, 0.38 mi, reconstruct to urban standards including curbs, sidewalks and bicycle lanes as joint effort with Springfield for FY 1996.

**Other modes served**: A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost**: East of 42nd St. (1.42 mi), adding 12 ft of roadway width for 6-ft shoulder bikeways will be about $270,000. The County CIP lists funding for a 0.38-mi segment (curbs, sidewalks and bike lanes) as $255,000.

## McKenzie River Connector (multi-use path) 13

**From**: Marcola Rd. to High Banks Rd., 2.0 mi.

**Characteristics**: Planned trail paralleling west and south side of McKenzie River and north side of Hwy 126.

**Destinations**: North central and eastern (Thurston) neighborhoods.

**Connections**: Connects to 3 arterials (2 have bike lanes) and 1 collector.

**Needs**: A major gap in Springfield's street network occurs where the Weyerhaeuser site meets a bend in the McKenzie River. Hwy 126 is the only east-west route through this area; bicycles (and pedestrians) must travel for about 1.5 mi on the highway shoulder between 42nd St. and 52nd St., an inappropriate facility for most urban users.

The next available east-west route is Main St. about a mile to the south. This route results in excessive out-of-direction travel; for example, a bicyclist needing to go from Marcola Rd. to Lively Swim Center on Thurston Rd. would cover an additional 0.8 mi via Main St.

**Design issues:** The planned trail alignment begins at Marcola Rd., which has a bike lane, near the intersection with 42nd St. It follows an abandoned railroad right-of-way east of 42nd St. for 0.5 mi to Hwy 126. The alignment then turns east and closely parallels Hwy 126 for 1.2 mi. There, it either joins the western end of High Banks Rd. (12-ft wide paved roadway) about 0.3 mi from the intersection with 53rd St. or continues close to the highway; in either case, trail construction may affect adjacent private property. A bike lane on High Banks Rd. begins at the intersection.

The trail section along Hwy 126 presents major construction challenges. The built-up roadbed offers insufficient surface for a trail for about 0.5 mi, which would necessitate considerable fill. Also, the highway crosses a side channel of the river in two places, which may require extension of two bridge structures.

**Relationship to other projects**: TransPlan #688 and 1995 Park, Recreation, and Open Space Plan.

**Other modes served**: The multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost**: A 12-ft wide path of this length costs about $300,000 without complications; the actual path could cost many times that because of the design issues involving a stream crossing at the Weyerhauser outflow and riverside construction issues.

## Aspen St. (collector) 14

**From:** Menlo Loop to W. 'D' St., 0.6 mi.

**Characteristics:** 1,500 ADT; 2 lanes; north of Centennial, 25 mph and 30 ft wide; south of Centennial, 35 mph and 22 ft wide.

**Destinations:** Residences and a school.

**Connections:** Connects the westside neighborhood north of Centennial Blvd. to the neighborhood south. The north end leads to a school, and the south ends accesses the Alton Baker path off of W. 'D' St.

**Needs:** A well-marked crossing of Centennial that includes a median refuge. A wider roadway with sidewalks south of Centennial. Bike lanes throughout when the traffic volume exceeds 3,000 ADT.

**Solution:** Install an enhanced crossing of Centennial Blvd. and mark the route with directional signs to the Alton Baker and By-Gully paths.
The segment north of Centennial Blvd. could accommodate bike lanes in a 5B-10-10-5B configuration by prohibiting on-street parking. Alternately, the street could be widened as shown in the County CIP.

Because of the destinations and moderate traffic volume, the segment south of Centennial should be brought up to full collector standard (curbs and sidewalks). However, the narrow width suggests that shoulders may be prudent as an interim improvement; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists.

The posted speed limit south of Centennial Blvd. is inappropriate for a residential setting and should be lowered to no more than 25 mph.

**Relationship to other projects:**
- TransPlan #383 (long range, upgrade with curbs, sidewalks and bike lanes).
- TransPlan #695 (bike lanes).
- County CIP lists improvement of Aspen St. to urban standards from Centennial Elementary School to Centennial Blvd. for FY 1995.

**Other modes served:** A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost:** Restriping for bike lanes north of Centennial (0.2 mi) will be about $1,700 for striping, stencils and signs. Adding 10 ft of roadway width for 5-ft shoulder bikeways and 11-ft travel lanes south of Centennial (0.4 mi) will be about $70,000; reconstruction to 32 ft with curbs, sidewalks and bike lanes will be about $245,000. Whatever improvements are made will benefit all users.

## *Priority III Projects*

### S. 57th St. & Mount Vernon Rd. (minor arterial) 15

**From**: Daisy St. to Jasper Rd., 0.9 mi.

**Characteristics**: 5,000 ADT (estimate); 40 mph; 2 lanes, 20 ft wide.

**Destinations**: Residences and a school.

**Connections**: Connects Jasper Rd. to 58th St. and crosses Daisy St. (collector) and Booth Kelly Logging Rd. (future collector or trail).

**Needs**: Bike lanes and reduce speed.

**Solution**: Because of the high traffic volume, the streets should be brought up to full arterial standard (curbs, sidewalks and bike lanes). However, the narrow width and importance of this link make shoulders acceptable as an interim improvement; the Highway Capacity Manual recommends 8-ft shoulders for arterials with this traffic volume although 6 ft would be sufficient for bicyclists. The posted speed limit is inappropriate for an urban setting and should be lowered to no more than 35 mph.

**Relationship to other projects:**

- TransPlan #382 (long range, upgrade with curbs, sidewalks and bike lanes).
- TransPlan #744 (designated route, short-range?) for Mt. Vernon Rd., and #745b (bike lanes) for S. 57th St.
- County CIP: Mt. Vernon Rd. and part of 57th St., widen, improve sight distance, improve railroad crossing, and add curbs, sidewalks and bicycle lanes, 0.63 mi, for FY1996.

**Other modes served**: A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost**: The County CIP lists funding for 0.63 mi of Mt. Vernon Rd. as $935,000. Reconstruction of the remaining 0.3 mi to 36 ft with curbs, sidewalks and bike lanes will be about $575,000. This project is identified for completion between 2000-2005 by the SBC.

### Mohawk Blvd. and 14th St. (minor arterial) 16

**From**: Marcola Rd. to S. 'A' St., 1.5 mi.

**Characteristics**: There are 3 segments to this corridor, from north to south:

- Marcola Rd. to 18th St. — 1,475 ft of 60-ft wide roadway, 4 lanes and center-turn lane, 5-ft shoulders, 27,000 ADT, 25 mph.
- 18th St. to 'G' St. — 3,550 ft of 58-ft wide roadway, 4 lanes with a 2-ft physical median and staggered left-turn lanes, 17,000 ADT, 25 mph.
- 'G' St. to S. 'A' St. — 2,900 ft of 38-ft wide roadway, 2 lanes, on-street parking, 12,000 ADT, 25 mph.

