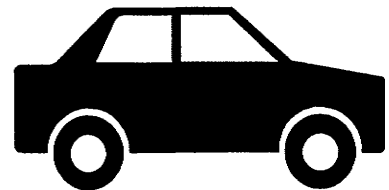
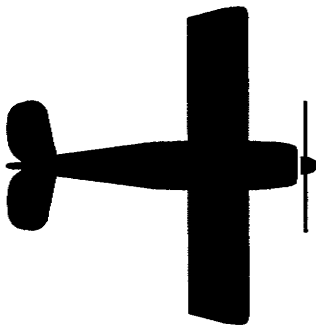
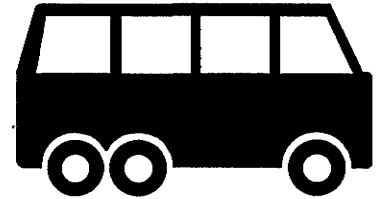


CORVALLIS TRANSPORTATION PLAN

Adopted August 5, 1996
Effective September 4, 1996 (Ord. #96-26)





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Table of Contents

TABLE OF ACRONYMS	i
INTRODUCTION	I-1
FEDERAL AND STATE DIRECTION	I-4
PLAN ORGANIZATION	I-5
PLAN ACCOMPLISHMENTS	I-6
CHAPTER 1.0 VISION	1-1
PRESERVING THE ENVIRONMENT	1-1
PROVIDING COMMUNITY ACCESS TO THE CITY	1-1
PROMOTING ECONOMIC VITALITY	1-1
ENHANCING NEIGHBORHOOD LIVABILITY	1-2
ACTIONS TO ACHIEVE THE VISION	1-2
CHAPTER 2.0 TRANSPORTATION SYSTEM PLANNING	2-1
2.10 EXISTING SYSTEM	2-1
2.20 PLAN ASSUMPTIONS	2-2
2.20.10 POPULATION	2-2
2.20.20 CITYWIDE TRAFFIC MODEL	2-3
a. Projected Land Uses	2-3
b. Alternate Modes	2-10
c. Model Verification	2-10
2.30 REGIONAL COORDINATION	2-10
2.40 STATE TRANSPORTATION PLANNING RULE (TPR)	2-12
2.40.10 NOVEMBER, 1993 REQUIREMENTS	2-12
a. Bicycle Parking Facilities	2-13
b. Bicycle and Pedestrian Access	2-13
c. Pedestrian Circulation Commercial and Office Park Development	2-13
d. Transit-Friendly Development	2-13
2.40.20 MAY, 1997 ADOPTION REQUIREMENTS	2-14
2.50 EVALUATION OF ALTERNATIVES	2-15
2.60 TRANSPORTATION POLICIES	2-16
2.60.10 TRANSPORTATION SYSTEM PLANNING POLICIES	2-17
a. Existing Comprehensive Plan Policies	2-17
b. Recommended Additional Transportation Policies	2-19
CHAPTER 3.0 MOTORIZED VEHICLE STREET TRAFFIC AND CIRCULATION	3-1
3.10 INTRODUCTION	3-1
3.20 VISION	3-3

3.30	EXISTING CONDITIONS	3-3
3.30.10	STREET NETWORK	3-3
a.	Arterial Streets	3-5
b.	Collector Streets	3-5
c.	Local Streets	3-8
d.	Benton County Roads	3-9
3.30.20	TRAFFIC SPEED AND VOLUME	3-10
3.30.30	EXISTING CIRCULATION	3-12
a.	State Highways	3-12
b.	Major City Streets	3-15
3.30.40	TRAFFIC LEVELS OF SERVICE	3-17
a.	Signalized Intersections	3-19
b.	Unsignalized Intersections	3-21
3.30.50	ACCIDENTS	3-22
3.40	FUTURE CONDITIONS	3-22
3.40.10	CORRIDOR PLANNING	3-23
3.40.20	FUTURE DEVELOPMENT	3-26
a.	North Corvallis	3-26
b.	Northwest Corvallis	3-27
c.	Southwest Corvallis	3-28
d.	South Corvallis	3-29
e.	Northeast Corvallis	3-30
f.	Additional Future Development Concerns	3-31
3.40.30	ANALYSIS OF FUTURE TRAFFIC VOLUMES	3-31
a.	62,500 Scenario Traffic	3-33
b.	80,000 Scenario Traffic	3-39
3.50	SYSTEM ISSUES	3-41
3.50.10	TRANSPORTATION ALTERNATIVES ANALYSIS	3-42
3.50.20	OREGON STATE UNIVERSITY TRANSPORTATION ISSUES AND LINKAGES	3-44
a.	North of the University	3-44
b.	West of the University	3-45
c.	South of the University	3-46
d.	East of the University	3-46
e.	Through Campus	3-47
f.	Parking	3-47
g.	Transit	3-47
h.	Bicycles	3-47
i.	Summary	3-48
3.50.30	TRAFFIC CONTROL	3-48
a.	Traffic Signals	3-49
1)	School Signals	3-50
2)	Priority and Preemption	3-50

	3)	Audible Signals	3-51
	4)	Intersection Flashing Beacons	3-51
b.		Traffic Control Signing and Striping	3-51
	1)	Stop Signs	3-51
	2)	Yield Signs	3-52
	3)	Crosswalks	3-52
	4)	Speed Signs	3-53
c.		Structural Traffic Control	3-53
	1)	Speed Humps	3-54
	2)	Traffic Circles	3-54
	3)	Diverters, Forced-Turn Channelization and Cul-de-sacs	3-55
	4)	Chokers	3-55
d.		Summary	3-56
3.50.40		NEIGHBORHOOD TRAFFIC MANAGEMENT AND SAFETY	3-56
	a.	Speed Control	3-57
	b.	Traffic Volume Control	3-58
	c.	School Route Safety	3-59
	d.	Intersection Traffic Control	3-59
	e.	Parking	3-60
	f.	Single Access Neighborhoods	3-60
3.50.50		DOWNTOWN TRAFFIC ISSUES	3-61
	a.	Pedestrian Movement	3-62
	b.	Downtown Traffic Flow and Access	3-62
	c.	Downtown Parking	3-64
	d.	Bicycle Movement	3-66
3.50.60		RESIDENTIAL PARKING DISTRICTS	3-66
3.50.70		OREGON STATE HIGHWAY IMPROVEMENT PROGRAM	3-67
	a.	State Highway Projects Scheduled For Construction	3-68
	1)	Federal Fiscal Year 1996	3-68
	2)	Federal Fiscal Year 1997	3-68
	3)	Federal Fiscal Year 1998	3-68
	b.	Proposed State Highway Projects	3-68
	1)	Within Ten Years	3-68
	2)	Before 62,500 Population, 20 Years	3-68
	3)	Before 80,000 Population, 30-50 Years	3-69
3.50.80		EMERGENCY PREPAREDNESS AND RESPONSE	3-69
3.50.90		FUNDING	3-70
	a.	Existing Funding Sources	3-70
	1)	Surface Transportation Program	3-70
	2)	Street System Development Charges	3-70

	3)	City Street Fund	3-70
	4)	Property Assessments	3-70
	5)	Developer Installed Improvements	3-70
	b.	Alternate Funding Sources	3-70
	1)	Property Tax Supported Bond Sales	3-71
	2)	Serial Levy	3-71
	3)	Local Option Fuel Tax	3-71
	4)	Local Option Vehicle Registration	3-71
	5)	Transportation Utility	3-71
	6)	State Gas Tax	3-71
	c.	Street Assessment Policy	3-71
3.50.100		REGIONAL COORDINATION	3-71
3.50.110		HARRISON CORRIDOR CONCERNS	3-72
	a.	Discarded Harrison Corridor Strategies	3-73
	1)	Widen Harrison Boulevard	3-73
	2)	Extend the Van Buren/Harrison One-way Couplet from Kings to West of 36th	3-73
	3)	Widen and Improve 35th and 36th Street	3-74
	4)	Widen 30th Street and Provide Connection to 29th Street	3-74
	5)	Open 26th Street into OSU	3-74
	6)	Close 30th Street	3-74
	7)	Extend Circle Boulevard from Witham Hill Drive to Harrison Boulevard and from Harrison to 35th Street with modifications to other streets	3-75
	b.	Current Planning Efforts	3-75
3.60		AUTO TRAFFIC AND CIRCULATION POLICIES	3-77
3.60.10		EXISTING COMPREHENSIVE PLAN POLICIES (AUTO TRAFFIC AND CIRCULATION)	3-77
3.60.20		PROPOSED ADDITIONAL COMPREHENSIVE PLAN TRANSPORTATION POLICIES (AUTO TRAFFIC AND CIRCULATION)	3-78
3.60.30		AUTO TRAFFIC AND CIRCULATION/NEIGHBORHOODS	3-78
3.60.40		IMPLEMENTING ACTIONS - AUTO TRAFFIC AND CIRCULATION	3-79
	a.	Functional Classifications	3-79
	b.	Access Control	3-80
	c.	Level of Service - Development Proposals	3-80
	d.	Neighborhood Traffic Issues	3-81
3.70		AUTO PARKING POLICIES	3-82
3.70.10		EXISTING COMPREHENSIVE PLAN POLICIES	3-82

3.70.20	RECOMMENDED ADDITIONAL TRANSPORTATION POLICIES (PARKING)	3-83
3.70.30	IMPLEMENTING ACTIONS - AUTO PARKING POLICIES	3-83
CHAPTER 4.0	BICYCLE	4-1
4.10	INTRODUCTION	4-1
4.20	VISION	4-1
4.30	EXISTING CONDITIONS	4-2
4.30.10	TYPES OF BICYCLE TRAVEL	4-3
4.30.20	BIKEWAY FACILITIES	4-4
4.30.30	BIKEWAY TRENDS	4-5
4.30.40	CURRENT BIKEWAY NEEDS	4-6
a.	Bicycle Facility Project Descriptions	4-8
1)	14th/15th Street: Monroe to Jefferson Way	4-8
2)	Kings Boulevard: Monroe Avenue to Buchanan Avenue	4-8
3)	3rd Street	4-8
4)	4th Street	4-8
5)	Harrison Boulevard	4-8
6)	35th Street: Highway 20/34 to Harrison Boulevard ...	4-9
7)	Circle Boulevard Pedestrian crossing	4-9
8)	Bicycle/Pedestrian Railroad Crossing Improvements	4-10
9)	26th Street Brooklane Drive Highway Crossing	4-10
10)	West Hills Road: 53rd to Western	4-10
11)	Yearly Program to Upgrade Bicycle Parking in Corvallis to the new Land Development Code standards	4-10
12)	Removal of sight obstruction on the multi-use path under the 3rd Street Bridge near Marys River	4-10
13)	Path - Witham Hill Drive to Harrison Boulevard Harrison Boulevard to Campus Way	4-11
14)	Separated path following the Southern Pacific Railroad from Buchanan to Circle	4-11
15)	Riverfront multi-use path widening	4-11
16)	14th Street, Monroe Avenue to Harrison Boulevard ..	4-11
17)	A separated path from Garfield Avenue to 17th Street along east border of Porter Park	4-11
18)	Grant Avenue: Highland to 9th Street	4-11
19)	Garfield Avenue: Highland to 9th	4-12
20)	Downtown Pedestrian/Bicycle/Transit Mall (5th Street between Madison and Jefferson Avenues)	4-12
21)	Madison Avenue: 6th Street to 14th Street	4-12

	22)	Crystal Lake Drive: Alexander to Park	4-13
	23)	Alexander Avenue: Crystal Lake to Highway 99W . .	4-13
	24)	Park Avenue: Crystal Lake to Highway 99W	4-13
	25)	Connect Riverfront multi-use path to Van Buren Street Bridge	4-14
	26)	Separated path that follows the Willamette River from Crystal Lake Drive near Vera Avenue to Willamette Park	4-14
	27)	A separated path from Chapman Place to the confluence of the Marys and Willamette rivers, continuing south along the Willamette river, and tying in with the multi-use path along the Willamette that would lead to Willamette Park	4-14
	28)	Witham Hill: near Canary Street to Walnut Boulevard	4-14
	29)	Path, Goodnight to Avery Avenues /Goodnight to Airport Road	4-14
	30)	Riverfront Path Extension, North	4-14
	31)	Walnut Boulevard: Extension from near Belvue to Circle	4-14
	32)	Path, Circle Boulevard to Conifer Boulevard	4-15
	33)	An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard	4-15
	4.30.50	BICYCLE PARKING NEEDS	4-15
4.40		FUTURE CONDITIONS: FUTURE BIKEWAY FACILITY NEEDS	4-16
4.50		SYSTEM ISSUES	4-17
	4.50.10	DESIGN STANDARDS	4-17
	a.	Beneficial Design Practices	4-18
	b.	Practices To Avoid	4-19
	c.	Design Criteria	4-19
	d.	Signing And Striping	4-21
	4.50.20	STATE TRANSPORTATION PLANNING RULE 12	4-22
	4.50.30	BICYCLE SAFETY	4-22
	a.	Education	4-22
	b.	Rules of the Road and Laws	4-23
	c.	Records	4-23
	d.	Police Department	4-23
	e.	Bicycle Visibility	4-24
	4.50.40	TRANSPORTATION DEMAND MANAGEMENT	4-24
	4.50.50	OREGON STATE UNIVERSITY	4-24
	4.50.60	STATE PROJECTS	4-25
	a.	State Highway Projects Scheduled For Construction	4-26

	b.	Proposed State Highway Projects	4-26
		1) Within 10 Years	4-26
		2) Before 62,500 Population, 20 Years	4-26
		3) Before 80,000 Population, 50 Years	4-27
4.50.70		FUNDING OPPORTUNITIES AND CONSTRAINTS	4-27
	a.	Existing Funding Sources	4-27
	b.	Alternate Funding Sources	4-28
4.50.80		RELATION TO MOTORIZED VEHICLE STREET TRAFFIC AND CIRCULATION PLAN	4-28
4.60		POLICIES	4-29
4.60.10		TRANSPORTATION SYSTEM PLANNING POLICIES	4-29
	a.	Existing Comprehensive Plan Policies	4-29
	b.	Recommended Additional Transportation Policies (Transportation System)	4-31
4.60.20		BICYCLE POLICIES	4-32
	a.	Existing Comprehensive Plan Policies	4-32
	b.	Proposed Additional Transportation Policies (Bicycle Facilities)	4-32
4.60.30		IMPLEMENTING ACTIONS	4-33
CHAPTER 5.0 TRANSIT			5-1
5.10		INTRODUCTION	5-1
5.20		VISION	5-2
	5.20.10	CORVALLIS TRANSIT SYSTEM MISSION AND GOALS	5-2
		a. Mission	5-2
		b. Goals	5-3
5.30		EXISTING CONDITIONS	5-3
	5.30.10	OPERATIONS	5-3
		a. Personnel	5-3
		b. Vehicles and Equipment/Facilities	5-4
		c. Service Levels	5-5
		d. Ridership	5-6
	5.30.20	FINANCING	5-10
5.40		FUTURE CONDITIONS	5-11
	5.40.10	TRANSPORTATION CONGESTION AND DELAY	5-11
	5.40.20	DEVELOPMENT AND GROWTH PATTERNS	5-11
	5.40.30	FUNDING	5-12
5.50		SYSTEM ISSUES	5-12
	5.50.10	STATE TRANSPORTATION PLANNING RULE 12	5-12
	5.50.20	TRANSPORTATION ALTERNATIVES ANALYSIS	5-14

5.50.30	INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT (ISTEA)	5-15
5.50.40	MAJOR EMPLOYMENT CENTERS	5-15
5.50.50	REGIONAL COORDINATION	5-17
5.50.60	FUNDING OPPORTUNITIES OR CONSTRAINTS	5-18
5.60	TRANSIT POLICIES	5-21
5.60.10	EXISTING POLICIES	5-21
5.60.20	PROPOSED POLICIES	5-22
5.60.30	IMPLEMENTING ACTIONS	5-23
a.	Service Objectives	5-23
b.	Infrastructure Objectives	5-24
c.	Planning Activities	5-25
d.	Funding Activities	5-26
e.	Other Activities	5-27
CHAPTER 6.0	PEDESTRIANS	6-1
6.10	INTRODUCTION	6-1
6.20	VISION	6-1
6.30	EXISTING CONDITIONS	6-1
6.30.10	TYPES OF PEDESTRIAN TRAVEL	6-2
6.30.20	PEDESTRIAN FACILITIES	6-2
6.30.30	CURRENT PEDESTRIAN NEEDS	6-4
6.40	FUTURE CONDITIONS	6-5
6.50	SYSTEM ISSUES	6-6
6.50.10	STATE TRANSPORTATION PLANNING RULE	6-6
6.50.20	MAINTENANCE	6-7
6.50.30	FUNDING	6-7
6.60	PEDESTRIAN PLAN POLICIES	6-7
6.60.10	EXISTING COMPREHENSIVE PLAN POLICIES	6-7
6.60.20	PROPOSED ADDITIONAL TRANSPORTATION POLICIES	6-8
6.60.30	IMPLEMENTING ACTIONS	6-9
APPENDIX 6-A		6-11
CHAPTER 7.0	AIR	7-1
7.10	INTRODUCTION	7-1
7.20	VISION	7-1
7.30	EXISTING CONDITIONS	7-1
7.30.10	OPERATIONS	7-1
7.30.20	FACILITIES	7-2
7.40	FUTURE CONDITIONS	7-2
7.50	SYSTEM ISSUES	7-3
7.50.10	LAND USE	7-3

7.50.20	FUNDING	7-3
7.50.30	AIRPORT HIERARCHY	7-4
7.60	AIR POLICIES	7-4
7.60.10	EXISTING COMPREHENSIVE PLAN POLICIES	7-4
7.60.20	PROPOSED ADDITIONAL TRANSPORTATION POLICIES	7-5
7.60.30	IMPLEMENTING ACTIONS	7-5
CHAPTER 8.0	RAIL	8-1
8.10	RAIL PLAN POLICIES	8-2
8.10.10	EXISTING COMPREHENSIVE PLAN POLICIES	8-2
8.10.20	PROPOSED COMPREHENSIVE PLAN POLICIES	8-2
8.10.30	IMPLEMENTING ACTIONS	8-2
CHAPTER 9.0	WATER AND PIPELINES	9-1
CHAPTER 10.0	TRANSPORTATION IMPROVEMENT PLAN	10-1
10.10	10 YEAR IMPROVEMENTS	10-1
10.10.10	CITY-INITIATED PROJECTS	10-8
a.	Projects Underway or Continuing	10-8
1)	Safety Sidewalk Program (Ongoing)	10-8
2)	Multi-use Path - Buchanan to Circle Boulevard (ISTEA Funding)	10-8
3)	Airport Runway Extension And Taxiway Rehabilitation (Federal Aviation Administration Funding)	10-9
4)	Walnut Left-turn Lanes At Garryanna Drive and 13th Street (Corridor Study)	10-9
b.	A Priority Projects	10-10
1)	Kings Boulevard, Monroe Avenue To Buchanan Avenue	10-10
2)	Path, Witham Hill Drive to Harrison Boulevard	10-13
3)	Riverfront Multi-use path Widening	10-13
4)	Downtown Intermodal Mall	10-13
5)	Transit Bus Stop Facilities	10-14
6)	Traffic Signal - South 3rd Street And Adams Avenue	10-14
7)	ORE 99W/Circle Boulevard Intersection	10-14
8)	Harrison Corridor Strategy	10-15
9)	Miscellaneous Airport Improvements	10-18
10)	Walnut Extension to Circle	10-19
11)	Annual Neighborhood Traffic Management Improvements	10-19
12)	Annual Bicycle Parking Improvements	10-19