**Destinations**: Shopping, employers, residences, hospital, and park.

**Connections**: With 19th St. (see project above), Mohawk Blvd./14th St. forms a major north-south through route with Hwy 126 access. Connects to Hwy 126, 4 arterials (1 has bike lanes), and 3 collectors.

**Needs**: Bike lanes are warranted on an arterial and especially at this traffic volume.

In the *1990-95 Bicycle Accident Report*, Mohawk Blvd. and 14th St. accounted for 7 crashes, third in number behind Main St. and Centennial Blvd. (2 more crashes occurred at Main St. and are included in its count). There were 3 crashes at the Hwy 126 ramps, indicating that the ramp design should be modified.

**Solution**: Stripe bike lanes throughout:

· Marcola Rd. to 18th St. — Bike lanes can be striped by narrowing the travel lanes to 10 ft (acceptable at 25 mph) or by removing the center turn lane.

· 18th St. to ‘G’ St. — At the present width, bike lanes require removal of the median and left-turn lanes, probably not acceptable at such high traffic volume. There are several alternatives:

- Reconstruct the roadway (not scheduled in TransPlan) to add width for bike lanes.
- Restripe for 2 lanes with a center-turn lane in conjunction with signal improvements; the traffic volume is at the top end of what a 3-lane section can handle.
- Create a wider shared outside lane by narrowing the inside travel lanes; this is the minimum that should be done.

· ‘G’ St. to S. ‘A’ St. — Bike lanes require removal of on-street parking, although it is possible to retain parking on one side with 10-ft travel lanes (7P-5B-10-10-6B or, if necessary, 7P-4B-11-11-5B).

**Relationship to other projects**: TransPlan #136 (short range, upgrade signal system) and #725a (bike lanes) for Mohawk Blvd., and #725b (bike lanes) for 14th St..

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Mohawk Blvd. is on a transit trunk and feeder route (see TransPlan).

**Cost**: Restriping for bike lanes will be about $12,000 for striping, stencils and signs. This project is identified for completion between 2005–2010 by the SBC.

## 52nd St., ‘G’ St. and 51st St. (collector) 17

**From**: High Banks Rd. to Main St., 1.2 mi.

**Characteristics**: In 4 segments, north to south:

· 52nd St. (High Banks Rd. to Hwy 126) — 300 ft of 43-ft wide roadway, 2 lanes and center-turn lane, 5-ft bike lanes, 7,600 ADT, 35 mph.

- 52nd St. (Hwy 126 to ‘G’ St.) — 1,340 ft of 22-ft wide roadway, 2 lanes, 4,200 ADT, 40 mph.
- ‘G’ St. (48th St. to 51st St.) — 600 of 22-ft wide roadway, 2 lanes, 3,000 ADT (estimate), 40 mph.
- 51st St. (‘G’ St. to Main St.) — 2,100 ft of 22-ft wide local roadway, 2 lanes, 1200 ADT (estimate), 25 mph.

**Destinations**: Residences, new school.

**Connections**: Links 2 arterials (1 has bike lanes) and Hwy 126. Connects new school.

**Needs**: Bike lanes or shoulders. Crossing improvements at Hwy 126.

**Solution**: Widen and stripe bike lanes on the segments south of Hwy 126. The need is greatest for 52nd St. and ‘G’ St. which are narrow and carry the most traffic. 51st St. is a narrow unimproved roadway with ditches on both sides.

Because of the moderate traffic volume, the streets should be brought up to full collector standard (curbs and sidewalks). However, because of the narrow width of 52nd St. and ‘G’ St., shoulders may be desirable as an interim improvement if upgrade to full standard is not practical in the near-term; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists.

The posted speed limit is inappropriate for an urban setting and should be lowered to no more than 35 mph.

The intersection with Hwy 126 is very wide with large-radius corners. Refuge and median islands, bicycle-sensitive signals, and strongly marked crossing lanes are indicated.

**Relationship to other projects**:
- 52nd St.: TransPlan #291 (medium range, upgrade with curbs and sidewalks) and #737 (bike lanes).
- ‘G’ St.: TransPlan #380 (long range, upgrade with curbs and sidewalks) and #734 (bike lanes).
- 51st St.: This roadway requires improvements to bring it up to City standards. The development of a new middle school should initate this change, providing cyclist a shared roadway facility.
- 48th St.: This collector from ‘G’ St. to Main St. is on TransPlan (#381 and #735) but was dropped from the Bicycle Plan projects in favor of 51st St., a parallel street to the east. However, 48th St. would be a logical connector to the Weyerhaeuser Truck Rd. if that is ever converted into a public street.

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 48th St. is on a transit feeder route (see TransPlan).

**Cost**: Adding 10 ft of roadway width on 52nd St. and ‘G’ St. (0.7 mi) for 5-ft shoulder bikeways and 11-ft travel lanes will be about $115,000; reconstruction to 32 ft with curbs, sidewalks and bike lanes will be about $400,000. Reconstruction of 51st St. to 36 ft with curbs, and a sidewalk will be about $440,000 plus piping the drainage system.

### EWEB Trail (multi-use path) 18

**From:** Pioneer Parkway to 31st St., 2.4 mi.

**Characteristics:** This long, 10-ft wide paved path along a linear utility corridor has long been the centerpiece of Springfield‘s trail system. Extensions are planned for the west end (750 ft to Laura St.) and east end (3,700 ft to Hayden Bridge Rd.).

**Destinations:** Shopping, residences, and 2 schools.

**Connections:** Connects to 1 arterial and 3 collectors (1 has bike lanes), and will also provide access to Pioneer Parkway trail (see project above).

**Needs:** This trail—slicing through residential neighborhoods, past schools and leading to a shopping mall—has great transportation potential. Increased maintenance, attention to street crossings, and improved access will greatly improve the trail’s utility and safety. Its width is minimal for this type of facility and should be increased to 12 ft.

**Solution:** The trail surface should be patched and resealed or resurfaced. Vegetation should be trimmed back where it encroaches on the required clear space (3 ft on sides and 10 ft overhead) or impairs line-of-sight at intersections. The trail is maintained by the County.

The 5 street crossings should be designed to provide trail users with convenient, highly visible, at-grade crossings. At the 2 collectors, 5th St. and 19th St., curb extensions with a marked crossing area will shorten crossing distance, improve trail user visibility, and slow down approaching cars. At the local street crossings, the trail should have priority with crossing street traffic being required to yield. All crossings should be signed with appropriate warnings, such as Bicycle Yield (OBR1-2-24) on the path and Bicycle Crossing (OBW11-1) on the roadway.

The trail’s west end stops mid-block at Pioneer Parkway East at a sidewalk without any curb cut to the street. This creates many potential conflicts because it forces bicyclists to ride on the sidewalk, a pedestrian facility, and then to the nearest cross-street where they try to reach the on-street system from awkward locations unsuited to vehicles. A curb cut with clear directional markings at the Pioneer Parkway terminus will improve access. When the trail is extended across Pioneer Parkway to Laura St., an additional marked crossing area can be added.

The trail’s east end stops mid-block at 31st St., a 22-ft collector without curbs or sidewalks. This street should have bike lanes (see project description above) and a clear crossing area to the other side of the street. When the trail is extended across 31st St. to the east, curb extensions may be added as for 19th St.

**Relationship to other projects:** 1995 Park, Recreation, and Open Space Plan. Some street intersection improvements should be accomplished in conjunction with street work (see project descriptions for 19th St. and 31st St.).

**Other modes served:** The multi-use path serves pedestrians, joggers, skaters, and others.

**Cost:** Resurfacing will be about $60,000. Improved crossings at 5th St., 19th St. and 31st St. will be about $11,000 for curb extensions, crosswalks, stencils, and signs. Operation and regular maintenance will be about $4,500 per year.

### 35th St. and Commercial St. (collector/minor arterial) 19

**From:** Olympic St. to 42nd St., 1.2 mi.

**Characteristics:** 2,800 ADT; 25-35 mph; 2 lanes; 28 ft wide (widens to 46 ft with 3 lanes between 41st St. And 42nd St.).

**Destinations:** Residences and employers.

**Connections:** Connects the Mid-Springfield area to the adjacent arterials.

**Needs:** Bike lanes.

**Solution:** Stripe bike lanes when streets are widened.

**Relationship to other projects:** TransPlan #244 (medium range, upgrade with curbs and sidewalks) and #732 (bike lanes) for Commercial, and #284 (medium range, upgrade with curbs and sidewalks) and #741 (bike lanes) for 35th.

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 35th St. and Commercial St. are on a transit feeder route (see TransPlan).

**Cost:** Striping for bike lanes will be about $7,000 for striping, stencils and signs.

### By-Gully Path (multi-use path) 20

**From:** Anderson Ln. to Mill St., 1.1 mi.

**Characteristics:** 10-ft wide paved path paralleling a canal south of Hwy 126.
**Destinations:** Residences.

**Connections:** Provides an alternative to Fairview Dr. in the north part of the residential Kelly Butte area. If extended across Pioneer Parkway, would access schools.

**Needs:** The path is isolated, ending on residential streets at both ends. To the east, it would be desirable to extend it across Pioneer Parkway (and the planned median trail) to the 2 schools on the other side. At its west end, a street connection to Centennial Blvd. and, further south, the Alton Baker path
**Solution:** Crossing Pioneer Parkway requires special care because of the nearby Hwy 126 ramps. A crossing signal would probably be needed for each half of Pioneer Parkway. The canal bridge is too low (5-ft overhead clearance) to cross underneath without major reconstruction.

At the west end, a signed route could lead users through the residential streets, and a well-marked crossing of Centennial that includes a median refuge would help clear that hurtle. Alternately, Anderson Ln. could be completed as a direct connection south to Centennial Blvd. (this is favored by the SBC and is identified for completion between 2000-2005).

**Relationship to other projects:** TransPlan #698 (path, completed) and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** The multi-use path serves pedestrians, joggers, skaters, and others.

**Cost:** A 2000-ft extension across Pioneer Parkway to 5th St. will be about $80,000 with pedestrian signals.

### 36th St. (collector) 21

**From:** Main St. to Commercial St., .3 mi.

**Characteristics:** 3,350 ADT; 25 mph; 2 lanes; 39 ft wide west of 10th St. and 35 ft east.

**Destinations:** Downtown, residences and employers.

**Connections:** Part of east-west grid through downtown core.

**Needs:** Bike lanes.

**Solution:** Stripe bike lanes. This can be accomplished in 39-ft width by 7P-5B-11-11-5B and in 35-ft width by 6B-11.5-11.5-6B (preferred) or 7P-4B-10-10-4B.

**Relationship to other projects:** This project expands on TransPlan #709 (designated route). This street is scheduled for reconstruction from Pioneer Pkwy to 14th in the STIP and the CIP for FY 1995 which would be the proper time to install bike lanes.

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 'B' St. west of 5th St. is on a transit feeder route (see TransPlan).

**Cost:** The STIP lists funding as $450,000, while the CIP adds an additional $330,000 from city street funds. The cost of bike lane striping, stencils and signs is about $6,000.

## *Additional Bikeway Projects*

### Yolanda Ave. (collector) 22

**From:** 23rd St. to 31st St., 0.6 mi.

**Characteristics:** 2,500 ADT (estimate); 25 mph; 2 lanes; 35 ft wide with curbs.

**Destinations:** Residences and 2 schools.

**Connections:** Part of the east-west grid in north Springfield. Eventually, the street may be extended to the east to connect with Hayden Bridge Rd.

**Needs:** Bike lanes. Traffic volume is borderline for bike lanes, but the presence of 2 schools and the lack of sidewalks in this area argue for them. Although bike lanes are not a substitute for sidewalks, prohibiting parking will also benefit pedestrians until sidewalks can be constructed.

**Solution:** Stripe bike lanes which requires widening or the removal of on street parking.

**Relationship to other projects:** TransPlan #684 (bike lanes) and Lane County CIP: reconstruction, widening and addition of curbs, sidewalks and bicycle lanes west of city limits (19th St. to 23rd St., about 0.3 mi).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Yolanda Ave. is on a transit feeder route (see TransPlan).

**Cost:** The County CIP lists funding for 19th St. and part of Yolanda Ave. at $1.25M for FY 1995 which would make Yolanda Ave. about $480,000. East of 23rd St., the addition of bike lanes by prohibiting on-street parking will be about $3,000 for striping, stencils and signs. This project is identified for completion between 1995–2000 by the SBC.

### Beltline Rd. (minor arterial) 23

**From:** I-5 to Game Farm Rd. S., 0.7 mi.

**Characteristics:** 19,200 ADT west of Gateway St., 6,600 east; 35 mph; 2-6 lanes; 34-64 ft wide (narrows at east end with 2 lanes and shoulders).