	13)	14th/15th Street Bikelanes: Monroe to Jefferson Way	10-20
	14)	Brooklane Drive Improvements - Nash Avenue to Highway 20/34	10-20
	15)	26th Street/Brooklane Drive Highway Crossing	10-20
	16)	Path, Harrison Boulevard to Campus Way	10-20
	17)	Traffic Signal - Walnut And Glenridge / Witham Hill	10-20
	18)	West Hills Road Improvements - Western Boulevard to 53rd Street	10-21
	19)	3rd Street Downtown Bikelanes 4th Street Downtown Bikelanes	10-21
c.		B Priority Projects	10-21
	1)	35th Street - Philomath Boulevard to Orchard Street	10-21
	2)	14th Street, Monroe Avenue to Harrison Boulevard	10-22
	3)	West Hills Road - 53rd Street to Reservoir Road ...	10-22
	4)	53rd Street Improvements	10-22
	5)	Country Club Drive Improvements	10-23
	6)	Ponderosa Avenue Improvements	10-23
	7)	Traffic Signal - 9th Street And Grant Avenue	10-23
	8)	Grant Avenue: Highland to 9th Street	10-23
	9)	Garfield Avenue: Highland to 9th	10-24
	10)	Crystal Lake Drive: Alexander to Park	10-24
	11)	Alexander Avenue: Crystal Lake to Highway 99W	10-24
	12)	Park Avenue: Crystal Lake to Highway 99W	10-24
	13)	Madison Avenue: 6th Street to 14th Street	10-24
	14)	An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard	10-25
d.		C Priority Projects	10-26
	1)	Connect Riverfront Multi-use Path to Van Buren Street Bridge	10-26
	2)	Buchanan/9th Intersection	10-26
	3)	Circle Boulevard Right-turn Lanes	10-26
	4)	Bicycle/Pedestrian Railroad Crossing Improvements	10-27
	5)	ORE 99W/9th/Conifer Intersection	10-27
	6)	Separated path that follows the Willamette River from Crystal Lake Drive near Vera Avenue to Willamette Park	10-28

7)	A separated path from Garfield Avenue to 17th Street along east border of Porter Park	10-28
8)	A separated path from Chapman Place to the confluence of the Marys and Willamette rivers, continuing south along the Willamette River, and tying in with the multi-use path along the Willamette that would lead to Willamette Park	10-28
9)	Witham Hill: near Canary Street to Walnut Boulevard	10-28
10)	Path, Goodnight to Avery Avenues /Goodnight to Airport Road	10-28
11)	Riverfront Path Extension, North	10-28
12)	Walnut Boulevard: Extension from near Belvue to Circle	10-28
13)	Path, Circle Boulevard to Conifer Boulevard	10-29
14)	An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard	10-29
10.10.20	STATE HIGHWAY IMPROVEMENTS	10-29
10.20	IMPROVEMENTS NEEDED FOR 62,500 POPULATION (20 YEARS) .	10-30
10.20.10	DEVELOPMENT RELATED IMPROVEMENTS	10-30
10.20.20	STATE HIGHWAY IMPROVEMENTS	10-31
10.30	IMPROVEMENTS NEEDED BY 80,000 POPULATION (30-50 YEARS)	10-32
10.30.10	DEVELOPMENT RELATED IMPROVEMENTS	10-33
10.30.20	STATE HIGHWAY IMPROVEMENTS	10-35
10.40	FUNDING	10-35
10.50	ADDITIONAL PLANNING EFFORTS	10-38

TABLE OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average daily traffic (in trips)
AIP	Airport Improvement Project
ASOSU	Associated Students of Oregon State University
AVR	Average vehicle ridership
CTS	Corvallis Transit System
CWCOG	Cascades West Council of Government
DKS	Transportation consultant used in early plan development
DLCD	Oregon Department of Land Conservation and Development
DU	Dwelling Unit
EMME/2	A brand of traffic modeling software
GBLT	Greenbelt Land Trust
IDS	Intensive Development Sector (Comprehensive Plan designation)
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Traffic Engineers
LOS	Level of Service
MINUTP	A brand of traffic modeling software
MIRL	Medium Intensity Landing Lights
MPO	Metropolitan Planning Organization
MUTCD	Manual of Uniform Traffic Control Devices
OEDD	Oregon Economic Development Department
OPTP	Oregon Public Transportation Plan
ORS	Oregon Revised Statutes
OTP	Oregon Transportation Plan
RPZ	Runway Protection Zone
STIP	State Transportation Improvement Program
TAA	Transportation Alternatives Analysis
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TPR	Oregon Transportation Planning Rule 12
TSM	Transportation System Management
TSP	Transportation System Plan
UA	Urbanized Area
UGB	Urban Growth Boundary
VMT	Vehicle miles traveled
VASI	Visual Approach Slope Indicator

INTRODUCTION

In May of 1991, at the direction of the Corvallis City Council, the City of Corvallis initiated an update of the **Corvallis Transportation Plan**. The effort was initiated for the following reasons:

- To set measurable community goals for the transportation system;
- To establish an achievable capital improvements plan for the community in terms of available resources, timing, and projected growth;
- To provide a "roadmap" for future decisions concerning new development, neighborhood, downtown, and OSU transportation issues;
- To inform the community of and clarify City Council policies regarding transportation issues;

The plan serves its customers, the citizens of Corvallis, in a number of ways:

- The planning process is an opportunity for citizens to shape transportation policy;
- The plan provides guidance for future development decisions;
- Citizens will know in advance the characteristics of transportation facilities and can anticipate the types of improvements within neighborhoods and the community;
- Transportation facilities that provide similar function will be consistent throughout the system;
- Travel in the community will be easy and logical; and
- Alternate modes of travel are planned and will be provided.

Future residents will be able to judge the effectiveness of this plan by evaluating its impacts on aspects of the community.

- Arterial, collector, and local streets will be used consistent with the classification table on page 3-11 of this plan, ensuring safe, accessible, and livable neighborhoods; and
- Travel times, particularly to work and home, will be maintained and improved;
- Congestion will be lessened ensuring high air-quality standards are maintained;

- Resources will be coordinated, providing efficient facilities and transportation alternatives throughout the community.

By achieving these effects, this transportation plan will ensure that the Corvallis transportation system will meet the needs of its residents currently and into the future. These needs focus around four basic principles:

- The transportation system promotes the safe, efficient movement of people and goods;
- The transportation system promotes alternate modes of transportation, reducing the reliance on the automobile;
- The transportation system is designed and operated to enhance the quality of neighborhoods; and
- The transportation system is consistent with local land use laws and state and federal direction;

A transportation plan is primarily a policy instrument, providing decision-makers an analytical tool which evaluates the current transportation system and the effects development, specific transportation and land use decisions, and other social phenomena will likely have on it. The purpose of the plan is to allow the City to take actions that effectively respond to existing and future conditions in a timely and responsible manner. The plan establishes a framework within which decisions on transportation issues can be made consistently. This framework provides standards by which the transportation system can be judged and, according to which, transportation system improvements can be designed and implemented. The plan and standards should be developed through community consensus to ensure successful implementation.

The Draft Corvallis Transportation Plan was first released in October, 1992. A public hearing before the Planning Commission was held, and comment regarding shortcomings of the draft plan was significant. This comment focused on three primary issues:

- Discussion and planning for alternate modes, particularly transit, was not adequate;
- The functional classification of streets within specific neighborhoods
- Improvements identified in the Improvement Plan appeared to focus too heavily on auto traffic improvements.

Following the public hearing, the Planning Commission used a series of 12 work sessions to make modifications to the plan. The modified plan was rereleased for public review, and in February, 1994, the public hearing was reopened. Following public comment, the Planning Commission

identified and made recommendation regarding 20 issues in the draft plan, and forwarded the plan to the City Council with these recommendations.

In September, 1995, the City Council opened a Public Hearing on the Draft Plan and Planning Commission recommendations. The hearing was continued through three meetings. Following public comment, the City Council has modified the Draft Plan to address many community concerns. The Plan is being presented to the community again for review. The Council recognizes that all concerns cannot be addressed in the current effort. Transportation planning is recognized as a continuing process, and other planning efforts (e.g., the **Transportation Alternatives Analysis Project**, which includes the development of a **Transportation Demand Management Plan**, the **Transit Master Plan Project**, and specific corridor planning efforts) will continue to identify and address community needs regarding transportation.

The **Corvallis Transportation Plan** last received a major update in 1983. Although transportation elements of the **Capital Improvement Program** are updated each year, this update is intended to provide medium and long-range vision to the process. The 1983 Plan is referenced in the **Corvallis Comprehensive Plan**, and many of its suggested improvements have been completed- with Phase I of the East-Side bypass among those completed recently. Several issues have indicated the need for the current update.

- First, although the existing plan has provided guidance on many issues, more precise help is needed when policy-makers are asked to address issues such as neighborhood traffic management, lack of adequate access, and the impacts of development on the system;
- Second, in May, 1991 the Department of Land Conservation and Development adopted the **Transportation Planning Rule** (OAR 660-12) to implement Goal 12 of Oregon's Land Use Goals and Guidelines. This rule requires public jurisdictions to develop transportation plans for all primary modes of transportation and, where appropriate, to coordinate these plans among jurisdictions; and
- Third, this update will provide information and guidance on specific projects necessary to ensure that the transportation system continues to operate effectively for all identified transportation modes and segments of the community.

Below is a review of on-going transportation planning efforts around Corvallis and Oregon.

FEDERAL AND STATE DIRECTION

Transportation planning is currently going through significant change from the federal level on down. On December 18, 1991, the **Intermodal Surface Transportation Efficiency Act (ISTEA)** was signed into law. This legislation provides authorizations for highways, highway safety and mass transportation for six years. The act is intended to

"...develop a National Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner."

To accomplish this vision, funding mechanisms have been authorized for various programs. Surface transportation programs are divided into two systems: the **Interstate System**, and the **National Highway System**.

The focus of the **Interstate System** program is to complete construction of interstate highways and maintain investments. In Oregon, two sections of interstate highway in the Portland area remain to be completed. Oregon Interstate maintenance funds will be about 1½ percent (approximately \$35 M in 1993) of the amount distributed nationally.

The focus of the **National Highway System** is to construct and maintain all major highways, arterial roadways, the defensive strategic highway network, and strategic highway connectors. Oregon is expected to receive 1¼ percent (about \$34.5 M in 1993) of the total amount distributed nationally.

One important program redefined in the legislation is revenue-sharing to local governments. Previous Federal Aid Urban (FAU) and Federal Aid Secondary Road programs have been folded into a new program called the **Surface Transportation Program**. Grants will be made available to local governments for any roads except local (subdivision type) streets. The estimated allotment to Oregon for this program in 1993 was \$34.1 M.

Other surface transportation programs address congestion mitigation, air-quality improvement, bridge replacements, transportation planning, transit capital improvements, and wetland mitigation. Elements of the federal legislation include program definitions and allocations for: highway safety, transit, motor carriers, intermodal transportation, research, and air transportation.

Several other new aspects of this legislation are important to the City's current transportation planning efforts. ISTEA requires states to use a statewide planning process to develop statewide transportation plans and programs. In response to these requirements, the Oregon Department of Transportation (ODOT) has adopted a statewide transportation plan, including:

- A policy element that provides an overall vision for transportation in Oregon;

- A multi-modal system plan, which coordinates the various modal elements of the plan; and
- Modal plans that address the needs of each particular transportation mode.

To further emphasize the interconnectedness of transportation modes and the need to address them on an equal level, ODOT has recently gone through a complete reorganization. No longer do separate departments address separate modes. Instead, each regional office is to coordinate among all modes.

In April 1991, prior to the adoption of ISTEA, Oregon had already committed to a statewide planning process leading to a statewide transportation plan and a statewide transportation program. This was accomplished with the adoption of the Transportation Planning Rule (OAR 660-12-000 through 070) by the Department of Land Conservation and Development. This rule implements Goal 12 of the Statewide Planning Goals and Guidelines and requires the state, cities, counties and metropolitan planning organizations (MPO) to develop and adopt transportation plans that are coordinated at all levels of government. These plans are to address the various transportation modes through adoption of standards, and subdivision and land use regulations and identification of funding programs.

Many requirements of the Transportation Planning Rule mirror efforts Corvallis has long made to provide for efficiency and non-auto-dependent modes. Examples are Corvallis' widespread system of bikeways and pedestrian facilities and Comprehensive Plan policies requiring access control on arterial roadways.

PLAN ORGANIZATION

The Corvallis transportation plan seeks to address federal, state, and local transportation issues in a manner that appropriately considers local values. This requires a careful balancing of issues such as environmental protection, mobility within the City, economic development, and livability. This plan contains both sections dealing with the transportation system as a whole and individual modal plans that can be updated separately as needed.

- **CHAPTER 1.0 Vision** states the vision for both the community and the transportation system needed to achieve the community's vision into the future;
- **CHAPTER 2.0 Transportation System Planning** addresses transportation planning as a whole, including some history, evaluation of the current system, introduction of the modal plans, discussion of system-wide and regional coordination issues, and establishment of the policy framework of the plan; and
- **CHAPTER 3.0 Motorized Vehicle Street Traffic and Circulation.** This chapter describes a vision for the automobile-based system, addresses current known

neighborhood traffic issues, evaluates these issues and other current and future conditions against this vision, and suggests policies to help address these issues currently and in the future.

- **CHAPTERS 4.0 Bicycles, 5.0 Transit, 6.0 Pedestrians, 7.0 Air.** These chapters are formatted similarly to Chapter 3.0 to address issues regarding these modes. The City has direct involvement in facilities for these services.

State Planning Rule 12 requires the plan to address Rail, Waterways, and Pipelines (**CHAPTERS 8.0 AND 9.0**), but the discussion of these elements is minor because the City will not be the principal provider should these systems expand beyond current levels.

To be successful, a plan such as this must identify improvements to the system necessary to meet community needs. Each modal element must identify funding sources available for that mode and prioritize needs. Each modal element of this plan addresses these issues.

- **CHAPTER 10.0 Transportation Improvement Plan** brings the modes together in a system-wide plan for improvements that provide for the immediate, middle, and long-range needs of the community.

PLAN ACCOMPLISHMENTS

With adoption of the Transportation Plan Update, the City will accomplish the following:

- First, through policies contained in the Transportation Plan or the Comprehensive Plan, and standards contained in the Land Development Code and specific modal plans, policy makers will be able to consistently respond to community transportation issues; responsibilities placed on the City and on development interests will be clearly articulated and understood;
- Second, separate plans will exist for each transportation mode. This will allow the various interests within the community to see the importance of each mode and the specific needs identified within the transportation system for each;
- Third, transportation improvements within the Corvallis area will be coordinated among the various jurisdictions (Corvallis, Oregon Department of Transportation, Benton County, Linn County, and Oregon State University) to ensure timely and consistent response to development and other issues; and
- Fourth, a responsible plan for mitigation of transportation problems in the community will be put in place.

This plan highlights locations within the city needing improvement. These have been identified through meetings with the community and use of a city-wide traffic model, the most comprehensive such analysis the City has done. A package of improvements has been identified for auto traffic, transit, bicycle, and pedestrian facilities that can be funded through current revenues within the next ten years. This time line assumes that both development and state and federal funding programs continue at current levels. Operation and maintenance of these facilities can also be accomplished within the projected revenue stream that includes funding from sources such as federal and state revenue sharing and local property taxes dedicated to the City's Street Fund.

Previously completed Airport and Trails Master Plans identified improvement and funding packages for those systems which are incorporated into this document by reference.

The Transportation Plan Update lays a new foundation for policy, direction and improvements to transportation facilities to achieve a balanced transportation system providing convenience and efficiency for all appropriate modes of transportation.

This plan will be amended as new information relating to transportation system or facility needs becomes available. The Transportation Alternatives Analysis Project initiated in FY 1995-96, and due to be completed by May, 1997, is an example of the type of work that could result in such modifications. This project, which combines work efforts on transportation demand management, transportation system management, and a Transit Master Plan, will make recommendations that, if approved, will result in amendments to this plan, the Comprehensive Plan, and the Land Development Code. Corridor planning efforts are further examples of new information that will result in modifications to this plan. As their recommendations come forward, they must be given full consideration for implementation. This plan is intended to be a living document that can respond to changing conditions.

CHAPTER 1.0 VISION

The City of Corvallis is the seventh largest city in Oregon. It is located in a beautiful natural setting along the Willamette River with a population of 47,500 people, pleasant neighborhoods, a state University, a diverse economy, and well-planned public facilities. Well-planned is an important element of this description, as a careful and continuing evaluation of the condition of a community helps ensure that the best qualities of the community can be enhanced into the future. Planning involves vision-- the ability to visualize what the community will be like and where current trends are leading. Planning for the future by the community involves a thorough understanding of the present, and the ability to create strategies which bring about the future it desires.

PRESERVING THE ENVIRONMENT

Planning for a community's transportation system is an important part of creating and realizing a vision. Part of Corvallis' vision for the future rests in the value the community sees in its natural environment. The hills, valleys, forests, streams, rivers and clean air of the present are also a part of the vision for the future. To ensure this vision, the transportation system must be designed and built in a manner that does not degrade these valuable assets and yet provides for the transportation needs of the future.

PROVIDING COMMUNITY ACCESS TO THE CITY

A transportation system must provide safe and convenient access to all parts, and for all members, of the community. This means providing for those with limited transportation choices to ensure they too can take advantage of the public and private institutions of the city, enjoy safe convenient access to housing and health care and the educational, cultural and recreational activities available. This requires diverse transportation opportunities.

PROMOTING ECONOMIC VITALITY

A successful transportation system enhances the economic vitality of a community. It provides access to existing business and industry for goods and people within the community and, as importantly, from other regions of the state. Facilities adequate to carry goods and people to and through the community must be planned for and built in a manner and with a timeliness that contributes to the attraction of new business and industry to the community. Growth and economic vitality are important aspects of the vision for Corvallis, and transportation facilities that meet the needs of the future and contribute to community values must be well-planned.

ENHANCING NEIGHBORHOOD LIVABILITY

Protection and enhancement of neighborhood livability are as important as all of these elements of the vision for Corvallis' future. Transportation facilities must be designed to provide for alternative transportation modes such as transit, cycling and walking and to keep through traffic off of neighborhood streets. Such facilities help to ensure that safety and quality of life are maintained while still providing for and encouraging healthy community growth.

ACTIONS TO ACHIEVE THE VISION

To address these issues, a community must have some idea of the growth and change that is likely to occur. For this transportation plan, growth has been anticipated at the rates identified in the 1989 document, **Future Focus 2010**. This means a population of 62,500 has been anticipated for the 20-year planning horizon. Long-range planning (30 to 50 years) anticipates a population of 80,000. The challenge is to plan a transportation system that will meet the needs of the community as it grows, providing levels of service for all modes acceptable to their users, while not degrading the natural environment or the quality of life of the city's many neighborhoods.