**Destinations:** Shopping and employers.

**Connections:** Connects Springfield with north Eugene and accesses development in northwest Springfield.

**Needs:** Beltline is an access to I-5 and has considerable adjacent commercial development. The intersection with Gateway St. is large (6 lanes with dual turn lanes), over capacity, and unfriendly to bicyclists and pedestrians despite the presence of bike lanes on Gateway St. Beltline Rd. has no bike lanes.

**Solution:** The type of intersection at Beltline and Gateway requires strong measures to calm traffic and provide safe crossing opportunities to bicyclists: refuge islands and medians, bike lanes striped through the intersection, bicycle turn lanes with sensors, and bicycle signal phases. Beltline east of the intersection should have bicycle lanes; Beltline west is a freeway-style interchange that does not encourage bicycle use and provides little flexibility in accommodating them.

**Relationship to other projects:** TransPlan #329 (long range, upgrade with curbs, sidewalks and bike lanes).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Beltline Rd. is on a transit feeder route east of Gateway St. and a trunk route west (see TransPlan).

**Cost:** Raised refuges and medians might cost $15,000. Restriping Beltline east of Gateway (0.4 mi) for bike lanes will be about $2,300 for striping, stencils and signs.

### 23rd St. (collector) 24

**From:** Hayden Bridge Rd. to Yolanda Ave., 0.3 mi.

**Characteristics:** 2,000 ADT (estimated); 35 mph; 2 lanes; 22 ft wide.

**Destinations:** Residences and a school.
**Connections:** Connects the northern segment of Hayden Bridge Rd. to Yolanda Ave., the next collector south.

**Needs:** Bike lanes and reduce speed.

**Solution:** Widen and stripe bike lanes. Because of the moderate traffic volume and presence of a school, the street should be brought up to full collector standard (curbs and sidewalks). However, the narrow width suggests that shoulders may be prudent as an interim improvement; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists.

The posted speed limit is inappropriate for a residential setting and should be lowered to no more than 25 mph.

**Relationship to other projects:** TransPlan #681 (bike lanes).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 23rd St. is on a transit feeder route (see TransPlan). A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost:** Adding 10 ft of roadway width for 5-ft shoulder bikeways and 11-ft travel lanes will be about $40,000; reconstruction to 32 ft with curbs, sidewalks and bike lanes will be about $140,000. Whatever improvements are made will benefit all users.

### Olympic St. (collector) 25

**From**: Mohawk Blvd. to 21st St., 0.3 mi.

**Characteristics**: 8,700 ADT; 35 mph; 4 lanes; 42 ft wide.

**Destinations**: Shopping, residences and employers.

**Connections**: Part of east-west grid through central area. There are bike lanes east of 21st St. This segment connects to 1 arterial and 2 collectors; the entire street (1.6 mi) connects to 3 arterials and 3 collectors.

**Needs**: Bike lanes.

**Solution**: Stripe bike lanes. The traffic volume can be handled by a 3-lane section (5B-11-10-11-5B).

**Relationship to other projects**: TransPlan #139 (completed, widen with curbs, sidewalks and bike lanes east of 28th St.). TransPlan #722a (bike lanes) and 722b (bike lanes, completed).

**Other modes served**: This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Olympic St. east of 35th St. is on a transit feeder route (see TransPlan).

**Cost**: Restriping for bike lanes will be about $1,700 for striping, stencils and signs.

### Gateway-McKenzie Path (planned multi-use path) 26

**From:** North UGB to north end of Pioneer Parkway , 1.6 mi.

**Characteristics:** Planned trail in northwest Springfield around a residential development bordering the McKenzie River.

**Destinations:** Residences and parks.

**Connections:** Connects a proposed extension of Pioneer Parkway to interior feeder trails and could continue north along the river and out to Deadmond Ferry Rd.

**Design issues:** The type of development proposed is well suited to a network of paths that augment the street grid pattern. Attention to access, connectivity, short-cuts, and street crossings can yield an attractive and functional system. The pathways should be integrated into the circulation scheme; a common mistake is to design the street system and then to overlay the pathways wherever they happen to fit.

**Relationship to other projects:** The 1995 Park, Recreation, and Open Space Plan and the McKenzie-Gateway Medium Density Residential Site Conceptual Development Plan both mention this Path.

**Other modes served:** The multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** A 10-ft wide concrete path of 1.6 mi would cost about $465,000. Downgrading to asphalt, which is not as durable and would increase the long-term maintenance costs, would be about $185,000.

### Hayden Bridge Rd. west end (collector) 27 18

***From:*** *5th St. to 19th St., 1.2 mi.*

***Characteristics****:* 8,000 ADT; 35 mph; 2 lanes; 27 ft wide (30 ft tapers at right-turn corner of side streets).

***Destinations:*** Residences and a school.

***Connections:*** Connects residential areas in north central Springfield to northwestern area (shopping and employment). Links an arterial to the west (which has bike lanes) with a collector to the east (planned bike lanes).

***Needs:*** Bike lanes are needed; however, this street was recently reconstructed at a lesser standard (27 ft) than the arterial street segment to the west (47 ft), eliminating the opportunity to install standard bike lanes according to TransPlan. A shared roadway is an inappropriate facility for the traffic volume.

***Solution:*** It is possible to squeeze in minimal 4-ft bike lanes if 9.5-ft travel lanes are acceptable (this is not a truck route, so the width is workable) ; the speed limit would need to be lowered to 25 mph which is appropriate to this residential area. Otherwise, a shared roadway will have to suffice, in which case no special signing is used.

***Relationship to other projects:*** TransPlan #170 (short range, upgrade with curbs, sidewalks and bike lanes) and #694 (bike lanes).

***Other modes served:*** Bike lanes, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Hayden Bridge Rd. is on a transit feeder route (see TransPlan).

***Cost:*** Restriping for bike lanes will be about $6,500 for striping, stencils and signs. 28

## Hayden Bridge Rd. east end (collector)

**From:** 23rd St. to Marcola Rd., 1.5 mi.

**Characteristics:** 2,000 ADT (estimated); 35 mph; 2 lanes; 20 ft wide.

**Destinations:** Residences.

**Connections:** Connects the north central neighborhoods and provides access to Marcola Rd., an arterial.

**Needs:** Bike lanes and reduce speed.

**Solution:** Widen and stripe bike lanes. Because of the moderate traffic volume and poor sight distance at the east end, the street should be brought up to full collector standard (curbs and sidewalks). However, the narrow width suggests that shoulders may be prudent as an interim improvement; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists.

The posted speed limit is inappropriate for a residential setting and should be lowered to no more than 25 mph.

**Relationship to other projects:** TransPlan #378 (long range, upgrade with curbs, sidewalks and bike lanes) and #680 (bike lanes).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Hayden Bridge Rd, west of 31st St. is on a transit feeder route (see TransPlan). A shoulder will also serve pedestrians if no sidewalks are provided.

**Cost:** Adding 12 ft of roadway width for 5-ft shoulder bikeways and 11-ft travel lanes will be about $300,000; reconstruction to 32 ft with curbs, sidewalks and bike lanes will be about $925,000. Whatever improvements are made will benefit all users

## *Springfield-Coburg Path (planned multi-use path)* 29

***From:** Game Farm Rd. E. to north UGB and beyond , 0.3 mi.*

**Characteristics:** Planned trail in northwest Springfield along abandoned railroad corridor parallel to Game Farm Rd. N. and then Coburg Rd. in the county. The first half of this project in the UGB has been lost to development south of a new street, International Way.

**Destinations:** Rural countryside and parks.

**Connections:** Connects Springfield to Coburg Rd. and points north.

**Design issues:** This is potentially a more attractive facility than the bike lanes planned on Game Farm Rd. N. and Coburg Rd., although the separation from the roadway brings up access, maintenance, funding, and intersection design concerns. If expected use to Armitage State Park and the City of Coburg is high, the additional cost of a separated path is justifiable.

**Relationship to other projects:** TransPlan #265 (path).

**Other modes served:** The multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** A 10-ft wide concrete path of 0.3 mi would cost about $90,000. Downgrading to asphalt, which is not as durable and would increase the long-term maintenance costs, would be about $35,000.

## *W. 'D' St. (collector)* 30

**From:** Aspen St. to Pioneer Parkway, 1.0 mi.

**Characteristics:** 2,300 ADT; 25 mph; 2 lanes; 31-35 ft wide; designated bicycle route. Physical 7-ft median and raised crosswalks west of Riverhills; parking on one side east of Riverhills.

**Destinations:** Eugene, downtown Springfield, and residences.

**Connections:** Connects Springfield to the pathway system in Eugene through a park and residential area.

**Needs:** The 8-ft sidewalk on the south side in conjunction with the bike route signs may encourage riding on the sidewalk. 'D' St. is narrow but has relatively low, residential traffic that poses little hazard. A physical median and speed hump west of Rainbow Dr. effectively reduce traffic speed. The sidewalk, on the other hand, has driveway crossings, trash containers, pedestrians, and other hazards that are not a problem in the roadway.

Other areas that need attention are where the Alton Baker path exits onto 'D' St. and at the intersections with Mill St. and with Pioneer Parkway (crashes were reported in the1990-95 Bicycle Accident Report at Water St., Mill St., Pioneer Parkway East, and at a mid-block location).

**Solution:** The bike route signs should be replaced with more informative destination signs (For example, "To downtown Springfield," "To Alton Baker

Park," or "To Centennial Blvd."). The entrance area to the Alton Baker path should be made highly visible, with at least painted lanes leading from the street and perhaps with a raised speed table.

The critical conflict points at Mill St. and Pioneer Parkway should be made easy to negotiate by strongly marked crosswalks, curb extensions, physical medians, and warning stencils and signs. The curb extensions, in particular, will help shorten the crossing distance and slow traffic.

**Relationship to other projects:** TransPlan #384 (long range, upgrade with curbs, sidewalks and bike lanes) and #700 (bike lanes).

**Other modes served:** The improvements will also benefit pedestrians.

**Cost:** The signing and other improvements will be about $30,000, most of this being for curb extensions.

## Laura St. (collector31)

**From:** Scotts Glen to Harlow Rd., 0.4 mi.

**Characteristics:** The northern 0.4 mi is County road with 5,000 ADT (estimate), 35 mph, 2 lanes, and 22 ft wide. Southern section from 'Q' Street has 3 lanes, bike lanes and sidewalks.

**Destinations:** Shopping, residences, and 1 nearby schools.

**Connections:** Northern connection to Harlow Road. Connects 'Q' Street to Harlow Road.

**Needs:** Continue 3 lanes and add bike lanes.

**Solution:** Widen and stripe bike lanes.

**Relationship to other projects:**
- TransPlan #713 (bike lanes).
- Lane County CIP: reconstruction, widening and addition of curbs, sidewalks and bicycle lanes north of city limits (Yolanda Ave. to about the Mohawk Marketplace, 0.4 mi) for FY 1995

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 19th St. is on a transit feeder route (see TransPlan).

**Cost:** The County CIP lists funding for 19th St. and part of Yolanda Ave. at $1.25M which would make 19th St. about $770,000 (about $340 per linear ft which may be sufficient for a 36-ft wide street with curbs, sidewalks and bike lanes). This project is identified for completion between 1995-2000 by the SBC.

**5th St. (collector)** 32

**From:** Centennial Blvd. to 'G' St., 0.3 mi.

**Characteristics:** 4,900 ADT; 30 mph; 2 lanes; 36 ft wide.

**Destinations:** Residences.

**Connections:** Links an arterial with bike lanes to a collector that is a designated route (and is recommended to have bike lanes), and extends the bike lanes on 5th St.

**Needs:** Bike lanes.

**Solution:** Stripe bike lanes, either 6B-12-12-6B or, to retain parking on one side, 7P-4B-10-10-5B.

**Relationship to other projects**: None.

**Other modes served:** None.

**Cost:** Restriping for bike lanes will be about $1,700 for striping, stencils and signs.

**21st St. (collector)** 33

**From:** Olympic St. to Main St., 1.0 mi.

**Characteristics:** 12,000 ADT; 25 mph; 2 lanes; 36 ft wide.

**Destinations:** Residences, shopping, employers, and a school.

**Connections:** Part of the north-south grid in the area east of downtown.

**Needs**: Bike lanes.

**Solution:** Bike lanes require removal of on-street parking (6B-12-12-6B), although it is possible to retain parking on one side with 10-ft travel lanes (7P-4B-10-10-5B) which is compatible with the speed limit.

**Relationship to other projects:** TransPlan #726 (bike lanes).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; 21st St. is on a transit feeder route (see TransPlan).

**Cost:** Restriping for bike lanes will be about $5,600 for striping, stencils and signs.

## 66th St. (collector) 34

**From:** Thurston Rd. to Main St., 0.5 mi.

**Characteristics:** 2,400 ADT; 25 mph; 2 lanes; 35 ft wide.

**Destinations:** Residences, a school, and shopping.

**Connections:** Connects the Thurston neighborhood to its 2 arterials.

**Needs:** Bike lanes.

**Solution:** Stripe bike lanes, either 6B-11.5-11.5-6B or, to retain parking on one side, 7P-4B-10-10-4B (care must be taken to provide a full 4-ft lane, as this is the bare minimum).