To accomplish this, this plan will address transportation system needs at three stages.

- 0-10 years Strategies necessary to reduce traffic volumes, bring the current systems and services up to the standards developed in this plan, and to provide for economic growth.
- 10-20 years These are the strategies necessary to meet the needs of the anticipated 20-year planning horizon's population. By monitoring population and economic growth both in quantity and location, timing of these improvements and service enhancements may be varied.
- 20-50 years This scenario is primarily developed to ensure that improvements made at earlier stages will not preclude nor hinder further economic development or transportation improvements required by population growth. Earlier improvements should anticipate these improvements as a possibility.

Ensuring that transportation services and improvements will meet future needs is the first step in a transportation planning effort. Part of the vision that must not be overlooked is an evaluation of funding by source and quantity. The best designed plan is only as good as the community's ability to pay for its identified improvements. The vision for this plan is to identify service enhancements and other system improvements, their costs, funding sources, and the adequacy of funds for the anticipated needs. The final plan for systems improvements is envisioned as a reasonable, attainable set of transportation goals.

CHAPTER 2.0 TRANSPORTATION SYSTEM PLANNING

The City of Corvallis has an extensive history of transportation planning. In 1969, the **Corvallis Area Transportation Study: Transportation Plan 1985** was undertaken as a cooperative effort of the City of Corvallis, Benton County, the Oregon State Highway Division, U. S. Department of Transportation, and other federal agencies. The study focused almost exclusively on the roadway network and automobile traffic. Twenty-three projects were identified to address traffic and congestion issues, many of which have been completed. Among them are the downtown Corvallis Bypass (Phase I), and Circle and Walnut Boulevard improvements.

In 1971, a second study, the **Corvallis Urban Area Traffic Safety Study and Recommended Street System Improvements**, was initiated by the Corvallis City Council and produced by CH2M Hill. As the name implies, this study focused on traffic safety and initiated many of the programs on-going today, such as traffic counting, use of the **Uniform Manual of Traffic Control**, controlling access on arterial streets, and developing a plan for widespread provision of bike lanes. The improvements suggested to the street system included the now completed improvement of Western Boulevard and the poorly received suggestion to widen Harrison Boulevard between 29th and 36th Streets.

In 1983, the **Corvallis Transportation Plan** was completed by the Straam Engineers Division of CRS Group Engineers. This plan continued the City's efforts to identify and improve a successful transportation system. In addition to the kinds of effort undertaken in earlier studies, this plan evaluated an expanded role for transit in Corvallis and elaborated on the bikeway system begun previously. This was the first comprehensive effort to address a complete transportation system for the City.

All of these previous efforts have contributed to the quality of service of Corvallis' transportation system. The City has effectively planned and established a system that has few significant deficiencies in its facilities for autos, bikes and pedestrians. In many ways, these efforts have been models for the systems required in new state requirements for transportation planning.

2.10 EXISTING SYSTEM

Currently, the City maintains approximately 17 miles of arterial and 28 miles of collector streets, with a replacement value of \$90 million. In addition, there are 113 miles of local streets valued at \$102 million. Within these roadways, the City has established 49 miles of bike lanes and provided an additional 9.8 miles of separated bike paths, all valued at approximately \$17 million. Sidewalks have been inventoried at 258 miles worth \$34.3 million, and the existing trails network for pedestrians includes another 6 miles. Fifty-five traffic signals and assorted signage for the transportation system are valued at \$8.5 million. For the transit system, replacement value for the city's buses alone is in the neighborhood of \$1 million.

A system as extensive and varied as this has both strengths and weaknesses. One of the greatest strengths of this system is its diversity, particularly when compared with other areas of the state. With few exceptions, the streets provide a level of service acceptable to the community. The extensive and well-marked bikeways provide access to virtually all areas of the community. Transit provides service generally to within five blocks of every home at the lowest cost per mile in the state and serves one of the highest number of riders per mile. The six primary buses all are equipped with wheel-chair lifts and tie-downs. Sidewalks and trails make Corvallis pedestrian friendly.

There are weaknesses, however. Bikeways, sidewalks, and trails are not always continuous, and conflicts with auto traffic exist in some locations. Transit funding comes primarily from a property tax levy that falls under the Measure 5 cap and is subject to periodic voter approval. There are some inadequate arterial and collector networks intended to provide service through town and to significant employment locations. These contribute to traffic and parking incursions into neighborhoods, and inadequate levels of service at some intersections.

This plan evaluates these strengths and weaknesses and provides policy guidance for enhancing multi-modal system strengths and mitigating weaknesses. To accomplish this, the plan addresses each of the surface modes in the transportation system by identifying facility needs or further efforts necessary to fully evaluate a particular mode.

One of the most important issues within this community is livability, defined in this sense as the importance of safe and pleasant neighborhoods and ease of access to places of business and employment. Directly affecting livability are issues such as modal balance, which will lead to connectivity among places by all surface modes and the possibility of connectivity among modes to provide citizens of Corvallis with reasonable options in transportation. This plan provides policy direction focused on maintaining and enhancing community livability through effective and efficient multiple modes of transportation.

To successfully accomplish this modal balance and reduce reliance on the automobile involves providing for safety and convenience in the use of all modes-safe, sometimes separate bike and pedestrian ways and a transit system that provide direct line access to stores, employment, parks, and other community attractions. Corvallis' existing facilities provide a good base upon which to build such a system.

2.20 PLAN ASSUMPTIONS

2.20.10 POPULATION

Over the past 70 years, Corvallis has experienced varying rates of growth. Between 1920 and 1940, the population remained between 6,000 and 8,000 people. In the following 20 years, however, population rose to 20,000. Between 1960 and 1995, Corvallis' population has more than doubled to more than 47,000. Recent estimates developed for use in the Periodic Review of the Corvallis Comprehensive Plan have anticipated a growth rate of approximately 2 percent per year and a

population for the 20-year planning horizon of 62,500 people. Growth since 1990 has been approximately 1 percent per year.

This plan has used a 20-year population growth to 62,500 as one of the projections for determination of necessary system improvements. The identified deficiencies and improvements are based upon existing and planned land use patterns from the Comprehensive Plan as required by Transportation Planning Rule 12. The plan anticipates primarily low-density residential development in the undeveloped areas. The long-term projection of 80,000 (30-50 years out) is also based on these assumptions.

2.20.20 CITYWIDE TRAFFIC MODEL

The plan for transportation facility improvements within Corvallis depends on determining existing transportation needs and those of future growth. As a first step in assessing future needs, a traffic forecast model was developed that translates land uses into roadway volume projections. These projections form the basis for identifying potential roadway deficiencies and for evaluating alternative circulation improvements. This section describes the forecasting process.

a. Projected Land Uses

Projected land uses were developed for two scenarios for all areas within the urban growth boundary (UGB). Complete land use data sets were developed for the following three conditions:

- Existing Conditions (1991);
- Population 62,500 for Corvallis; and
- Population 80,000 for Corvallis representing long term (or near build out) conditions.

Land uses were inventoried throughout Corvallis and in the UGB. This land use data base includes the number of dwelling units, floor area estimates for commercial activities, school enrollment levels, and other measures of land use activity suitable for use in the traffic forecast model. Table 2-1 summarizes the land uses for existing conditions and the two future scenarios.

FIGURE 2-1 TRAVEL MODEL TAZS

DKS Associates

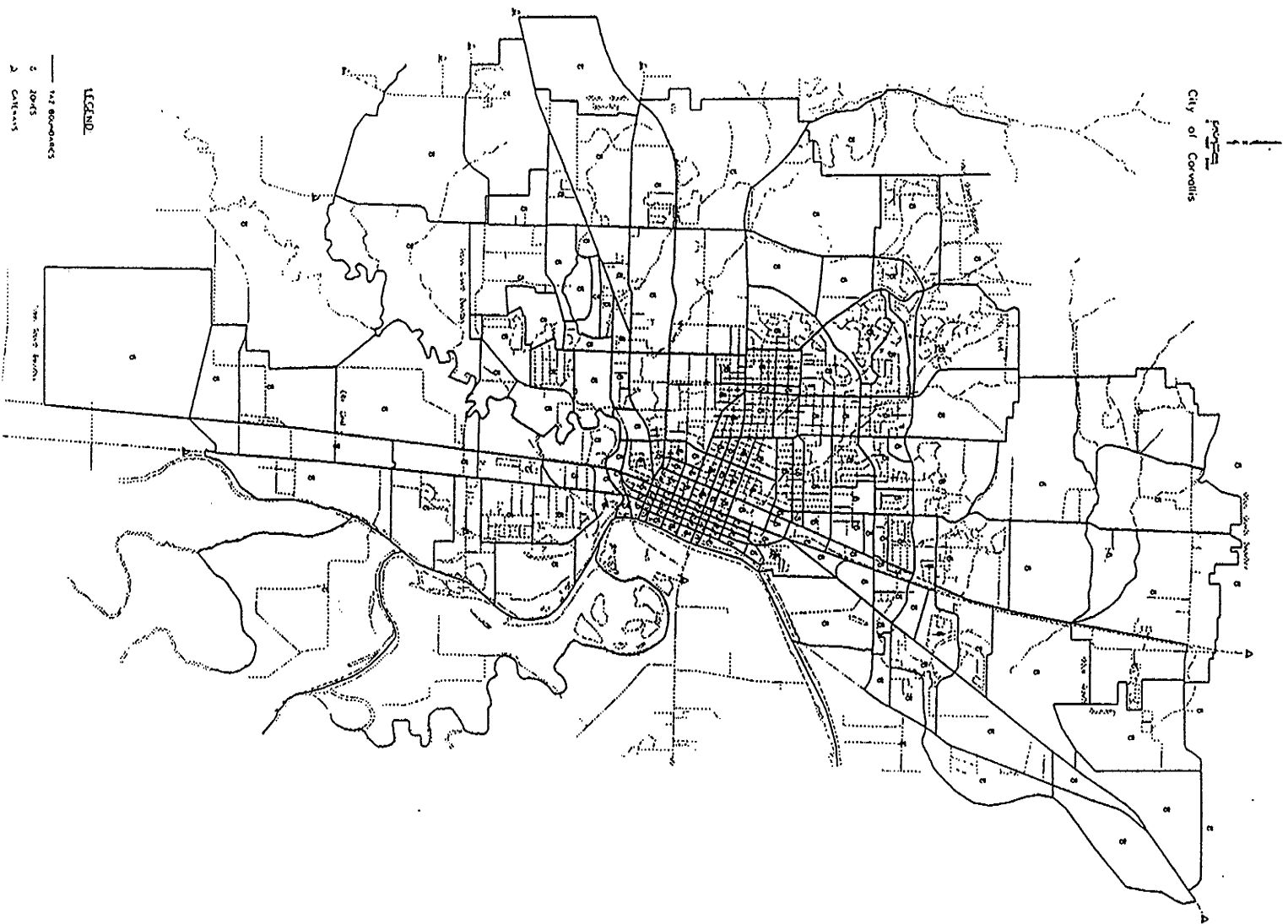
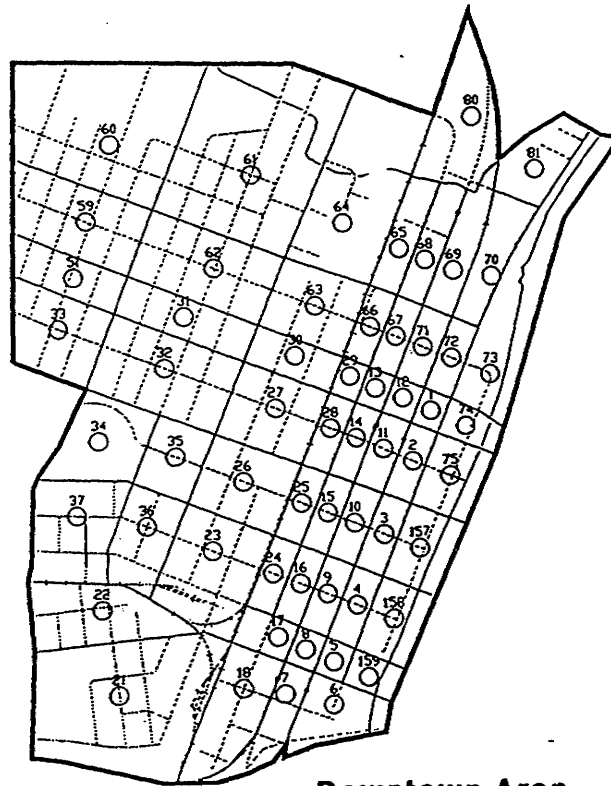
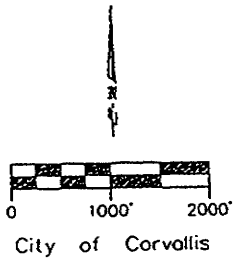
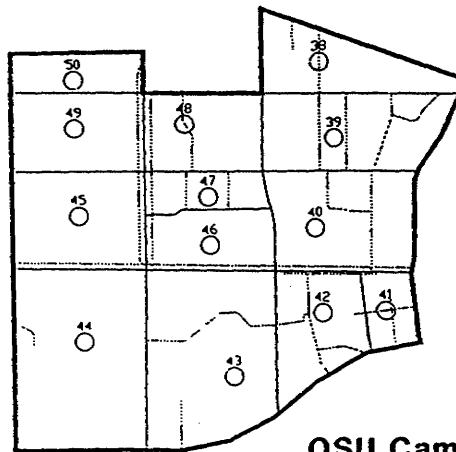


FIGURE 2-2 OSU AND DOWNTOWN TAZs

DKS Associates



Downtown Area



OSU Campus Area

Table 2-1
LAND USE SUMMARY

<u>Land Use Type</u>	<u>1991</u>	<u>62,500 Scenario</u>	<u>80,000 Scenario</u>
Housing Units			
Single Family	11,590 DU	13,330 DU	15,860 DU
Multiple Family	6,150 DU	9,830 DU	14,560 DU
Student Housing	1,520 DU	2,010 DU	2,320 DU
Subtotal	19,260 DU	25,170 DU	32,730 DU
OSU Housing (Students)	5,820	7,710	8,875
Non-Residential			
Industrial	950,400 SF	2,652,560 SF	3,071,740 SF
Medical	579,700 SF	745,700 SF	994,700 SF
Office	1,050,400 SF	1,319,700 SF	1,814,900 SF
Retail	2,332,800 SF	3,506,960 SF	5,097,130 SF
Restaurant	197,500 SF	298,090 SF	433,260 SF
Service	1,605,700 SF	1,808,300 SF	2,840,700 SF
OSU Employment	4,210 Persons	5,580 Persons	6,420 Persons

Source: DKS Associates

DU = Dwelling Unit
 SF = Square Feet of Floor Area

NOTE: The profile of future land uses has been based on producing a population target. The mixes of specific land uses were estimated to balance future trip productions (housing) with attractions (jobs/commercial). The changes in land use categories is based upon City records of future development plans, land use zoning, and extrapolation of current trends. It is not intended to represent a market analysis, but provides reasonable traffic forecasts.

For traffic forecasting, the land use data is stratified into geographical areas called traffic analysis zones (TAZs) that represent the origins and destinations of vehicle trip generation. There are about 185 zones that represent Corvallis and another 21 zones that represent the areas immediately adjacent to the UGB. The model zone boundaries are shown on Figures 2-1 and 2-2 (a more detailed AutoCAD map is also available). The Corvallis model used MINUTP, a computer-based program for transportation planning, to process the large quantity of data for Corvallis.

The development of future system needs for Corvallis depends on the ability to accurately forecast travel demand resulting from estimates of future population and employment for the City. The objective of the transportation planning process is to establish land use controls and a network of facilities and services to meet overall transportation needs.

DKS Associates developed the citywide travel demand model as part of the transportation plan update effort to help identify system deficiencies. The initial roadway network used in the traffic model was the existing Corvallis street system. Future land use scenarios were tested and roadway improvements were added to mitigate traffic conditions, using the state programmed improvements as a starting basis. Forecasts of p.m. peak hour traffic flows (generally the largest traffic volumes in a day) were produced for every major roadway segment within the UGB. Traffic volumes are projected on all arterials and collector streets. Local streets are generally not included in the model.

Table 2-2 illustrates the estimated growth in daily trips generated within the UGB of Corvallis between 1991 and the future scenarios. It indicates that trip generation in Corvallis would grow by 32 percent in the next 20 years if the 62,500 population scenario is realized. The 80,000 population scenario would generate over 67 percent more trips compared to today. Assuming a 35 year time horizon to the 80,000 scenario build out, this represents a growth rate of about 1.5 percent per year. The trip generation numbers are based on an assumption of no

change in the modal balance of today. That is, people continue to choose the single-occupant automobile about 63 percent of the time. This assumption provides the community a base case from which to work toward a better system. Analysis of this alternative for transportation is also one of the requirements of Oregon Transportation Planning Rule 12, further detailed in Section 2.40 State Transportation Planning Rule, below. The table summarizes two important aspects of trip generation. First, a significant component of the trips (nearly 50 percent) is home-based shopping or other. This indicates that if land uses are grouped (houses near shops and schools), there is high potential for shortening the length of trips and possibly reducing the number of daily vehicle trips. Second, there is a large number of non home-based trips in Corvallis. This is due to a large component of university traffic and a significant number of linked trips. For example, many people make trips from store to store or from work to store to home. This linking of trips also shows strong potential for mixed-use development as Corvallis grows, allowing each area to have elements of housing, employment, schools, and shopping activities. True mixed-use zoning would require modifications to the Corvallis Land Development Code. The Transportation Alternatives Analysis Project, initiated in April, 1996 will evaluate such opportunities for changes in zoning to enhance the transit, pedestrian and bicycle modes and reduce reliance on the automobile.