**Relationship to other projects:** This project expands on TransPlan #749 (designated route).

**Other modes served:** None.

**Cost:** Restriping for bike lanes will be about $3,100 for striping, stencils and signs. This project is identified for completion between 2000-2005 by the SBC.

## Mill St. (collector) 35

**From:** Fairview Dr. to S. 'A' St., 1.0 mi.

**Characteristics:** 7,300 ADT; 35 mph; 2 lanes; 38 ft wide.

**Destinations:** Residences and By-Gully Path.

**Connections:** Parallels Pioneer Parkway in connecting the east Kelly Butte area to Main St.

**Needs:** Bike lanes.

**Solution:** Bike lanes require removal of on-street parking, although it is possible to retain parking on one side with 10-ft travel lanes (7P-5B-10 10-6B) in which case the speed limit should be reduced to 25 mph (alternately, 7P-4B-11-11-5B is acceptable). If any parking removal is unacceptable, at least the major intersections at Centennial Blvd. and Main St. should be improved with curb extensions.

**Relationship to other projects:** TransPlan #705 (bike lanes).

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Mill St. is on a transit feeder route (see TransPlan).

**Cost:** Restriping for bike lanes will be about $6,600 for striping, stencils and signs.

### 'G' St. (collector) 36

**From:** 5th St. to 28th St., 1.6 mi.

**Characteristics:** 3,200 ADT; 25 mph; 2 lanes; 35 ft wide; parking on one side; designated bike route.

**Destinations:** Downtown, 3 schools, park, hospital, residences, and park-n-ride lot.

**Connections:** Ties together central neighborhoods and downtown. Connects to 2 arterials and 4 collectors.

**Needs:** Bike lanes.

**Solution:** Stripe bike lanes, either 6B-11.5-11.5-6B or, to retain parking on one side, 7P-4B-10-10-4B (care must be taken to provide a full 4-ft lane, as this is the bare minimum). The striping could be varied from block to block as necessary if there is room for a transition area near intersections.

**Relationship to other projects:** CIP: 10th to 14th (reconstruction).

**Other modes served:** There is a park-n-ride lot between 10th St. and 12th St. This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will also increase the service area of transit; 'G' St. west of 14th St. is on a transit feeder route (see TransPlan).

**Cost:** Restriping for bike lanes will be about $9,500 for striping, stencils and signs. Note that striping of complete segments from west to east (5th-14th St., 14th-21st St. and 21-28th St.) would be beneficial even if the segments further east are not striped because the traffic volumes drop off.

### Daisy St. (collector) 37

**From:** 42nd St. to 58th St., 1.6 mi.

**Characteristics:** 2,000 ADT; 25 mph; 2 lanes; 35 ft wide except for a 20-ft segment for one block; split by the Weyerhaeuser Truck Rd., with a user trail between 47th St. and 48th St. connecting the two isolated halves of Daisy.

**Destinations:** Residences and a potentially useful alternative to a section of Main St.

**Connections:** Part of the east-west street grid in southern Springfield.

**Needs:** The street functions well as a shared facility at present traffic volumes, although the gap between 47th St. and 48th St. limits the usefulness of the route.

**Solution:** Close gap with a paved path and marked crossing of the Weyerhaeuser Truck Rd. instructing trail users to yield to vehicles on the truck road. This gap will eventually be closed by a street (see TransPlan) but a simple path will serve bicyclists until then.

For users wishing to continue a mile to the west of Daisy on side streets instead of Main St., directional signs (e.g., “Alternate E-W Route via Daisy St.”) can be posted. To tie this route together, there would need to be signs on Main St., 32nd St., Virginia St., 40th St., Camillia St., 42nd St., Daisy St., and 58th St.

**Relationship to other projects:** TransPlan #192 (short-range, gap closure with curbs and sidewalks); #738 specifies a designated route between 32nd St. and 58th St. using Virginia St., Camillia St., and Daisy St..

**Other modes served:** This project, in conjunction with parking provisions at transit stops and bicycle racks on buses, will increase the service area of transit; Daisy St. is on a transit feeder route (see TransPlan).

**Cost:** A 10-ft wide, light-duty path for 800 ft will be about $13,000. This project is identified for completion between 1995–2000 by the SBC.

## S. 28th - 32nd St. (multi-use path) 58

**From:** S. 28th St. to S. 32nd St., 0.4 mi.

**Characteristics:** Undeveloped land adjacent to Millrace waterway. Future extension of the Millrace project. New school to be developed just north of this project.

**Destinations:** Residences, schools, park and Millrace Path west to downtown..

**Connections:** Accesses Dorris Ranch and connects a residential neighborhood to Main St..

**Needs:** Multi-use Path.

**Solution:** Construct 10-12' multi-use pathway between South 32nd and South 28th Streets.

**Relationship to other projects:**
- TransPlan #706a.
- 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** None.

**Cost:** A multi-use path would cost between $20,000 to $45,000.

## Millrace Path (planned multi-use path) 39

**From:** S. 5th St. to S. 28th St., 1.6 mi.

**Characteristics:** Private, unpaved road planned as future trail.

**Destinations:** East-west route with recreational features.

**Connections:** Connects S. 2nd St. and S. 5th St. to 28th St.

**Design issues:** The major limitation to this route is the lack of mid-trail access points.

**Relationship to other projects:** TransPlan #706a and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** The multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** A 10-ft wide sealed surface will be about $45,000 and a asphalt path about $185,000. This project is identified for completion between 2005 2010 by the SBC.

## Booth-Kelly Truck Rd. (collector) 40

**From:** S. 28th St. to Weyerhaeuser Truck Rd., 2.1 mi.

**Characteristics:** Unpaved road planned as a future collector with bike lanes but with potential as a trail instead.

**Destinations:** East-west through route.

**Connections:** Connects to 2 arterials and 2 collectors (1 planned).

**Design issues:** The major limitation to this route is the lack of mid-trail access points.

**Relationship to other projects:** TransPlan #347 (long range, develop arterial) and #706b (bike lanes), and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** A multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** TransPlan costs a 2-lane street at $2 million. A 10-ft wide sealed surface will be about $55,000 and a asphalt path about $245,000.

## Weyerhaeuser Truck Rd. (S. 48th St.) (collector) 42

**From:** Main St. to Booth-Kelly Truck Rd., 0.4 mi.

**Characteristics:** Private road planned as a future collector with bike lanes but with potential as a trail instead.

**Destinations:** Residences and potential trail.

**Connections:** Connects Booth Kelly Logging Rd. to Main St. Intersection with Daisy St. (see project description above).

**Relationship to other projects:** TransPlan #285 (medium range, develop collector) and 733b (bike lanes), and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** A multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** TransPlan costs a 2-lane street at $500,000. A 10-ft wide asphalt path will cost about $50,000.

## Weyerhaeuser Truck Rd. (Glacier Rd.) (collector) 41

**From:** Booth-Kelly Truck Rd. to 58th St., 0.9 mi.

**Characteristics:** Private, unpaved road planned as a future collector with bike lanes but with potential as a trail instead.

**Destinations:** East-west through route.

**Connections:** Connects Booth Kelly Logging Rd. to 57th St.

**Design issues:** The major limitation to this route is the lack of mid-trail access points.

**Relationship to other projects:** TransPlan #376 (long range, develop collector) and 706c (bike lanes), and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** A multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** TransPlan costs a 2-lane street at $850,000. A 10-ft wide sealed surface will be about $25,000 and a asphalt path about $105,000.

## S. 28th St. (collector) 43

**From:** Main St. to S. 'M' St., 0.8 mi.

**Characteristics:** 4,800 ADT; 35 mph; 2 lanes; 24 ft wide.

**Destinations:** Residences and employers.

**Connections:** Connects to Main St. and crosses junction of Booth Kelly Logging Rd. and Millrace Trail.

**Needs:** A shoulder bikeway is suitable for this semi-rural area; the Highway Capacity Manual recommends 8-ft shoulders for collectors with this traffic volume although 6 ft would be sufficient for bicyclists.

**Solution:** Widen and stripe 6-ft shoulders.

**Relationship to other projects:** TransPlan #728 (bike lanes).

**Other modes served:** Shoulders will also serve pedestrians although sidewalks would be better.

**Cost:** Adding 10 ft of roadway for 6-ft shoulder bikeways and 11-ft travel lanes will be about $126,000 plus piping the drainage system.

## S. 67th St. (collector) 44

**From:** Main St. to Ivy St., 0.6 mi.

**Characteristics:** 2,000 ADT (estimate); 25 mph; 2 lanes; 22 ft wide north of Dogwood St. and 35 ft south; hilly.

**Destinations:** Residences.

**Connections:** Connects residential neighborhood to Main St.

**Needs:** A shoulder bikeway or shared roadway is suitable for this low volume residential area; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists. There is no point in designating this a bicycle route as specified in TransPlan because it does not serve any through traffic or special destinations.

**Relationship to other projects:** TransPlan #751 (designated route).

**Other modes served:** Shoulders will also serve pedestrians although sidewalks would be better.

**Cost:** Adding 10 ft of roadway width north of Dogwood St. (0.3 mi) for 5-ft shoulder bikeways and 11-ft travel lanes will be about $42,000.

## S. 70th St. (collector) 45

**From:** Main St. to Ivy St., 0.6 mi.

**Characteristics:** 1,390 ADT; 25 mph; 2 lanes; 20 ft wide; hilly.

**Destinations:** Residences.

**Connections:** Connects residential neighborhood to Main St.

**Needs:** A shoulder bikeway or shared roadway is suitable for this low volume residential area; the Highway Capacity Manual recommends 6-ft shoulders for collectors with this traffic volume although 5 ft would be sufficient for bicyclists. There is no point in designating this a bicycle route as specified in TransPlan because it does not serve any through traffic or special destinations.

**Relationship to other projects:** TransPlan #753 (designated route).

**Other modes served:** Shoulders will also serve pedestrians although sidewalks would be better.

**Cost:** Adding 12 ft of roadway width for 5-ft shoulder bikeways and 11-ft travel lanes will be about $115,000. The street is, however, in poor condition and should be reconstructed at additional cost.

## Ivy St. (collector) 46

**From:** 67th St. to 70th St., 0.3 mi.

**Characteristics:** 500 ADT (estimate); 25 mph; 2 lanes; 35 ft wide.

**Destinations:** Residences.

**Connections:** Connects 2 residential collectors.

**Needs:** At the low traffic volumes, the existing shared roadway is appropriate. The eastern 150 ft is narrow and unpaved but poses no great problem for residents who would be using this route.

**Relationship to other projects:** None.

**Other modes served:** None.

**Cost:** None.

## Potato Hill (Planned Subdivision Collector & Path system) 47

**From:** S. 63rd St. to S. 57th St. over summit. (1.5 for Collector - 1 mile pathway)

**Characteristics:** An undeveloped, hilly area that will need a collector roadway to serve any future subdivision. Area would also be ideal for an unpaved trail off the proposed collector.

**Destinations:** Future residences, park and rural countryside.

**Connections:** Connects scenic Thurston Hills area north to Main St. and south to Jasper Rd.

**Design issues:** One street bike lanes or a shared roadway would work for the proposed Collector (shown on Springfield Local Road Plan 5/97). A serices of off-road trails attractive to mountain biking could be integrated near the summit in conjunction with Willamalane. Tail system needs to be carefully designed to avoid conflicts with hikers and equestrians. Line-of-sight, drainage, slope, width, and surface are a few of the considerations.

**Relationship to other projects:** TransPlan #798 and 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** The multi-use trail will serve pedestrians, joggers, and others.

**Cost:** One street striped lanes would be included as part of the roadway, could add between $15-35 per linear foot. A shared collector would not incure extra costs. The pathway system is not currently known but unsurfaced trails typically cost between $0.40-$1.30 per lineal foot depending on the width and drainage, whereas a 10-ft wide sealed surface is about $5 and a paved surface about $16.

## Mt. Pisgah-Springfield (planned multi-use path) 48

**From:** Clearwater Lane south to Mt. Pisgah, 2.7 mi.

**Characteristics:** Unknown.

**Destinations:** Jasper Rd., Clearwater Park and Mt. Pisgah recreational area.

**Connections:** Connects south Springfield to Mt. Pisgah.

**Design issues:** Unknown.

**Relationship to other projects:** TransPlan #354, 795. And ZZ-1. 1995 Park, Recreation, and Open Space Plan.

**Other modes served:** The multi-use path will serve pedestrians, joggers, skaters, and others.

**Cost:** A 10-ft asphalt path of this length will be about $350,000. Birdge costs and other design issues are not available at this time.