Table 2-2
TRIP GENERATION BY SCENARIO
 Daily Vehicle Trip Ends

<u>Trip Purpose</u>	<u>1991</u>	<u>62,500 Scenario</u>	<u>80,000 Scenario</u>
Home-Based Work Trips	69,740	91,980	118,890
Home-Based Shopping Trips	146,230	191,030	243,610
Home-Based Other Trips	100,300	126,350	155,650
Non-Home Based Trips	199,390	260,220	332,060
TOTAL	515,660	670,280	850,210

SOURCE: DKS Associates

FIGURE 2-3 CORVALLIS AREA CENSUS TRACTS - 1990 CENSUS

NOTE: Map courtesy of Cascades West Council of Governments

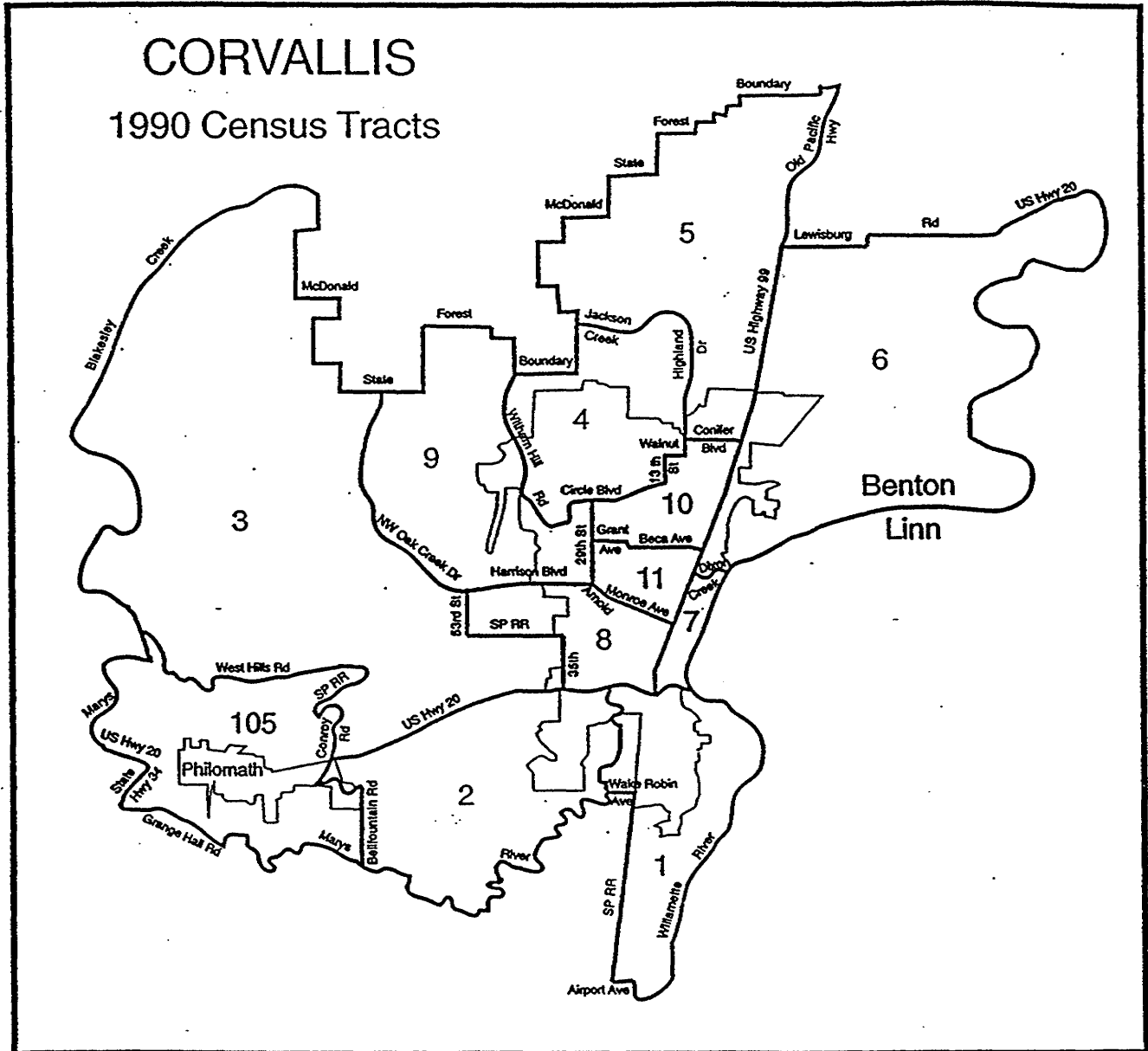


Table 2-3 Trip Distribution - Trip Table

		D E S T I N A T I O N S															
O R I G I N S	Census Tracts	1	2	3	4	5	6	7	8	9	10	11	North	West	South	East	TOTAL
	1	311	31	17	41	21	46	275	157	27	103	147	38	38	58	82	1,392
	2	41	80	32	33	5	24	92	87	39	43	73	17	100	49	37	752
	3	25	34	21	37	10	10	40	60	49	34	65	10	49	21	17	482
	4	39	26	27	436	126	120	125	107	136	476	276	87	42	41	60	2104
	5	30	10	8	139	162	123	58	41	49	238	92	149	18	14	40	1171
	6	80	24	12	202	155	300	156	92	90	459	206	247	36	29	111	2199
	7	408	128	58	213	89	191	1478	523	181	459	691	152	122	93	319	5105
	8	244	126	81	244	65	110	457	508	229	365	635	98	127	80	180	3549
	9	19	16	30	104	29	36	93	65	43	139	136	20	26	10	28	794
	10	115	36	30	520	227	365	355	241	189	1248	617	218	59	47	158	4425
	11	148	61	55	300	83	159	514	407	174	612	852	101	69	52	190	3777
	North	41	18	8	93	157	185	99	49	35	197	97	0	45	35	0	1059
	West	42	90	47	51	15	21	88	85	44	57	66	48	0	18	37	709
	South	83	61	17	35	18	19	73	57	28	48	57	42	20	20	40	618
	East	83	28	15	67	36	69	188	101	42	135	162	0	30	29	0	985
	TOTAL	1709	796	458	2515	1198	1778	4091	2580	1355	4613	4172	1227	781	576	1299	29,121

Note: Subareas within Corvallis are identified by Census Track number. Gateways to Corvallis are identified by direction: North is for US 20 and ORE 99W; south is ORE 99W and Bellfountain; east is ORE 34; and west is US 20/ORE 34 and West Hills Road.

In projecting long-range future traffic volumes, it is also important to consider potential changes in **regional** travel patterns. Although traffic generation in Corvallis is essentially a function of future land use in the city, the distribution of trips is influenced by growth in neighboring areas such as Philomath, Albany, Lebanon, and the rest of Linn and Benton Counties. External trips (trips that have either an origin or destination within Corvallis and the other trip end outside Corvallis) and through trips (trips which pass through Corvallis and have neither an origin nor destination there) were projected using trip distribution patterns based upon regional census data and traffic counts performed at gateways into the Corvallis UGB.

Table 2-3 is a p.m. peak hour trip table for Corvallis showing the number of vehicle trips between origins and destinations subdivided into census tracts. This trip distribution matrix is based upon actual 1991 conditions. This table can be used to establish trip distributions for sub areas within Corvallis (particularly useful for any future traffic impact analysis). It is clear from the table there is travel from all areas of town to all areas. The most significant traffic origins and destinations are census tracts 7 (downtown), 8 (OSU), 10 and 11 (areas north of OSU). Approximately 85 percent of the trips originating in Corvallis will remain in Corvallis.

b. Alternate Modes

Transportation models sometimes include an additional travel mode choice step to estimate the proportions of overall **person** trips that use transit and carpooling as opposed to single occupant vehicles. The Corvallis traffic model accounts for **vehicle** trip ends only. Person trips are difficult to gauge without extensive and expensive origin/destination surveys. Trips made by transit, bicycle, walking, and carpools are assumed in the model at the current **rates** (percentages). For future conditions, these same **rates** of alternative mode use are assumed to be maintained. In fact, with larger population in Corvallis, substantial funding increases will be necessary, particularly for the transit system, to maintain these modal shares.

c. Model Verification

The base 1991 modeled traffic volumes were compared against actual traffic counts across screen lines, on key arterials, and at key intersections. The model was able to estimate traffic volumes within 10 percent for all key cordon lines. Most arterial traffic volumes are closely replicated, even down to turn movements, by the model after detailed calibration. Based on this performance, the model was used for future forecasting and assessment of circulation changes. Evaluation of traffic volumes is contained in **Chapter 3.0 Motorized Vehicle Street Traffic and Circulation**.

2.30 REGIONAL COORDINATION

A principal component of a successful transportation system plan is regional coordination among all agencies with a stake in providing transportation services or facilities. Such coordination has existed for a long time to some degree. Examples of this coordination include:

- Corvallis/Benton County/the Oregon State Highway Division/U. S. Department of Transportation - **Corvallis Area Transportation Study: Transportation Plan 1985 (1969)**
- ODOT/Corvallis - successful completion of the Corvallis bypass, South 3rd Street, and other projects along Highway 20/34;
- Benton County/Corvallis - jointly funded **53rd Street Corridor Study**;
- Oregon State University/Corvallis - student and staff transit ridership program;
- Albany/Linn-Benton Community College/Corvallis - successful Linn-Benton Loop system.
- Tri-County Highway Improvement Task Force ;
- CWCOG Transportation Planning Advisory Committee;
- Participation in developing the work scope for the Benton County Transportation Plan and continued participation during the plan's development;
- Willamette Valley Transportation Strategy.

In 1994, Corvallis and the Oregon Department of Transportation converted the MINUTP model used in this plan to the EMME/2 format. Included in this effort is the addition of the Philomath area to the base model information. This will allow the model to be used for planning in the Highway 20/34 corridor in a format that is consistent with ODOT's other modeling efforts in the state. Efficient use of this corridor involves coordination from Sweet Home to the coast to address the job growth in Corvallis that is drawing workers from these outlying communities in Lincoln, Linn, and Benton Counties. Corvallis has a serious interest in any corridor planning for the area and is participating through the Cascades West Council of Government in the ODOT sponsored Highway 20/34 Corridor Plan, initiated in late 1995.

Regional coordination is not just desirable; it is also required. The Oregon State Transportation Plan requires coordination among state, county, and city transportation plans. The Transportation Planning Rule (TPR) from the Department of Land Conservation and Development (DLCD) also requires this coordination and requires that transportation system plans for cities and counties be completed by May, 1997.

Corvallis recognizes that its plan is a component of the regional plans being developed by Benton and Linn Counties, and with them, it is a component of the Oregon Transportation Plan and its various modal elements. Through discussions with the Oregon Departments of Land Conservation and Development and Transportation and Benton and Linn Counties, Corvallis has achieved consistency with these other planning efforts.

2.40 STATE TRANSPORTATION PLANNING RULE (TPR)

The state Transportation Planning Rule was adopted to implement Goal 12 of the state's Land Use Goals and Guidelines. Its purpose is to ensure that a well-planned, multi-modal transportation system is available to everyone. To accomplish this, the rule requires all jurisdictions to develop transportation system plans that include roadway, bicycle, and pedestrian plans that inventory existing, committed, and planned facilities and services and identify their function, type, capacity, and condition. A map of planned transportation facilities must indicate general location and facility parameters such as right of way width and improvement standards.

In addition, jurisdictions of 25,000 or greater are to determine the feasibility of transit for the area, and develop a plan for existing and planned transit facilities and services if transit is determined to be feasible. The transit plan should identify existing and proposed routes, capacities, and the degree to which capacities are achieved. The plan must also describe public transportation services for the transportation disadvantaged and identify service inadequacies. The recently adopted **Corvallis Transit System Plan to Implement the Americans with Disabilities Act** coupled with the **Corvallis Transit System Business Plan** provide much of this information. Identification of future transit routes will need to be accomplished by May, 1997. A Transit Master Plan to meet all the TPR requirements is being developed with funding assistance of the ODOT/DLCD Transportation and Growth Management (TGM) Program.

Plans for air, rail, waterways, and pipeline can be less comprehensive, requiring primarily an indication of the service provider and location of facilities for:

- Public use airports
- Mainline and branch line railroads and rail facilities
- Port facilities
- Major regional pipelines and terminals

In addition to the required plans, specific land use and subdivision regulations relating to transportation must be adopted by local and regional jurisdictions. Requirements of the plan fall into two categories.

- Actions to be adopted by November, 1993, and
- Actions to be adopted by May, 1997.

2.40.10 NOVEMBER, 1993 REQUIREMENTS

The following land use regulations were adopted into the Corvallis Land Development Code effective July, 21, 1993. The Planning Division will provide enforcement through review of development applications.

a. Bicycle Parking Facilities

Bicycle parking facilities are required for all new multi-family developments of four or more units. They are also required for all new retail, office, and institutional development, at transit transfer stations, and at park and ride lots. Standards for such facilities have been developed through coordination with other cities, the State, and the Corvallis Advisory Commission on Bicycles.

b. Bicycle and Pedestrian Access

Bicycle and pedestrian access shall be provided within and from new subdivisions, planned developments, shopping centers, and industrial parks to residential areas, transit stops, and neighborhood activity centers. These may take the form of;

- Sidewalks on arterials and collectors;
- Bikeways on arterials and collectors;
- Separate bike and pedestrian facilities that reduce travel distance where appropriate.

c. Pedestrian Circulation Commercial and Office Park Development

Internal pedestrian circulation shall be provided in new office park and commercial developments. Providing for such circulation may take the following forms:

- Clustering of buildings;
- Construction of pedestrian ways;
- Construction of skywalks where appropriate.

These provisions are intended to provide pedestrian-friendly development in contrast to much existing development with large parking expanses and no thought given to pedestrian needs. Existing development is not required to retrofit.

d. Transit-Friendly Development

Development along existing or planned transit routes shall incorporate into the design various transit-friendly elements, as appropriate.

- Bus Stops
- Pull-outs and Shelters
- Optimum road geometrics
- On-street parking restrictions
- Other similar considerations

This requires developers to incorporate transit design into projects. Successful implementation of these provisions will require development of a plan for future transit routes and design standards

requiring the above measures even if provision of transit service may actually be years away for an area.

New retail, office, and institutional buildings at or near existing or future transit stops must also address transit service in their design. Options for accomplishing this include:

- Orient building entrances toward transit stop or station;
- Cluster buildings around transit stops;
- Locate buildings as close to transit stops as possible.

Opportunities to redevelop existing parking areas for transit-oriented uses such as bus stops and pull outs, park-and-ride stations, and transit-oriented developments are also provided. This may be particularly useful in locations where development has significantly more developed parking spaces than required by code.

Other transit-friendly improvements include provision in new roadway systems of pedestrian access to transit routes, including, where appropriate, separate pedestrian ways that minimize travel distance. Enforcement occurs through the Land Development Code.

2.40.20 MAY, 1997 ADOPTION REQUIREMENTS

Further land use and subdivision regulations are required to be adopted by May, 1997. These are aimed primarily at protecting the operation of transportation facilities for their intended function.

1. Access control standards consistent with a street's functional classification*
2. Standards to protect operation of future roads, transit ways, and major transit corridors
3. Control of land use within airport noise corridors and imaginary surfaces*
4. A process for coordinated review of land use decisions effecting transportation facilities, corridors, or sites
5. A process to apply conditions of development to minimize impacts and protect transportation facilities, corridors, and sites*
6. Regulations to provide notice to public agencies providing transportation facilities or services of land use applications requiring public hearings, subdivision and partition applications, other applications that affect private access to roads, and applications affecting airport operations*

7. Regulations assuring that amendments to land use designations, densities, and design standards are consistent with functions, capacities, and levels of service of facilities identified in the transportation plan*
8. Regulations requiring designation of types and densities of land use along existing or planned transit corridors adequate to support transit

* Requirements followed by an asterisk are fully addressed in this transportation plan update or are already in place.

Items 2 and 4 will be addressed in joint Corvallis/Benton County projects initiated in Spring, 1996- the Benton County Transportation Plan and a project evaluating potential changes to the Corvallis Urban Fringe Management Agreement. Item 8 will be addressed through the Transportation Alternatives Analysis and Transit Master Plan projects initiated in April, 1996.

Implementation of the Transportation Planning Rule will add some cost to project development and maintenance. Future development will need to recognize and plan for these costs.

2.50 EVALUATION OF ALTERNATIVES

As a means of prioritizing the needs of the transportation system, a method of evaluating alternative approaches to meeting those needs is required by the Transportation Planning Rule. The rule requires the following to be evaluated as components of system alternatives by May, 1997:

- Improvements to existing facilities or services;
- New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
- Transportation system management measures;
- Demand management measures; and
- A no-build system alternative.

The alternatives are to be evaluated based on the following:

- Their ability to serve the land uses identified in the Comprehensive Plan;
- Their consistency with state and federal environmental standards;
- Their ability to minimize adverse economic, social, environmental, and energy consequences;

- Their ability to minimize conflicts and facilitate connections between modes of transportation;
- Their ability to avoid principal reliance on any one mode of transportation and to reduce principal reliance on the automobile.

Based upon this review, the community can decide on an appropriate means of addressing its transportation needs.

Although a model was used in the development of this plan, it was not used specifically to evaluate all of these alternatives. Recent purchase of traffic modeling software will allow the City to do such an evaluation within the required time frame. In spring of 1996, a consultant was hired to accomplish the analysis of transportation alternatives required under Transportation Planning Rule 12. This is a multi-faceted effort, requiring analysis of Transportation System Management (TSM) and Transportation Demand Management (TDM) techniques that might be effective in reducing reliance on the single occupant vehicle (SOV). Probably most important to this analysis is a review of how alternate modes of transportation to the SOV can best be provided and their use promoted and how land use might play a role in the effectiveness of alternate modes in attracting users. Particularly important to the transit mode is identification of future routes with an emphasis on ensuring that land use along them, whether in terms of the density of residential uses or the transit- and pedestrian-friendliness of commercial development, can help to encourage transit use.

To help in this effort, the City applied for and has received TGM Program funding assistance to complete a Transit Master Plan. The City will incorporate the Transit Master Plan work effort directly into the Transportation Alternatives Analysis (TAA) project. The consultant is being asked to provide a consolidated public process for an analysis of transportation alternatives that includes analysis of TDM and TSM opportunities and the development of a Transit Master Plan. This process will be designed such that the work of a consultant selected through the TGM selection process could be inserted into the transit planning effort. When the transit planning effort has developed a set of alternatives for transit service (service types, specific current and future routes, appropriate land use and land development code changes, etc.), these alternatives will be incorporated into the global analysis of TSM, TDM, and other modal alternatives for the Corvallis area. From this analysis, a preferred alternative for provision of transportation services and facilities in Corvallis will be developed, including a preferred transit alternative that will become the preferred alternative in the Transit Master Plan. The Corvallis Transportation Plan will be updated following completion of alternatives analysis to incorporate appropriate information.

2.60 TRANSPORTATION POLICIES

Implementation of the transportation system plan involves several steps. Initially, policy decisions are made by City Council from which standards and regulations are developed and adopted. These standards and regulations are then interpreted and implemented by the Planning Commission or staff, depending on the proposal.

The Corvallis Comprehensive Plan¹ contains transportation policies addressing many community issues. The policies provide a framework for transportation decisions in Corvallis today and in the future. System needs and actions are identified within the various modal plans necessary to carry out this policy framework. As the city incorporates this transportation plan into the Comprehensive Plan and Land Development Code, these policies and their implementing actions will complete a comprehensive update of transportation issues and strategies.

The policies identified provide a basis for addressing transportation needs of the city and its neighborhoods, while fulfilling requirements of the State Transportation Planning Rule. Policies have been prepared within the context of the Transportation Section of the Comprehensive Plan. New, proposed policies augment existing policies and will provide additional guidance on specific issues.

2.60.10 TRANSPORTATION SYSTEM PLANNING POLICIES

a. Existing Comprehensive Plan Policies

- §§10.1.1 THE TRANSPORTATION SYSTEM SHALL BE PLANNED AND DEVELOPED IN A MANNER WHICH CONTRIBUTES TO COMMUNITY LIVABILITY, RECOGNIZES AND RESPECTS THE CHARACTERISTICS OF NATURAL FEATURES, AND MINIMIZES THE NEGATIVE EFFECTS ON ABUTTING LAND USES.
- §§10.1.2. THE TRANSPORTATION SYSTEM SHALL BE MANAGED TO REDUCE EXISTING TRAFFIC CONGESTION AND FACILITATE THE SAFE, EFFICIENT MOVEMENT OF PEOPLE AND COMMODITIES WITHIN THE COMMUNITY.
- §§10.1.3. THE CITY SHALL DEVELOP AND PROMOTE ALTERNATIVE SYSTEMS OF TRANSPORTATION WHICH WILL SAFELY, ECONOMICALLY AND CONVENIENTLY SERVE THE NEEDS OF THE RESIDENTS.
- §§10.1.4. SPECIAL CONSIDERATION IN THE DESIGN OF THE TRANSPORTATION SYSTEM SHALL BE GIVEN TO THE NEEDS OF THOSE PEOPLE WHO HAVE LIMITED CHOICE IN OBTAINING PRIVATE TRANSPORTATION.

¹ - *Comprehensive Plan*, City of Corvallis, Ordinance 90-52, Article 10, effective January 1, 1991, pages 112 to 124.

§§10.1.5. THE TRANSPORTATION SYSTEM SHALL GIVE SPECIAL CONSIDERATION TO PROVIDING ENERGY EFFICIENT TRANSPORTATION ALTERNATIVES.

§§10.1.6. THE CITY SHALL MAINTAIN A LONG RANGE TRANSPORTATION PLAN THAT WILL BE PERIODICALLY REVIEWED AND UPDATED.

§§10.1.7. THE CITY SHALL ESTABLISH A CAPITAL IMPROVEMENT PROGRAM FOR THE TRANSPORTATION SYSTEM WHICH:

- IS SUBJECT TO ANNUAL REVIEW;
- IS CONSISTENT WITH THE LAND USE POLICIES OF THE COMPREHENSIVE PLAN AND CONSIDERS OTHER FACILITY PLANS;
- DEFINES THE LOCATIONS OF RIGHTS-OF-WAY NECESSARY FOR THE CREATION OF A COMMUNITY-WIDE TRANSPORTATION SYSTEM;
- ESTABLISHES A PRIORITY FOR IMPROVEMENTS TO THE SYSTEM; AND
- PROVIDES FOR THE NEEDS OF ALL MODES OF TRANSPORTATION WITHIN THE RIGHTS-OF-WAY.
- CONSIDERS THE ECONOMIC IMPACTS UPON PROPERTIES RESULTING FROM TRANSPORTATION IMPROVEMENTS.

§§10.1.8. THE FOLLOWING HIGHWAY CORRIDORS SHALL BE CONSIDERED PRIMARY AND IMPORTANT ENTRYWAYS OR GATEWAYS INTO CORVALLIS:

- HIGHWAY 99W FROM THE NORTH
- HIGHWAY 99W FROM THE SOUTH
- HIGHWAY 20 FROM THE NORTHEAST
- HIGHWAY 34 FROM THE EAST
- HIGHWAY 20-34 FROM THE WEST

§§10.1.9 SPECIAL ATTENTION SHALL BE GIVEN TO MAJOR ENTRYWAYS OR GATEWAYS INTO CORVALLIS TO ENSURE THAT THEY REFLECT AND CONTRIBUTE TO A POSITIVE AND DESIRABLE IMAGE OF THE COMMUNITY. THIS MAY INCLUDE TREE PLANTING REQUIREMENTS, THE APPLICATION OF SPECIAL

BUFFER AND SETBACK CONDITIONS AT THE TIME PROPERTIES ABUTTING THE HIGHWAYS DEVELOP, ACCESS LIMITATIONS, AND OTHER EFFORTS TO ENHANCE THE APPEARANCE AND CARRYING CAPACITY OF THESE IMPORTANT CORRIDORS IN KEEPING WITH POLICIES 4.1.1, 4.1.5, AND 4.1.7.

§§10.1.10 DEVELOPMENT PROPOSALS SHALL BE REVIEWED TO ASSURE THE CONTINUITY OF SIDEWALKS, TRAILS, BICYCLE PATHS, AND PEDESTRIAN WAYS.

§§10.1.11 THE CITY SHALL COORDINATE WITH THE OREGON DEPARTMENT OF TRANSPORTATION IN IMPLEMENTING ITS HIGHWAY IMPROVEMENT PROGRAM.

§§4.1.1. BOTH PUBLIC AND PRIVATE PROPERTIES LOCATED ALONG ENTRANCE CORRIDORS TO THE CITY OF CORVALLIS SHALL BE ATTRACTIVELY LANDSCAPED.

§§4.1.5. THE CITY SHALL DEVELOP MASTER PLANS FOR, AND SHALL ESTABLISH STANDARDS THAT ENSURE ADEQUATE LANDSCAPING, SETBACKS, AND LIMITED ACCESS IN CONJUNCTION WITH PROJECTS TO IMPROVE CITY GATEWAYS. SUCH STANDARDS SHALL BE MAINTAINED IN THE LAND DEVELOPMENT CODE.

§§4.1.7. THE CITY SHALL ESTABLISH TRAILS IN ADDITION TO ROADS WHICH FOLLOW SCENIC ROUTES TO CONNECT OPEN SPACE TO RESIDENTIAL AREAS, PUBLIC SITES, SHOPPING AREAS, AND DOWNTOWN CORVALLIS. THE TRAILS NETWORK PLAN SHALL BE USED AS THE BASIS OF TRAIL DEVELOPMENT.

b. Recommended Additional Transportation Policies (Transportation System Planning)

- 1) The transportation system shall reflect consistency with the Corvallis Comprehensive Plan, land use designations, and regional and statewide transportation planning efforts.
- 2) Uniform construction standards which accommodate all transportation modes shall be maintained for the City's transportation system.
- 3) ODOT should fund, maintain, and improve all State Highway facilities (ORE 99W, ORE 34 and US 20) to meet level of service standards contained in the Oregon Highway Plan. When specific construction plans are proposed, ODOT should prepare comprehensive roadway designs that recognize urban usage for surface transportation modes, including facilities for pedestrians, bicycles, transit, drainage, curbs and gutters.

- 4) Corvallis will invest in planning and coordinate with the state and counties to develop highly detailed transportation and access plans that firmly fix the location of future arterial and collector streets for each developing sector within the Corvallis urban growth boundary.

CHAPTER 3.0 MOTORIZED VEHICLE STREET TRAFFIC AND CIRCULATION

3.10 INTRODUCTION

This section of the Transportation Plan accomplishes five things:

- Identifies the network of streets necessary to carry current and future automobile, truck, transit, and other motorized vehicle street traffic;
- Examines current traffic volumes and system needs within the existing system;
- Examines future traffic volumes and system needs utilizing traffic model projections;
- Examines specific neighborhood concerns related to traffic circulation; and
- From these efforts, identifies current and future improvements necessary to provide acceptable levels of service within the transportation system.

Since 1983, the date of the previous comprehensive review of the street network, many changes have taken place in the Corvallis area and the State that necessitate an update of the plan. More than twenty amendments to the Comprehensive Plan have been approved, the most significant of which is the expansion of the Urban Growth Boundary westward along Philomath Boulevard. An "Interim Access Strategy" was identified for the area at that time; this plan reviews and finalizes that strategy. The traffic model used to evaluate the system also incorporates the land use associated with the other Comprehensive Plan Amendments to evaluate their impacts on the system and ensure that improvements identified for the system will meet community needs.

Excessive traffic and parking in neighborhoods has been a longstanding problem in Corvallis, particularly around Oregon State University. This aspect of transportation planning has not been comprehensively evaluated in any previous transportation plan. This plan evaluates such neighborhood concerns, as well as speeding and lack of adequate access, and provides guidance for improvements.

Previous discussion of the State Transportation Planning Rule and the State of Oregon's Transportation Plan (**Chapter 2.0 Transportation System Planning**) have indicated the need to update the City's entire Transportation Plan. The Motorized Vehicle and Street Traffic and Circulation element of the Plan is a significant part of this effort for several reasons:

- Improvements to the street circulation system will benefit all users of the system- automobiles, bicyclists, pedestrians, transit riders, etc.- and vice versa;

- Of all transportation modes, auto traffic has the greatest negative impacts on neighborhoods and community livability; and
- Motorized vehicle street traffic improvements are the most costly and require significant long-term planning.
- The motorized vehicle will remain a significant mode of transportation for many citizens of Corvallis;

This element of the plan identifies needs of the motorized vehicle street traffic system in the context of the whole transportation system. Coordination of the plan's modal elements will ensure that improvements necessary to the street system will effectively provide for a multi-modal transportation system.

Motorized Vehicle Street Traffic and Circulation is organized into several sections. First, a **Vision** for the system is presented. This is followed by a section which addresses **Existing Conditions** within specific subheadings:

- Street Network
- Traffic Speed and Volume
- Existing Circulation
- Traffic Levels of Service
- Accidents

Next is an evaluation of **Future Conditions**. The discussion and projected needs are based on:

- Land uses identified in the Comprehensive Plan;
- A city-wide traffic model (explained in **2.0 Transportation System Planning** and available for review in a separate technical appendix) projects traffic volumes on the existing and proposed street network;
- An analysis of future traffic volumes.

Specific **System Issues** related to neighborhoods and other aspects of the street network planning effort are addressed in the following order:

- Transportation Alternatives Analysis
- OSU Transportation Issues and Linkages
- Traffic Control
- Neighborhood Traffic Management and Safety
- Downtown Traffic
- Residential Parking Districts
- State Highway Plan
- Emergency Preparedness and Response
- Funding

- Interagency Coordination
- Harrison Corridor Concerns

Following these discussions is a review of existing **Auto Traffic and Circulation Policies** contained in the Comprehensive Plan and suggested new policies that meet the needs of the system. Within this section are methods to address identified system needs and carry out system policies. From this element of the plan, policy-makers may address community-wide and neighborhood-specific traffic concerns, knowing that such decisions will also be consistent with needs identified in other modal plans.

3.20 VISION

The motorized vehicle and street traffic and circulation system for Corvallis will provide transportation corridors to move people, goods and services safely and efficiently by a variety of modes. By accommodating pedestrian, bicycle and transit modes in a manner which encourages their use, a reduction in the reliance on the automobile can be achieved. Goods, services and people will reach their destination with a minimum of delay and inconvenience, thereby contributing to economic vitality while simultaneously minimizing air and noise pollution associated with traffic congestion. The system will comprise a balanced network of highways, arterial streets, collector streets and local streets that provides for the needs of all citizens for local and through traffic. Local neighborhoods will experience minimal incursions of parking and traffic not associated directly with them. The success of the system will be based on efficiency, safety and livability.

3.30 EXISTING CONDITIONS

3.30.10 STREET NETWORK

Streets may be classified on the basis of their function. Such a classification provides for consistency in construction, operation and maintenance standards within classifications and an understanding by the public of the importance of specific facilities and their associated improvements within the system. The Transportation Planning Rule also requires cities to classify according to their function.² The classifications must be consistent with state and regional transportation plans for continuity among adjacent or overlapping jurisdictions. They must also be based on each street's actual use. Street classifications have been identified in previous transportation plans in the 1970s and 1980s³. The functional hierarchy of streets provides:

- Grouping of streets by the service they provide;
- Facility definitions to handle different desired levels of access and mobility;

² *Transportation Planning Rule*, State of Oregon, Department of Land Conservation and Development, Section 660-12-020(2)(b), May 1991.

³ *Corvallis Traffic Safety Study*, City of Corvallis, by CH₂M, June 1971; and *Corvallis Transportation Plan*, City of Corvallis, by CRSS, July 1983.

- An understanding of how a street is being used;
- Guidelines on how streets are to be designed;

Roadways have two functions: to provide mobility and access. From a design perspective, these functions can be incompatible; high or continuous speeds are desirable for mobility, while low speeds are more desirable for access. Arterials emphasize a high level of mobility for through movement; local facilities emphasize the access function; and collectors offer a balance of both functions. Figure 3-1 shows the relationship of the functional classification to access and mobility. Figure A-1 (see Appendix A) shows the existing functional classification of streets, although there is disagreement within the community concerning the designations of some streets.

The Corvallis area is not served by freeways or expressways, so the movement of persons, goods and services in Corvallis depends on the **arterial street system**, which is composed of two types of roadways:

- State highways
- Arterial streets.

The **collector street system** provides both access and traffic circulation within residential, commercial, and industrial areas.

The **local street system** serves traffic within neighborhood areas and facilitates access between the collector system and land uses adjoining local streets.

During public review of the Draft Transportation Plan, concerns were expressed that more flexibility was needed to classify streets based on the varied degrees of the access and mobility functions that collector and local streets provide. In response, a modified Functional Classification System for roads has been prepared that further refines the collector and local street classes. The collector system includes **collectors** (roughly equivalent to existing collectors) and **neighborhood collectors** (intended to reduce auto traffic impacts from collector roadways serving predominately residential neighborhoods). Similarly, the system includes **local connectors** (relatively continuous local streets providing access between low use locals and other local connectors or collectors) and **locals**. The general design guidelines for the various classes are contained in Table 3-5. The Functional Classification System is shown in Figure A-1 (see Appendix A). Any street not designated as either an arterial or collector is considered a local street. Some streets have dual classifications, since their function changes (Circle Boulevard and Highland Drive). With adoption of this Transportation Plan, the standards contained in Table 3-5 Proposed Functional Classification System should be incorporated into the Corvallis Land Development Code.

a. Arterial Streets

State highways (Table 3-1) are the primary gateways into Corvallis and carry nearly all the vehicle trips entering, leaving, or passing through the Corvallis area. These elements of the arterial street classification are critical to the Corvallis street network because they generally serve the highest traffic volumes and longest trips. Access control is critical on these facilities to ensure they operate safely and efficiently. The ORE 34/US 20 corridor is designated an Access Oregon Highway, a key corridor between I-5 and the Oregon coast.

Table 3-1

State Highways:

US 20	Northeast
ORE 34	East
ORE 99W (3rd & 4th St.)	No. & So.
US 20/ORE 34	West

Table 3-2

Existing Arterial Streets

NORTH-SOUTH

- 9th Street
- Highland Drive
- Kings Boulevard
- 35th Street S. of Harrison
- 53rd Street

EAST-WEST

- Walnut Boulevard
- Circle Boulevard E. of 29th St.
- Harrison Boulevard
- Van Buren Boulevard
- Reservoir Road
- Western Boulevard
- Airport Road

Arterial streets connect the state highways, linking major commercial, residential, industrial, and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of well-placed arterials. Many of these routes connect outward from Corvallis into the surrounding areas of Benton County. Arterial streets within the Corvallis UGB are listed in Table 3-2.

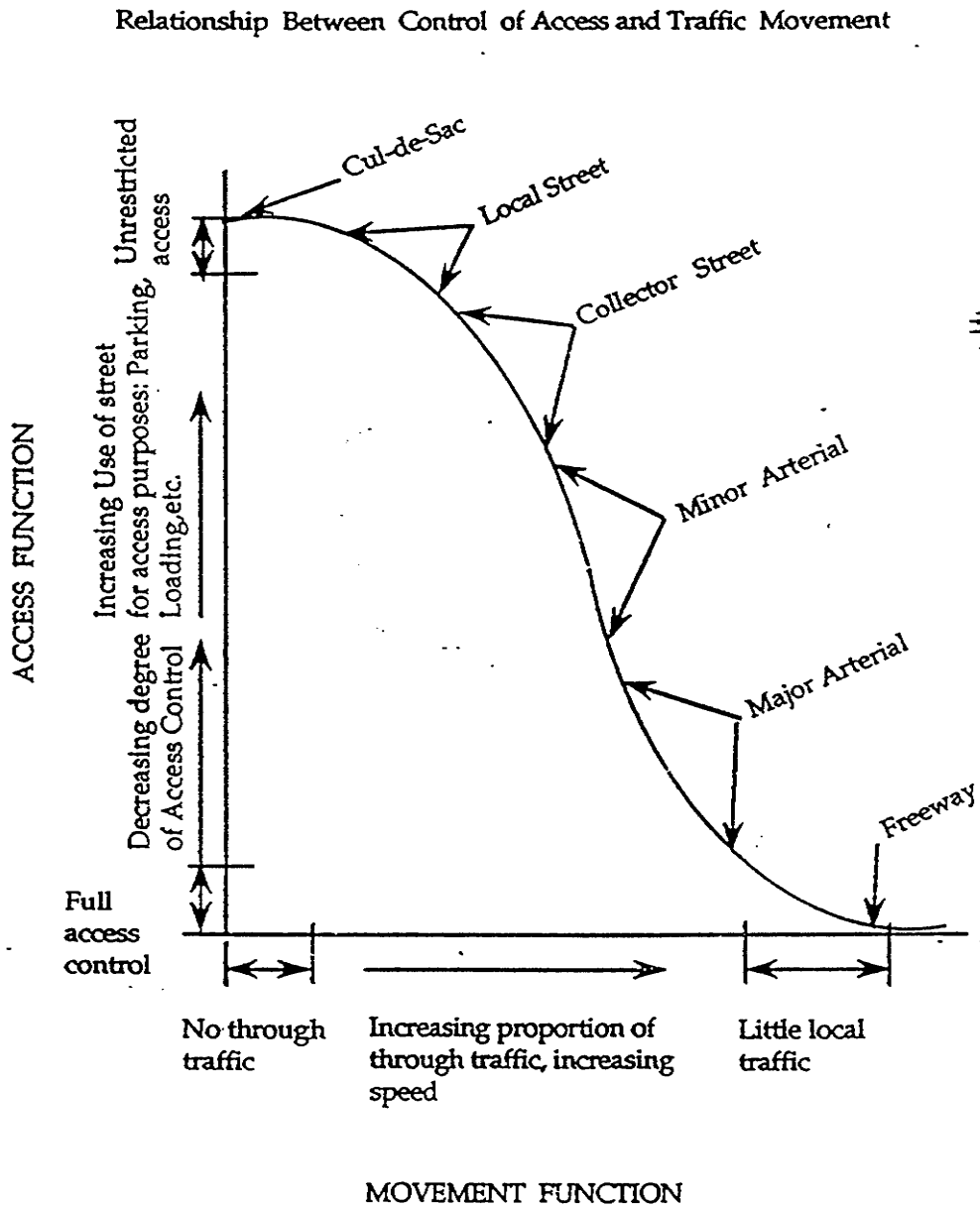
b. Collector Streets

The **collector** and **neighborhood collector** street designations for streets within the Corvallis urban growth boundary are shown in Figure A-1 Functional Classification System. Designations for the existing system are indicated in Table 3-3 Existing Collector Roadways.

Collector: Collector streets provide both access and circulation within residential neighborhoods and commercial/industrial areas. Collectors differ from arterials in two ways:

- Controlled access may not be required for all collectors; and

FIGURE 3-1 ACCESS AND MOBILITY RELATIONSHIP⁴



⁴ ACCESS MANAGEMENT MANUAL, Oregon Department of Transportation, Highway Division, Planning Section, August 1991.

- Collectors penetrate neighborhoods, distributing trips from the arterials through the area to their ultimate destinations.

The standard collector is characterized by a range of uses that typically result in a greater intensity of development along its route or at major intersections with other collectors or arterials. Land uses such as low to medium high density residential, commercial, or industrial and their associated traffic volumes are examples of this kind of intensity.