# *Project Index*


5th St. ........ E-26
14th St. (see Mohawk Blvd.) ........ E-14
21st St. ........ E-27
23rd St. ........ E-21
28th St. ........ E- 4
S. 28th St. ........ E-32
S. 28th-S. 32nd St. Path ........ E-30
31st St. ........ E-5
S. 32nd St. ........ E-9
35th St. and Commercial St. ........ E-17
36th St. ........ E-19
42nd St. ........ E-3
S. 42nd St. ........ E-3
48th St. (see 52nd St.) ........ E-15
S. 48th St. (see Weyerhaeuser Truck Rd.) ........ E-31
51st St. (see 52nd St.) ........ E-15
52nd St., 'G' St. and 51st St. ........ E-15
S. 57th St. & Mount Vernon Rd. ........ E-13
58th St. ........ E-6
66th St. ........ E-27
S. 67th St. ........ E-33
69th St. ........ E-7
S. 70th St. ........ E-33
Aspen St. ........ E-12
S. 'A' St. (see Main St.)........ E-1
Beltline Rd. ........ E-20
Booth-Kelly Truck Rd. ........ E-31
By-Gully Path ........ E-18
Centennial Blvd. ........ E-8
Commercial St. (see 35th St.) ........ E-17
W. 'D' St. ........ E-25
Daisy St. ........ E-29
EWEB Trail ........ E-16
'G' St. (see also 52nd St.) ........ E-28
Game Farm Rd. S. ........ E-6
Gateway-McKenzie Path ........ E-22
Glacier Rd. (see Weyerhaeuser Truck Rd. ) ........ E-32
Hayden Bridge Rd. west end ........ E-23
Hayden Bridge Rd. east end ........ E-23
Ivy St. ........ E-34
Jasper Rd. ........ E-10
Laura St. ........ E-26
Main St. and S. 'A' St. ........ E-1
McKenzie River Connector ........ E-11
Mill St. ........ E-28
Millrace Path ........ E-30
Mohawk Blvd. and 14th St. ........ E-14
Mount Vernon Rd. (see S. 57th St.) ........ E-13
Mount Pisgah-Springfield Path ........ E-35
Olympic St. ........ E-21
Potato Hill Trail ........ E-34
Rainbow Dr. ........ E-7
Springfield-Coburg Path ........ E-24
Weyerhaeuser Truck Rd. (Glacier Rd.) ........ E-32
Weyerhaeuser Truck Rd. (S. 48th St.) ........ E-31
Yolanda Ave. ........ E-19

# INDEX

1982 Bikeway Plan ................................. 1-, 2-8
AASHTO ...................................................... B-1
ADA .................................................. 5-18, B-2
ADT ............................................ 2-6, 5-12, 6-2
arterials ........................................................ 3-5
barriers ......................................................... 3-3
benefits ....................................................... 3-12
Bicycle Accident Report .............................. 5-25
Bicycle Advisory Committee ................. 1-2., 5- 2
bike lanes .................................................. 5-13
bike path .................................................... 5-17
bike route ................................................... 5-17
bikeways .................................................... 5-11
existing .........................................................2- 6
capital improvement program ........................ 4-7
capital improvement projects ................. 6-2, 6-4
connectivity ................................................... 3-7
coordinator ................................................... 5-2
costs .................................................... 5-3, 6-3
non-facility .................................................... 5-6
curb ramps ................................................. 6-12
changing rooms .......................................... 5-19
chip seal ..................................................... 5-22
density........................................................... 3-7
design practices .......................................... 5-12
drainage grate ............................................. 5-22
driveways .......................................... 5-22, A-6
education .................................................... 5-24
enforcement ............................................... 5-26
external costs ...............................................5- 6
fragmentation ................................................ 3-6
funding ..........................................................5- 7
General Plan ................................................ 4-5
goals ............................................................ 4-1
highway crossings ........................................ 3-5
integration .................................................. 3-10
intersections ............................................... 5-15
inventory ............................................. 2-6, C-1
ISTEA .................................................... 3, 10, 1
level-of-service .................................... 3-1, D-1
loop detector ............................................... 5-15
Main St. and S. 'A' St. ........................... 3-4, E-1
maintenance ..................................... 5-21, 6-13
mixed-use zoning ..........................................3- 8
multi-use path ............................................. 5-17
MUTCD ........................................................B- 2
National Bicycling and Walking Study ...........4- 3
Ordinances .................................................. A-1
model ................................................ 3-8, 5-18
Oregon Bicycle and Pedestrian Plan .... 4-3, B-2
Oregon Bicycle and Pedestrian Program ...... 4-3
Oregon Bicycle Law ..................................... 4-3
Oregon Transportation Plan .................. 4-5, B-2
overlay ........................................................ 5-23
Park, Recreation, and Open Space Plan ......4- 6
parking ..................................... 5-18, 6-10, A-1
planning .............................................. 3-8, 3-10
priorities ............................................... 5-1, 6-4
projects ................................................ 6-1, E-1
index .......................................................... E-36
local-area ..................................................... 6-4
phasing ....................................................... 6-11
summary ...................................................... 6-5
wide-area ..................................................... 6-4
promotion ................................................... 5-24
Refinement Plans .........................................4- 8
resources .....................................................B- 1
responsibility ...................................... 5-3, 5-23
restriping .................................................... 5-23
safety .......................................................... 5-25
setbacks .......................................................3- 8
shoulders .................................................... 5-13
showers ...................................................... 5-19
sidewalk bikeway ........................................ 5-17
sidewalks .................................................... 6-12
signal .......................................................... 5-15
signing ........................................................ 5-20
site planning ....................................... 3- 8, A-5
Springfield
bicycle use ................................................... 2-4
community .................................................... 2-1
demographics ............................................... 2-5
transportation system ................................... 2-3
Springfield Bicycle Committee ............... 1-2, 5-2
standards
Oregon ....................................................... 5-11
street ................................................... 3- 9, A-7
State Highway Fund ..................................... 5-8
stop sign ..................................................... 5-16
subdivision ordinance .................................. A-6

support ..........................................................5- 2
sweeping ..................................................... 5-22
traffic calming ............................................. 5-16
traffic control device ................................... 5-15
traffic counts ....................................... 2-3, 6-13
Traffic Safety Division ................................. 5-10
traffic volume ............................................... 5-12
transit .......................................................... 5-20
TransPlan ...................................... 1-1, 2-8, 4-7
Transportation Planning Rule ................ 4-4, B-2
use
anticipated .................................................. 3-11
existing .......................................................... 2-4
factors ............................................................ 3-3
vegetation .................................................... 5-22
walkways .......................................................2- 7
wide curb lanes .......................................... 5-12
zoning
mixed-use ...................................................... 3-8
ordinance ...................................................... A-5