Table 3-3
Collector Streets

<u>NORTH-SOUTH</u>	<u>EAST-WEST</u>
● Crystal Lake Drive	● Country Club Drive
● 5th Street	● West Hills Road
● 9th Street (N. of Walnut)	● Washington Way
● 15th Street	● Jefferson Avenue
● 26th Street/Brooklane Drive (S. of Washington)	● Monroe Avenue
● 29th Street	● Buchanan Avenue
● 30th Street	● Grant Avenue
● 35th Street (S. of US 20/34)	● Garfield
● 36th Street	● Circle Boulevard (W. of Kings)
● Witham Hill Drive	● Conifer Boulevard
● Highland Drive	● Elks Drive
● Satinwood Drive	

Neighborhood Collector: Neighborhood collectors are similar in function to standard collectors in that controlled access is unnecessary, and that they penetrate neighborhoods, distributing trips from the arterials through the area to their ultimate destinations. In the case of a neighborhood collector, however, land use along its route is generally low to medium density residential in nature. The intensity of development at intersections along its route is also generally less intense than might occur for standard collectors. As indicated in Table 3-5 Proposed Functional Classification System, traffic calming techniques such as traffic circles, bulbed intersections, or speed humps are to be expected as typical means of controlling traffic speeds on neighborhood collectors. The purpose of the neighborhood collector is to minimize the impact of traffic to adjacent land uses while recognizing that collector roadways are still necessary to serve less intense residential areas. Identified traffic calming techniques (bulbed intersections, etc.) are to be constructed at the time of development.

c. Local Streets

Local Streets have the primary function of providing access to immediately adjacent land. Although through-traffic movement on new local streets usually is deliberately discouraged, this may not be practical for particular neighborhoods. **Local connector** or **local** street designations will be applied in newly developing areas based on review of a street network plan and in some cases a traffic study provided with the development application by the developer. The distinction must be based on a number of factors, including density of development, anticipated traffic volumes, and the **potential** for through traffic. Street network plans must provide for connectivity within the transportation system to the extent that, generally, both **local connector** and **local** streets will be created within a development. Identified traffic calming techniques (bulbed intersections, etc.) are to be constructed at the time of development.

Local Connector: Generally **local connectors** will provide some through-traffic functions within a particular development, providing access from other local streets to arterials, collectors, neighborhood collectors, or other local streets. Local connectors are generally the means by which traffic will access the community arterial-collector system.

Local: A **local** street will be designed to minimize the impact of traffic (primarily traffic speed) on adjacent development. At volumes generally associated with local streets, the greatest impact and the source of the greatest number of complaints is traffic speed. Through review of the street network plan, only those streets with a very low desirability for use as a through street should be designated as a **local**. Cul-de-sacs less than 600 feet in length and serving no more than 18 dwelling units or a series of parallel low-use streets in which no specific street has significantly greater probability of through use are examples of this type of street designation. Design of these streets shall aim to achieve volumes and speeds at the lower end of the range for all local streets as indicated in Table 3-4.

Street design for each development shall provide for emergency and fire vehicle access. Street widths of less than 28 feet shall be applied as a development condition through the subdivision and/or planned development process. Following adoption of the Transportation Plan, Land Development Code standards shall be developed by which the narrower street widths can be applied. This effort should consider the following possible options for allowing installation of such streets:

Roadway Type	Daily Vehicles	Managed Speed (mph)
Arterial Highway	> 10,000	45-55
Arterial Street	> 5,000	25-45
Collector	> 2,000	25-35
Neighborhood Collector	> 2,000	25
Local Connector	< 2,000	25
Local	< 2000	15- 20

- Parking bays of appropriate size and spacing to meet anticipated development needs;

- Multiple access to each dwelling unit, (street intersections on both ends of the narrower street, one of which is not more than 150 feet from the unit);
- Residential fire-suppressive sprinklers;
- Maximum block circumferences;
- Additional hydrant installations;
- Limitation of the reduced street widths to low-density (one- and two-family dwelling units) development only. Narrow streets may not be appropriate for apartment complexes, commercial, public or business-type occupancies which require use of a ladder truck in firefighting operations;
- Ensure that the City has mechanisms in place to install and maintain “No Parking Fire Lane” signage, and to enforce the no parking restrictions.

Other issues may arise that will also be appropriate to implementation of such street standards.

Traffic volumes on different streets vary depending on their classification and number of traffic lanes. Table 3-4 provides general parameters for speed and volume on the various classifications. **Volumes indicated are not intended to be absolute maximums or minimums.** Although streets can be classified as arterial streets with 5,000 ADT, some collectors also carry more than 5,000 vehicles per day, such as 29th Street at Circle Boulevard (9,326 ADT) and Grant Avenue at Kings Boulevard (5,709 ADT). The function of the street within the roadway system and the types and intensities of land use along their routes are other important factors in their appropriate designation.

d. Benton County Roads

Benton County road classifications⁵ are generally consistent with City of Corvallis designations except for two routes - 53rd Street south of US 20, and Granger Avenue (eastward extension of Lewisburg Road). The county designates these as collectors, but the city proposes them as arterials when annexed. These are roadways outside the existing city limits, but within the urban growth boundary (UGB). Access control will need to be preserved for long-range future development on these streets. Current land use decisions need to reflect the arterial needs. This issue can be further addressed during the preparation of the Benton County Transportation Plan.

⁵ *Transportation Management Plan, Benton County, by TPM, June 1980.*

3.30.20 TRAFFIC SPEED AND VOLUME

Speed zones on primary arterials and collectors in Corvallis are summarized in Figure 3-2. Speed zones other than described above are established by the State Traffic Engineer based on an engineering study that examines many factors. These factors include:

- Road surface characteristics, shoulder condition, grade, alignment and sight distance
- Speed not exceeded by 85 percent of vehicles
- Ten m.p.h. range with largest number of vehicles
- Roadside development and culture
- Curves and hazardous locations
- Recent accident history
- Parking practices and pedestrian activity

The City may do an engineering study that indicates a speed zone is appropriate and request a speed zone or change from the State Traffic Engineer. The State Traffic Engineer will review the request, verify the engineering study, and make a ruling regarding the speed zone request.

Speed zones established on arterials and collectors should be reviewed periodically as traffic patterns and volumes change to insure the speed zones remain appropriate and to provide for continued safe and efficient movement of traffic.

Vehicle speeds on several collector and residential streets are a concern for the community; streets such as 36th, 29th, and Estaview/Elmwood are locations mentioned in discussions with the community. In most cases, speeding on residential streets becomes noticeable to residents when it is above 30 miles per hour. Speeding can usually be expected where local streets are designed wide and straight for long stretches, or where downhill grades are extended. Common methods for addressing vehicle speed are detailed in Section 3.50.20 Traffic Control.

Table 3-5: Proposed Functional Classification System⁶

	Arterial Highway	Arterial	Collector	Neighborhood Collector	Local Connector	Local
Auto amenities (lane widths) ⁷	2-5 Lanes (11-14 ft)	2-5 Lanes (12 ft)	2-3 Lanes (11 ft)	2 Lanes (10 ft)	2 lanes (10 ft)	Shared Surface
Bike amenities ⁸	2 Lanes (6 ft)	2 Lanes (6 ft)	2 Lanes (6 ft)	2 Lanes (6 ft)	Shared Surface	Shared Surface
Pedestrian amenities	2 Sidewalks (6 ft) Ped. Islands	2 Sidewalks (5 ft) Ped. Islands	2 Sidewalks (5 ft)	2 Sidewalks (5 ft)	2 Sidewalks	2 Sidewalks
Transit	Typical	Typical	Typical	Typical	Permissible/ not typical	Permissible/ not typical
Managed Speed ⁹	20 mph - 55 mph	25 mph - 45 mph	25 mph - 35 mph	25 mph	25 mph	15-20 mph
Curb-to-curb Width ¹⁰ (two way)						
No on-street parking	34 ft - 84 ft	34 ft - 72 ft	34 ft - 45 ft	32 ft	20 ft*	20 ft*
Parking one side	42 ft - 84 ft	NA	NA	40 ft	28 ft	25 ft*
Parking both sides	50 ft - 84 ft	NA	NA	48 ft	28-34 ft	28 ft
Traffic calming		No	Permissible/ not typical	Typical	Permissible	Permissible
Preferred adjacent land use	High Intensity	High Intensity	Med. to High Intensity	Medium Intensity	Med. to Low Intensity	Low Intensity
Access control	Yes	Yes	Some	No	No	No
Turn lanes		Continuous and/or medians/ped. islands	Typical at intersections with arterials or collectors	Not typical	Not typical	Not typical
Planting strips		two - 12 ft	two - 12 ft	two - 12 ft	two - 6 ft	two - 6 ft ¹¹
Through-traffic connectivity		Primary function	Typical function	Typical function	Permissible function	Permissible function

⁶ These standards do not preclude the flexibility currently allowed through the Planned Development Review Process.

⁷ Lane widths shown are the preferred construction standards that apply to existing routes adjacent to areas of new development, and to newly constructed routes. On arterial and collector roadways, an absolute minimum for safety concerns is 10 ft. Such minimums are expected to occur only in locations where existing development along an established sub-standard route or other severe physical constraints preclude construction of the preferred facility width.

⁸ An absolute minimum width for safety concerns is 5 ft, which is expected to occur only in locations where existing development along an established sub-standard route or other severe physical constraints preclude construction of the preferred facility width. Parallel multi-use paths in lieu of bike lanes are not appropriate along the arterial-collector system due to the multiple conflicts created for bicycles at driveway and sidewalk intersections. In rare instances, separated (but not adjacent) facilities may provide a proper function.

⁹ Arterial Highway speeds in the central business or other commercial districts in urban areas may be 20-25 mph. Traffic calming techniques, signal timing, and other efforts will be used to keep traffic within the desired managed speed ranges. Design of a corridor's vertical and horizontal alignment will focus on providing an enhanced degree of safety for the managed speed.

¹⁰ Street design for each development shall provide for emergency and fire vehicle access. Street widths of less than 28 feet shall be applied as a development condition through the subdivision and/or planned development process. The condition may require the developer to make the choice between improving the street to the 28 ft standard or constructing the narrower streets with parking bays placed intermittently along the street length. The condition may require fire-suppressive sprinkler systems for any dwelling unit more than 150 feet from a secondary access point. * To be applied in RS-9 and lesser districts.

¹¹ Through the Planned Development Review Process, the planting strip along local streets and around the bulbs of cul-de-sacs may be reduced or eliminated.

Peak traffic volume conditions were inventoried in the spring of 1991 as part of the transportation plan update. Those traffic counts provide the basis for analyzing existing areas for problems and establishing baseline conditions for future monitoring. A number of recent average, daily traffic counts for the street systems of Corvallis and Benton County were used in the analysis. DKS Associates also conducted morning (7-9 a.m.) and afternoon (4-6 p.m.) peak-period turning movement counts at 27 locations to determine intersection operating conditions. Table 3-6 presents the existing average daily traffic volumes for nine key routes in Corvallis (daily, a.m., and p.m. peak hour traffic counts are provided in the technical appendix).

On a typical day, 9th Street is the most heavily traveled street in Corvallis. The segment north of Buchanan Avenue carries over 20,000 vehicles per day (two-way). Presently, the most heavily traveled corridor is the 3rd/4th Street couplet in downtown Corvallis. With the completion of the ORE 34 bypass in July of 1992, traffic volume has decreased by approximately 20 percent. The key gateways to Corvallis also carry sizeable traffic volumes. The ORE 34 gateway from the east is the most traveled highway, with over 25,000 vehicles per day east of the Willamette River. Traffic data collected over the course of this study illustrate the typical fluctuations of traffic over the course of a day (Figure 3-3). Traffic peaks occur in the evening between 4:30 to 5:30 p.m. and in the morning between 7:00 and 8:00 a.m. during commute times. The mid-day hours on 9th Street show a peak due to lunchtime and commercial activities. The evening peak hour has the largest volume of traffic during the day. For this reason, analysis of capacity conditions focuses on the p.m. peak hour.

Table 3-6
1991 AVERAGE DAILY TRAFFIC (ADT)
VOLUMES IN VEHICLES

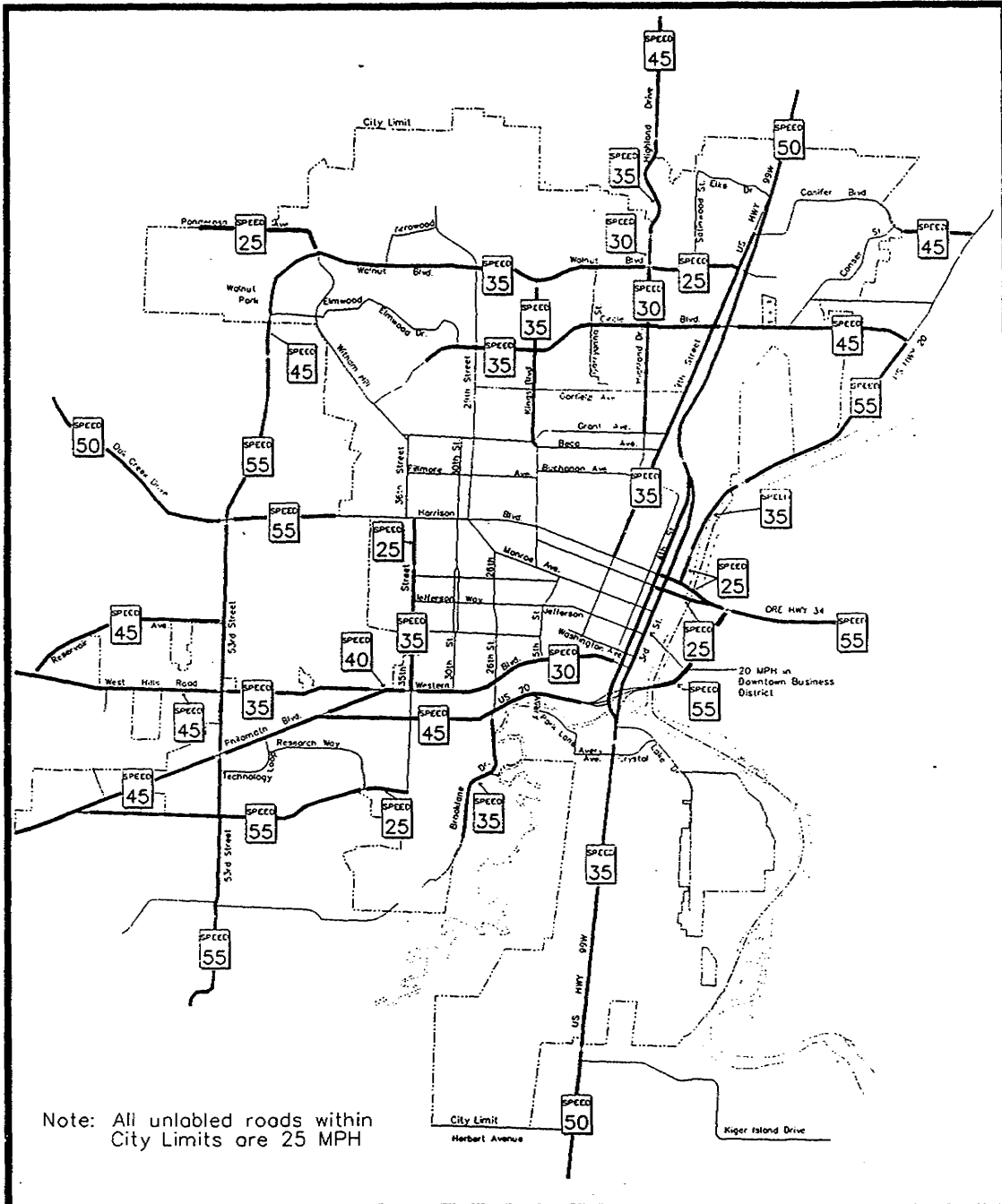
<u>Location</u>	<u>ADT</u>
Ninth Street @ Buchanan	20,750
Circle Boulevard @ 99W	15,025
Walnut Blvd @ Highland	13,900
Harrison Blvd @ Kings	12,880
ORE 34 @ River	25,870
ORE 99W @ Elks	13,880
US 20/ORE 34 @ 53rd	13,510
US 20 @ Conifer	13,400
ORE 99W @ Goodnight	8,520

3.30.30 EXISTING CIRCULATION

a. State Highways

Oregon Highway 34 and U.S. Highway 20 provide regional access for the City of Corvallis including access to the west coast's major north-south corridor, Interstate 5 (I-5). These routes connect Corvallis with Portland, Salem, and Eugene. U.S. 20 also provides access to and from Albany, located northeast of Corvallis, while ORE 34, to the east, provides access to and from Lebanon. U.S. 20 and ORE 34 diverge at a point west of Philomath, and continue on separate routes to the coast; U.S. 20 continues west to Toledo and Newport, and ORE 34 connects with Waldport.

FIGURE 3-2 CORVALLIS SPEED ZONE INVENTORY




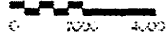

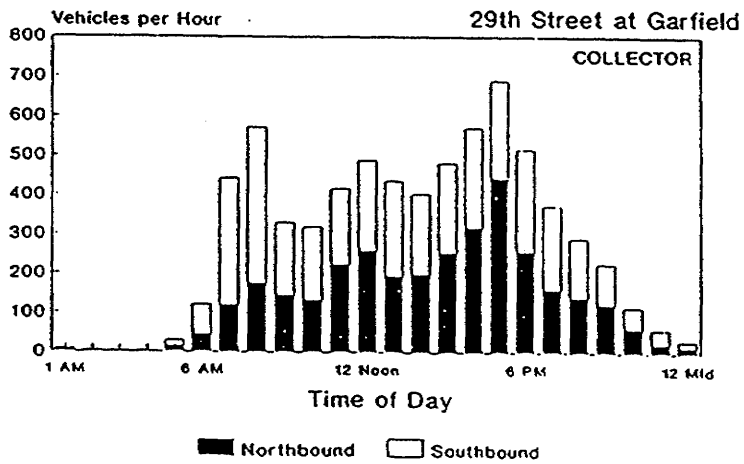
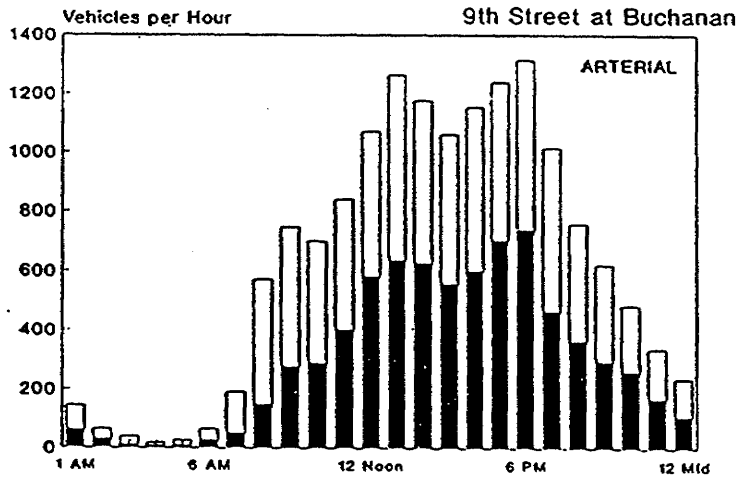
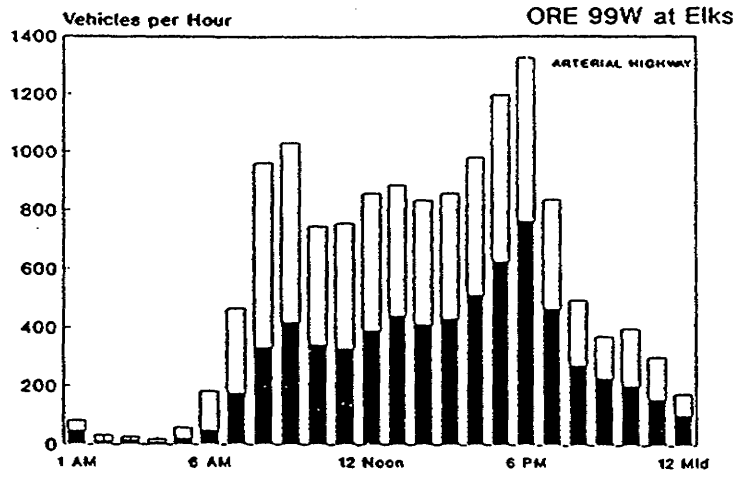
 <p>CORVALLIS GEOGRAPHIC INFORMATION SYSTEM</p>	<p>CITY OF CORVALLIS COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION - MAPPING/GIS SERVICES</p>	<p>DATE 3/5/96 PREPARED BY K. LOSSO ISS</p>	<p>1 INCH = 4000 FEET  0 1000 2000</p>	
	<p>SPEED ZONE INVENTORY (1996)</p>			
	<p>City Limit</p>			

FIGURE 3-3 DAILY TRAFFIC VARIATION

DKS Associates



Oregon Highway 99W runs parallel to and west of I-5. This two-lane highway is the major north-south arterial through downtown Corvallis. Proceeding south from Buchanan Avenue, ORE 99W is a one-way couplet on 3rd and 4th Streets, with two lanes in each direction. At Harrison Boulevard where U.S. 20 and ORE 34 join 3rd Street, 3rd and 4th Streets gain another lane in each direction until U.S. 20/ORE 34 split off to the west at "C" Avenue. Between the U.S. 20/ORE 34 split and Kiger Island Drive, South 3rd Street (99W) is a five-lane roadway, i.e. two travel lanes in each direction with a continuous center turn lane. South of Kiger Island Drive, 3rd Street/ORE 99W is once again a two-lane roadway. Due to the width of the facility and heavy traffic, pedestrian and bicycle crossing of Hwy 99W between Alexander Avenue and Kiger Island Drive is difficult.

South 3rd Street/ORE 99W provides the only arterial access between south Corvallis and the rest of the city. In addition, there is no direct access between the southern part of ORE 99W and the western part of U.S. 20/ORE 34.

b. Major City Streets

9th Street is a four- and five-lane north-south arterial carrying 15,000 to 20,000 average daily vehicles through Corvallis. There are eight traffic signals at intersections on 9th Street. This arterial is abutted by strip commercial land uses, and has many driveways connecting directly to the roadway. A continuous center turn lane between Walnut and Reiman (south of Buchanan) is provided along 9th Street. Lack of access control and the multiplicity of driveways have raised concerns about bicycle and pedestrian safety along 9th street, and the four to five lane width makes pedestrian crossing difficult.

Kings Boulevard is a north-south arterial that provides access between residential areas in Northwest Corvallis and OSU. It links three major shopping activity centers. Six traffic signals are currently installed along Kings. This two-lane roadway, carrying 6,000 to 15,000 average daily trips (ADT), runs between Walnut Boulevard and Monroe Avenue. Left-turn lanes are located at major intersections, and a center turn lane is provided where some strip commercial abuts the roadway near Buchanan. A Corridor Plan detailing multi-modal improvements to this corridor between Buchanan Avenue and Monroe Avenue was completed in FY 1995-96. Improvements are included within the Capital Improvements Plan.

Harrison Boulevard and Van Buren Boulevard form a one-way east-west couplet providing access to and from the downtown area. From the east (Linn County) to 4th Street, this couplet is ORE 34. There are two through auto lanes and one bike lane in each direction to Kings. Van Buren's role as an arterial ends at Kings Boulevard, and Harrison continues westbound as a two-lane, two-way arterial street. Harrison provides access to much student housing located north of the campus. Harrison Boulevard is lined with mature trees between 29th Street and 36th Street. No left-turn pockets are provided along the roadway except at intersections with 25th Street and Kings Boulevard. At the west City limits, Harrison Boulevard becomes a rural roadway. Due to facility width and traffic volumes, pedestrian crossing between 9th street and Kings Boulevard is difficult.

Monroe Avenue/Arnold Way is an east-west collector parallel to and south of the Harrison/Van Buren couplet. In the University area between 14th and 26th Streets, Monroe has flanking commercial uses with heavy pedestrian traffic. At 26th Street, Arnold Way traverses northwesterly to connect with Harrison at 29th Street.

Walnut Boulevard is an arterial that traverses the northern and western parts of Corvallis. On the west side of Corvallis, Walnut Boulevard is the northern extension of 53rd Street and is primarily a two-lane unsignalized rural road connecting the rural west side of the City with the northwestern residential area. On the north side of Corvallis, Walnut Boulevard has seven signalized intersections and is a four- and five-lane arterial carrying 10,000 to 16,000 average daily trips (ADT) between Witham Hill Drive and ORE 99W.

Circle Boulevard is an east-west roadway that runs from the City's northwest residential area to U.S. 20 and the Hewlett-Packard industrial site. Circle serves primarily as a two-lane collector west of 29th Street; east of 29th Street, Circle Boulevard is an arterial street. Circle Boulevard widens to four and five lanes east of 29th to the City Limits east of Conser Street and then narrows to two lanes again. A continuous center turn lane is provided between Highland Drive and the City Limits, east of Conser Street. There are six signalized intersections along Circle Boulevard. Safety issues associated with traffic speed in the residential section west of 29th Street and pedestrian crossing and bicycle safety throughout the corridor have been identified as a concern.

Western Boulevard is a two-lane east/west arterial to the north of and parallel to U.S. 20/ORE 34. It provides access to OSU's Parker Stadium and Gill Coliseum and connects with U.S. 20/ORE 34.

29th/30th and 35th/36th Streets are major north-south arterial/collectors. Over different segments of these routes, the roadways may operate as either collectors or arterials. They provide access to the west edge of OSU. Thirtieth and 35th Streets run south from Harrison to Western Boulevard, while 29th Street and 36th Street/Witham Hill Drive run north from Harrison to Walnut Boulevard. Drivers traveling from Western Boulevard north to Walnut Boulevard on one of these streets must jog at or near Harrison Boulevard.

Highland Drive/10th Street is a two-lane arterial that connects the northern residential area with Buchanan Avenue. South of Circle, Highland proceeds through residential neighborhoods, becoming a collector and is renamed 10th Street at Garfield Avenue. North of Walnut, Highland continues northbound as a rural roadway until it connects with Lewisburg Road. Traffic speed and volume issues have been raised for the section of 10th Street between Grant and Buchanan Avenues, and a Neighborhood Traffic Management Corridor Plan (see Section 3.40.10 Corridor Planning) may be appropriate for resolution of these concerns.

Buchanan Avenue is a two-lane arterial that extends east from Kings Boulevard to 5th Street, connecting to the central business district, offering an alternate route to downtown, ORE 99W, or 9th Street.

Conifer Boulevard is an east-west arterial that provides a connection between 9th Street and U.S. 20 north of Circle Boulevard. It serves commercial property near ORE 99W and then proceeds into a residential area at the northern end of the existing city boundary. Conifer crosses the Southern Pacific railroad tracks twice and has adjacent parks and schools.

Garfield and Grant Avenues are two-lane east-west collectors between Circle Boulevard and Harrison Boulevard. Garfield Avenue runs from 29th Street to 9th Street, and Grant Avenue from 36th Street to 9th Street. Both serve mainly residential areas.

3.30.40 TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* has been developed to objectively describe traffic performance at intersections.

TABLE 3-7
Signalized Intersections
LEVEL OF SERVICE DEFINITIONS

Level of Service	Vehicle Delay (secs.)	Volume to Capacity Ratio	Description
A	≤5.00	0.00-0.59	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	5.1-15.0	0.60-0.69	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	15.1-25.0	0.70-0.79	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	25.1-40.0	0.80-0.89	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	40.1-60.0	0.90-0.99	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection.
F	≥60.0	N/A	Forced Flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Table 3-7 defines level of service categories for signalized intersections. These categories are similar to report card ratings for intersection traffic performance. Intersections are the primary limiters of traffic flow, and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinities. Other limiters include driveway accesses, especially problematic on arterial streets, where traffic pulling in and out can impede through movement. Levels of Service A, B, and C indicate conditions where traffic moves without significant delays. Levels of Service D and E are progressively worse operating conditions, and level of service F represents conditions where demand exceeds the capacity of an intersection. Most urban

communities set level of service D as the minimum acceptable level of service for peak-hour operation and they seek level of service C or better for all other times of the day. The Level of Service Standard adopted in the 1991 Oregon Highway Plan for Hwy 20/34 is "C" and for Highways 20 and 99W is "D" (Table A-1).

**Table 3-8 SIGNALIZED INTERSECTIONS
1991 INTERSECTION PERFORMANCE**

Peak Hours

Signalized Intersections	1991 AM Peak Hour			1991 PM Peak Hour		
	Volume/ Capacity	Average Delay	Level of Service	Volume/ Capacity	Average Delay	Level of Service
ORE 99W/Conifer	0.53	23.8	C	0.78	29.3	D
Walnut/Kings	0.34	10.3	B	0.39	13.8	B
Walnut/9th	0.35	18.0	C	0.65	22.8	C
Circle/Kings	0.40	19.7	C	0.64	24.7	C
Circle/9th	0.51	19.3	C	0.70	24.5	C
Circle/ORE 99W	0.82	30.1	D	0.82	30.1	D
Grant/Kings	0.47	20.6	C	0.62	24.21	C
Buchanan/Kings	0.30	10.9	B	0.58	15.5	C
Buchanan/9th	0.40	19.1	C	0.79	26.3	D
Harrison/29th-Arnold	0.72	28.0	D	0.92	43.6	E
Harrison/Kings	0.73	18.5	C	0.93	28.2	D
Harrison/9th	0.32	9.7	B	0.50	11.7	B
Harrison/4th	0.46	8.2	B	0.64	9.6	B
Harrison/3rd	0.43	7.7	B	0.55	8.6	B
Harrison/2nd	0.63	10.2	B	0.57	9.5	B
Van Buren/9th	0.46	11.8	B	0.67	21.5	C
Van Buren/2nd	0.63	6.7	B	0.56	8.0	B
Monroe/14th	0.51	13.7	B	0.75	33.0	D
Western/15th	0.35	19.5	C	0.42	21.3	C
US 20-ORE 34/35th	0.75	29.1	D	0.70	23.5	C
US 20/15th	0.41	13.8	B	0.59	15.9	C

Table 3-9
INTERSECTION PERFORMANCE
1991 Unsignalized Intersections

<u>Intersection</u>	<u>AM Peak Hour</u>	<u>PM Peak Hour</u>
Circle Boulevard/US 20	A/C	A/F
9th Street/Grant Avenue	A/D	C/F
Harrison Boulevard/30th Street	A/C	A/E
Harrison Boulevard/35th Street	A/C	A/E
Harrison Boulevard/36th Street	A/C	A/C
Harrison Boulevard/53rd Street*	B/0.41	B/0.52

NOTE: Level of Service Ratings are for major street and critical minor street movements.

* This intersection of two arterials is a four way stop . Level of service and critical volume to capacity ratio shown. The volume to capacity ratio is similar to a percentage of capacity for the intersection leg.

Table 3-10
LEVEL OF SERVICE DEFINITIONS
Unsignalized Intersections

<u>Level of Service</u>		<u>Reserve Capacity</u> <u>Vehicles/Hour</u>
A	Little or no delay	>400
B	Short traffic delay	300-399
C	Average traffic delay	200-299
D	Long traffic delays	100-199
E	Very long traffic delays	0-99
F	Extreme delays potentially effecting other traffic movements in the intersection	≤0

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board Washington, D. C., 1985.

a. Signalized Intersections

Level of service is evaluated based upon average vehicle delay experienced at an intersection. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The *1985 Highway Capacity*

*Manual*¹² provides the basis for these calculations. Table 3-8 provides a summary of a.m. and p.m. peak hour levels of service for 21 key signalized intersections in Corvallis. Nearly all of the key intersections in Corvallis operate at level of service C or better, with a few exceptions. Intersections operating at conditions below level of service C are discussed below:

Harrison at 29th Street/Arnold Way. This intersection operates at level of service D in the morning and E in the evening peak hours. The primary problem operationally is the volume of left turns and concentration of traffic approaching or leaving the OSU campus at the north. Turn restrictions have been considered as a short-term solution.

US 20/ORE 34 at 35th Street. In the a.m. peak hour this intersection operates at level of service D, reflecting the heavy left-turn volume from Philomath and the west onto 35th toward the OSU campus. Additionally, level of service is affected by the concentration of traffic arriving at the 509J school district offices as well as Adams and Western View schools. Traffic queues can be substantial on 35th Street south of US 20/34, both in the northbound and southbound directions as traffic tries to access the school sites.

Conifer/ORE 99W/9th Street. The p.m. peak hour creates auto queues (back up) onto 9th Street mostly caused by poor lane geometry on Conifer heading east. The geometry of these intersections also pose problems for pedestrians and bicyclists. Parents of children who must bike or walk through the intersections to Cheldelin Middle School have expressed concerns for their childrens' safety. Further study is required to identify feasible alternatives for problems at these intersections.

Circle/9th Street. Conditions at this intersection reach level of service C in the p.m. peak hour. Narrow lane widths, lack of turn lanes, nearby driveway placements and short stacking areas result in operational problems. The short distance between 9th Street and ORE 99W compounds the problem.

Circle/ORE 99W. This intersection has problems similar to Circle/9th in the P.M. peak hour. Delays reach level of service D conditions. Since ORE 99W has only one through lane each way, substantial signal green time must be provided to the north/south direction, limiting east-west and left-turn green time. Truck traffic contributes to delay because trucks are slow to accelerate, and other vehicles are unable to travel around them. Left-turn queuing problems also exist.

Buchanan/9th Street. Lack of left-turn lanes on Buchanan Avenue and signal timing requirements increase delays at this intersection in the p.m. peak hour to level of service D conditions.

Harrison/Kings. Harrison Boulevard narrows to one through lane west of Kings, which causes added delays in the p.m. peak hour (level of service D). There is also a large amount of pedestrian and bicycle traffic through this intersection. Current work on the Kings Boulevard Corridor Study may identify solutions for this location.

¹² *1985 Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, D.C., 1985, Chapters 9 & 10.

Monroe/14th Street. This intersection has substantial pedestrian activity in the evening peak hour and heavy northbound left turns and eastbound right turns. p.m. peak hour level of service is D.

Van Buren Street Bridge. While the Van Buren Street Bridge is not an intersection, it does warrant discussion. The bridge carries over 1,200 vehicles per hour in the p.m. peak hour and operates at or near capacity over the majority of the peak hour. Queues spill back onto Van Buren Boulevard to nearly 5th Street in the peak hour and at other times, affecting downtown traffic operation during the peak period. The bridge produces the greatest vehicle delays in the City of Corvallis. Vehicle stacking occurs at 2nd, 3rd, and 4th Streets, making it difficult for vehicles to get through even one of the above intersections in one cycle of the traffic signals. As a result, vehicles wait through multiple red lights as they exit town.

b. Unsignalized Intersections

Table 3-9 summarizes the capacity analysis for morning and evening peak conditions at five unsignalized intersections in Corvallis. These five intersections, combined with the 21 signalized intersections mentioned above, represent the 27 key study intersections identified by City staff for analysis in the transportation plan update. Unsignalized intersections are subject to a separate capacity analysis methodology. Table 3-10 summarizes the descriptions of level of service. The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The *1985 Highway Capacity Manual*¹³ describes the detailed methodology. The minor street approaches at the intersections of 30th/Harrison, 9th/Grant experience level of service D conditions or worse during the a.m or p.m. peak period. This indicates that these cross street locations are subject to longer-than-desirable delays; however, the vehicle volume subject to these delays is typically small, and overall vehicle delay is generally low because the main street volume is not subject to delay.

¹³ *1985 Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, D.C., 1985, Chapter 10.

3.30.50 ACCIDENTS

Detailed records of accidents are available in a data base which is used for project case studies. The data base can be used to determine the top accident locations in the city and rank locations by accident rates. This should be done at least once a year to provide a priority list of locations needing attention for safety purposes. Locations in Corvallis that had over 15 accidents in the four-year period from 1987 through 1990 are prioritized by accident rate in Table 3-11.

TABLE 3-11
ACCIDENT ANALYSIS 1987 THROUGH 1990

Intersection		Total	Accident
<u>N-S Street</u>	<u>E-W Street</u>	<u>Accidents</u>	<u>Rate</u>
1. 3rd Street	Harrison Boulevard	76	1.970
2. 9th Street	Van Buren Avenue	42	1.834
3. 2nd Street	Harrison Boulevard	45	1.434
4. Kings Boulevard	Buchanan Avenue	31	1.377
5. 4th Street	Harrison Boulevard	55	1.243
6. 14th Street	Monroe Avenue	33	1.043
7. 3rd Street	Van Buren Avenue	39	0.894
8. 9th Street	Buchanan Avenue	37	0.891
9. 9th Street	Circle Boulevard	39	0.804
10. Kings Boulevard	Harrison Boulevard	27	0.803
11. Hwy 99W	Conifer Boulevard	22	0.677
12. 4th Street	Van Buren Avenue	25	0.589

SOURCE: City of Corvallis, Transportation Services, 1991

Accident Rate is determined by Accidents/year/million vehicles.

3.40 FUTURE CONDITIONS

Discussion of future development and growth in Corvallis will address five areas of the City. These areas are north Corvallis, northwest Corvallis, southwest Corvallis, south Corvallis, and northeast Corvallis. Future development will necessitate new roadways for access, additional capacity to avoid substantial congestion, improved circulation for emergency services, and improved circulation to keep from overloading existing roadways and safety. The following discussion defines these areas and identifies long-range major transportation issues and corridors important to future development.

Following adoption of this Transportation Plan Land Development Code amendments, development of new roadways should generally be consistent with the standards indicated in Table 3-5. The intent is to provide roadway capacity for anticipated auto traffic, and to provide safe, convenient bicycle and pedestrian facilities within the right-of-way.

In retrofitting existing roadways for urban usage, these same precise improvement standards may not be appropriate in some situations. As an example, removal of significant existing tree plantings to install a planting strip may be counter productive. Similarly, existing homes may be built too close to the existing street to allow widening to standard widths. In some cases, minimum width facilities are necessary. The minimum widths for a collector or arterial street are: 10-ft travel lanes, 5-ft bike lanes, and 5-ft curb-side sidewalks. Also, sections of collector or arterial streets that might normally be designed for 45 mph and posted at 35 mph may need to be designed for 35 mph and posted at 25 m.p.h. to safely accommodate vertical or horizontal sight distance constraints.

For local streets, which have lower traffic volumes, there is additional flexibility to allow narrow streets where necessary. When needed and appropriate, options for local streets can include narrowing streets by disallowing parking on one or both sides and using curb-side sidewalks on one or both sides.

Modifications to standards must be well-justified to assure that the long-term transportation needs of the City are met. A careful balancing of the transportation needs of the local neighborhood with those of the larger community must accompany the decisions regarding modifications to improvement standards.

3.40.10 CORRIDOR PLANNING

Long-term planning for transportation corridors is an important but complex aspect of transportation planning. Such efforts may follow differing processes depending on the type of roadway anticipated in the area and the conditions along the corridor. A corridor may need to provide a community-wide benefit, or it may be more locally important for circulation and emergency response. Generally, planning for modifications to or initial construction of a transportation facility may fall into one of three categories. A corridor may be in an undeveloped area, with no specific alignment planned and no existing development impacted by the roadway creation (**New Route Corridor Plan**). It may be in an area with developed parcels fronting a roadway built to non-urban standards, but which will need to provide urban multi-modal service to developable parcels in the area (**Existing Route Corridor Plan**). A corridor may also be within a fully developed area of the City, where the concerns of traffic or traffic speed may be appropriately addressed with traffic management techniques or facilities (**Neighborhood Traffic Management Corridor Plan**).

Planning for a **New Route Corridor Plan** is generally the simplest of the processes. The type of facility needed and its general location are clearly indicated within the City's functional classification system. Specific planning for its improvement is accomplished through the subdivision and planned development processes, and the standards for each type of facility are detailed in the Corvallis Land Development Code. Alignment concerns should receive some planning effort in advance of a development application to determine best locations based on potential intersections with other roadways, terrain, and other environmental concerns. New arterial, collector, and local streets are generally funded by the development that requires their extension. To assist developers with the costs of arterial and collector streets, the City has established or is investigating several mechanisms. Currently developers can qualify to receive a City reimbursement from the System Development Charge (SDC) program for "extra-capacity" facility costs. In 1994, the City Council also adopted a new reimbursement program administered by the City that encompasses more improvements. Under this program, a developer would fund a required improvement, and the City would recover funds from later development appropriate to that development's benefit from the improvement. This money would, for a fee, be forwarded to the developer who originally installed the improvement.

Developing a corridor strategy in a partially developed area with multiple ownerships requires a more complex effort and is designated as an **Existing Route Corridor Plan**. This is generally a

case of rectifying an existing deficiency. A successful example of a Existing Route Corridor Plan was the Brooklane Drive Corridor Study. Altering such a transportation route to provide a multi-modal facility capable of meeting urban needs raises two basic questions:

1. What improvement standard should be applied?
2. How will the improvements be implemented?

Both of these questions can raise many concerns and can be controversial. Abutting residents and land owners are typically concerned with transportation changes affecting them such as route widening, traffic increases, traffic speed increases, the possibility that construction costs may be assessed against their properties, and the perceived change in character of the area from rural to urban. Other owners or residents may be concerned with protecting their ability to develop their properties to the degree planned for in the Corvallis Comprehensive Plan.

An Existing Route Corridor Plan should have the following set of goals:

- Fully involve adjacent neighborhoods, land owners, and city staff in planning adequate multi-modal facilities that will be equitably funded;
- Produce a site- and location-specific set of design parameters and proposed improvements that the adjacent neighborhoods, land owners, and the City support and that could ultimately be utilized to design and produce plans for the identified transportation facilities;
- Ensure adequate levels of safety, emergency response, and multi-modal corridor function are met as defined through the process and the transportation Plan; and
- Develop any necessary phasing plans and a funding strategy adequate to construct the proposed transportation facilities.

As development within the Corvallis Urban Growth Boundary but outside the city limits occurs, more opportunity for conflict between the perception of an area as rural and the ultimate urban nature of the same area is created. To address this problem, the City should continue and enhance coordination efforts with Benton County in the urban fringe. In addition, to deal with known areas of conflict where Existing Route Corridor Plans will be necessary, the City should provide on-going funding for such efforts.

In FY 1995-96, appropriations were specifically made for an Existing Route Corridor Planning process. The program is proposed to be on-going. The initial projects identified for study were Crystal Lake Drive in south Corvallis, and West Hills Road in west Corvallis. These were chosen in part because of development pressures along each corridor.

Crystal Lake Drive (with future extensions) is an appropriate location to provide for north/south movement of local neighborhood traffic east of South 3rd Street (Highway 99W). The Functional

Classification System, Figure A-2, identifies a three-loop configuration that could provide the north/south connection necessary for the area, but the series of "tee" intersections creates a discontinuity intended to discourage inappropriate use of the road as a bypass to South 3rd Street. The loops in this system would tend to direct traffic out to the arterial highway as is appropriate for major north/south traffic movement.

The loop system shown is conceptual in nature, with the precise number and configuration of such loops to be determined through this corridor study. The study is also intended to evaluate and determine the roadway network necessary to serve the area within the Corvallis Urban Growth Boundary south of the Marys River, and more particularly to the east of Highway 99W.

West Hills Road is designated as a collector street. Development of the roadway to urban standards will need to recognize physical constraints and existing development. As a result, **in some locations**, the full improvement standard required of new development by the Land Development Code will not be possible. It is imperative, however, that adequate facilities for pedestrians and bicycles be provided, and that safety for all modes receive a high priority. The corridor strategy will address these issues.

On-going funding for this program is an important element of transportation planning. Appropriate additional corridors for future New Route Corridor Studies or Existing Route Corridor Studies are identified and discussed in **10.10 10 YEAR IMPROVEMENTS** and **10.20 IMPROVEMENTS NEEDED FOR 62,500 POPULATION (20 YEARS)**. Others may be identified in the future.

A **Neighborhood Traffic Management Corridor Plan** is generally an effort to reduce traffic volume or traffic speed in an area where such volume or speed is inappropriate to the types of facility and development in the area. Such problems can exist where a facility is built to urban standards, but may not have been planned to serve its current function. A Neighborhood Traffic Management Program should be established to address such problems. This program will identify appropriate traffic management techniques for a roadway section and any potentially effected surrounding streets, and facilitate neighborhood consensus on where and how to apply such techniques appropriately.

For this program, the City would develop a "toolbox" of neighborhood traffic management techniques and devices. Each device or technique is described in terms of design, probable frequency of installation for effectiveness, and cost. When a neighborhood request is chosen for action, City staff would develop some basic data, such as traffic speed and volume, and make some judgements as to the physical scope of the project (i.e., how big an area might be effected). City staff and neighborhood representatives would hold a neighborhood meeting to distribute and discuss the data and "toolbox" of methods for consideration, and discuss the goals of the project. It would then be the responsibility of the neighborhood to reach consensus on the type and location of techniques or devices to be used. Staff will need to participate intermittently in this process to ensure proposals are reasonable and effective. Following this consensus, some temporary installation of devices (cones glued to the pavement, large moveable flower pots strategically placed, etc.) would be

installed and the scheme tested for effectiveness. With fine-tuning, the project could be funded through the following year's Capital Improvement Program.

Funding for this program has been proposed beginning in FY 1995-96 and should be continued on an on-going basis. The program is proposed to provide fifty percent funding, with the effected neighborhood contributing the remainder. Precise funding mechanisms (Local Improvement District, etc.) have not been identified. Staff will review and prioritize requests for use of this program as a part of the budget process each year.

Examples of projects that may fall under this program are neighborhood traffic management efforts in the Harrison corridor, and the 10th Street corridor between Grant and Buchanan Avenues. Other Neighborhood Traffic Management Corridor Plans may be identified in the future.

3.40.20 FUTURE DEVELOPMENT

Providing for the transportation facility needs in the unurbanized sectors of the Corvallis UGB will require continuing coordination with developers and Benton County. New Route Corridor Plans can define the precise location and nature of required improvements. Advance planning projects in these areas (examples are the West Corvallis Planning Project and the South Corvallis Refinement Plan Project) can help to locate roadway corridors. These projects can also ensure that the land use mix in specific areas can provide for the daily needs of their residents. Such planning may help reduce the number or length of trips people must make to shop or work.

a. North Corvallis

North Corvallis is bounded by Walnut Boulevard from Highway 99W to 29th, from 29th north to the urban growth boundary, then follows the urban growth boundary east to Highway 99W. Within the City limits, north Corvallis is primarily designated residential with a mixture of low to medium-high densities. Within the urban growth boundary, north Corvallis is primarily zoned for low-density residential development.

North Corvallis, within the urban growth boundary, is an area where a balance of land use should be more closely examined. Residential development in north Corvallis and industrial development in south Corvallis is an example of the undesirable segregation of land use that can contribute to mandatory cross-town traffic congestion. A mix of uses such as shopping, housing, employment, and services would encourage businesses that serve sectors of the City, reduce trip lengths for residents, and promote bicycle and pedestrian trips.

To serve the ultimate development of the north Corvallis area within the urban growth boundary, the following major roadway improvements may be needed:

- Extension of Kings Boulevard to Lewisburg Road
- Widening of Highland Drive
- Widening of Lewisburg Road

- New east-west collector roadways
- Two new east-west arterial roadways that join Highway 99W
- New north-south collector roadways
- Widening of Highway 99W to four lanes
- Extension of Satinwood Drive

Approximate locations of these improvements are indicated on Figure A-1 Functional Classification System. Specific alignments for this network will need to be developed through continued coordination with Benton County as development is proposed in the urban fringe. As development pressures increase for the area, New Route Corridor Plans that identify precise roadway alignments should be undertaken. These alignments will need to respond to natural features such as drainageways, wetlands and established parks. In FY 1995-96, the City initiated a wetlands identification project in the Crescent Valley area as a precursor to more detailed planning efforts anticipated in the future. Benton County has also indicated a desire to address specific alignments during its Transportation Plan project.

Care should be taken to design corridors for the function intended. For example, extension of Satinwood Drive should continue to provide access to the health care facility, but should not become a through route for traffic with no destination on Satinwood Drive. Prior to widening of Highway 99 to four lanes, an engineering study should be conducted to evaluate intersection function and safety from Walnut Boulevard through Elks Drive, including intersection of these streets with 9th street. Improving access to the health care facility at Elks Drive and Highway 99 may help to limit traffic increases on Satinwood Drive.

b. Northwest Corvallis

Northwest Corvallis is that area to the north and west of Walnut Boulevard from 29th Street to Harrison Boulevard and the undeveloped area north of Harrison Boulevard and west of 36th street. Within the city limits and within the urban growth boundary, northwest Corvallis is primarily zoned for low-density residential development.

The primary need of this area is to develop multiple access into residential developments. Currently Skyline West subdivision has only one way in and out. Oak Creek Road is a county road that provides the single access to many other residences. Developing second accesses to each of these areas would greatly reduce emergency services response time.

Also important is the Circle Boulevard corridor. Safety issues associated with traffic speed in the residential section west of 29th Street and pedestrian crossing and bicycle safety throughout the corridor need to be addressed. The extension of Walnut Boulevard to Circle east of Highway 99W may help minimize traffic and safety concerns of the Circle extension from Witham to Harrison that would arise should annexation and development take place.

To serve the future needs of northwest Corvallis within the urban growth boundary, the following major roadway improvements may be needed:

- Provide a secondary access to Skyline West
- Ponderosa Drive Improvements
- Oak Creek Drive Improvements
- Glenridge Drive Improvements
- Circle Boulevard extension- Witham Hill Drive to Harrison Boulevard

These needs are indicated on Figure A-1 Functional Classification System.

c. Southwest Corvallis

Southwest Corvallis is that area west of 35th Street from Harrison Boulevard south to the urban growth boundary(UGB). This area has residential, industrial, public institutional, and commercial land uses.

Development in southwest Corvallis will be greatly influenced by Philomath Boulevard, Highway 20/34, which bisects the southwest Corvallis area. Previous transportation planning efforts, prompted by health-hazard annexations, have created a plan for collector and arterial streets in this area. The plan, entitled West Corvallis Interim Transportation and Access Strategy, is recognized in Comprehensive Plan policy number 7.11.10, which requires new and/or expanded development to comply with the Interim Transportation and Access Strategy. The Interim Plan details the street network necessary to provide for limited access to Highway 20/34. The Interim Plan represents the level of highly detailed planning required to fix the locations of arterial and collector streets accurately. Without it, development occurring in a piecemeal fashion likely will fail to provide for the streets that will best serve the entire area. The interim plan, amended to delete reference to roads on lands zoned for exclusive farm use, is adopted with this Plan (Figure A-2).

The primary north-south arterial for this area is 53rd Street. As development occurs, improvement to this corridor will be necessary. In 1985, Benton County and the City of Corvallis collaborated on the **53rd Street Corridor Study: Harrison Boulevard to Highway 20**. The preferred alternative from this study should be pursued when appropriate through further cooperation between the City and Benton County.

To serve the future needs of southwest Corvallis, the following major improvements may be needed:

- The arterials and collector streets included with the amended West Corvallis Interim Transportation and Access Strategy
- In concert with Benton County, widen 53rd Street to four lanes from south of Philomath Boulevard to Harrison Boulevard.
- West Hills Road Improvements
- Country Club Drive Improvements
- Reservoir Road Improvements
- Extension of 72nd Street
- Arterials and collectors identified through the West Corvallis Growth Management and Open Space Planning Project

These needs are shown on Figures A-2 Proposed Functional Classification and A-3 Revised West Corvallis Access Strategy. The extension of 72nd Street is intended to line up with the extension of Bellfountain Road. The Benton County Transportation Plan will address issues associated with this latter project.

d. South Corvallis

South Corvallis is the area south of Philomath Boulevard and east of 35th Street. Most of the City's industrially zoned land is located in south Corvallis and near the airport. South Corvallis also contains a mix of residential and a limited amount of commercially zoned land. A South Corvallis Refinement Plan is to be developed with funding assistance from the ODOT Transportation and Growth Management Program. This project will review land use and transportation issues in the area and propose changes as needed to improve transportation efficiency and quality of life. The project is to be completed by June 1997.

The primary need for south Corvallis is additional access. South Third Street/Highway 99W provides the main access to this area. Accessing this area by county roads takes a long, out-of-direction detour that does not serve circulation or emergency service needs. Needed is a circumferential route that connects south Corvallis and west Corvallis to provide for better circulation to industrial and future employment centers, truck routing and coordination of emergency services. More discussion of south Corvallis can be found under **Section 3.50.30 f. Neighborhood Traffic Management and Safety - Single Access Neighborhoods.**

To serve the future needs of south Corvallis, the following major improvements may be needed:

- Widen Highway 20/34 from Western Boulevard to Highway 99W
- Provide east bound Highway 20/34 to south bound Highway 99W ramp
- Build a new north-south collector from Airport Avenue to Highway 99W at Rivergreen Avenue west of Highway 99
- Brooklane Drive Improvements
- 53rd Street south of West Philomath Boulevard to ultimate extension of Kiger Island Drive
- Goodnight Avenue Improvements
- Country Club Drive - 35th to 53rd Streets
- Crystal Lake Drive Improvements

These improvements are shown on Figure A-1 Functional Classification System. Brooklane Drive improvements were the subject of an Existing Route Corridor Plan completed in FY 1995-96. Forty-fifth and 49th Streets are indicated as neighborhood collector streets. This is a change from the existing designations, as 49th Street was previously a local street and 45th Street was previously a full Collector. The inclusion of 49th Street under the new designation is to provide for traffic permeability in the area and direct bicycle access to the job and commercial centers on Technology Loop. The reclassification of 45th Street allows adequate circulation for autos pedestrians and bicycles to Country Club Drive but allows for reduced impervious surface and the use of traffic

calming features in the roadways ultimate design. This would result in two 10 ft travel lanes, two 6 ft bike lanes, and two 5 ft sidewalks. Planting strips could be installed where there is adequate right-of-way and no conflict with existing plantings of the adjacent residences, and sidewalk alignment (curbside or separated) could be altered to address similar conflicts. As improvements to these roads are proposed with development, a process that addresses these issues and considers the concerns of adjacent residents will be used.

Two improvements in this area, which might be important in the future, are an extension of 53rd Street to Highway 99W at Kiger Island Drive and an extension of Crystal Lake Drive to Highway 99W at Airport Avenue. The 53rd Street extension would require a New Route Corridor Plan and would likely require exceptions to Oregon Land Use Planning Goal 3: Agricultural Lands; Goal 4: Forest Lands; Goal 11: Public Facilities and Services; and Goal 14: Urbanization as indicated by Transportation Planning Rule 12, Section 660-12-065. The Crystal Lake Drive corridor is the subject of an Existing Route Corridor Planning effort initiated in FY 1995-96.

e. Northeast Corvallis

Northeast Corvallis is the area north of Highway 20/34 and east of Highway 99W. This area is zoned primarily medium-density residential and industrial.

Northeast Corvallis contains links to all the state highways passing through Corvallis. As such, the primary future need is the improvement of east-west arterials and state highways. Without improvements to the state highways, congestion and traffic jams will occur by the time Corvallis reaches 80,000 population.

To serve the future needs of northeast Corvallis, the following major improvements may be needed:

- Widen Highway 99W from railroad overpass to Lewisburg
- Build northern bypass
- Widen Highway 20 to 4 lanes from Circle Boulevard to Albany
- Extend Walnut Boulevard to Circle
- Widen Circle from Seavy Avenue to Highway 20
- Conifer Boulevard Improvements
- Traffic Signal at Conifer/Highway 20
- Widen south bypass to four lanes

These improvements are shown on Figure A-1 Functional Classification System. When Walnut Boulevard is extended, the issue of how connection to Conser is made will need to be worked out. Traffic routing to serve future development on Highway 20 should take into account that North 2nd Street between Water Works Drive and Harrison Boulevard has limited capacity to accommodate future street widening.

f. Additional Future Development Concerns

For north, west, and south Corvallis, the potential impact of wetlands, among other things is also a street construction concern. Future planning of roadways will need to integrate wetlands issues and requirements.

South Corvallis is relatively flat and has large areas that are covered by the 100 year flood plain creating storm drainage issues. The impact of flooding on emergency services should be considered in the planning of future routes, as well as the ability to provide storm drainage.

In past years, land development within the county has occurred through minor land partitioning with inadequate provision for future streets. Coordination efforts should be improved with Benton County to ensure that adequate right-of-way for the future provision of collectors and arterials is dedicated during the land partitioning process.

System Development Charges (SDC) will provide an important source for funding major city street construction. All future city arterial or collector street construction should be included in the system development charge program. Following adoption of this plan, inclusion of all collector and arterial streets will be verified.

It is vitally important to develop highly detailed transportation and access plans that firmly fix the location of future arterial and collector streets for each developing sector within the Corvallis urban growth boundary. Such plans, coordinated and adopted by the city, county, and state, will provide the blueprint for acquisition of right-of-way and construction of streets as land partitioning, subdivision, and development occur. They should be used to require dedication of right-of-way with land partitions and street construction with development of subdivisions. The West Corvallis Interim Access and Transportation Strategy is an example of such planning.

It is beyond the scope of this plan to provide the highly detailed work and interagency coordination needed to precisely locate and design the needed improvements. Efforts toward this coordination are underway.

3.40.30 ANALYSIS OF FUTURE TRAFFIC VOLUMES

As a part of the effort to determine the impacts of future development on the Corvallis transportation system, the system was evaluated with a computer-based traffic model. Details of this modeling effort are contained in **Chapter 2.0 Transportation System Planning**. Future traffic volumes were forecast for the 62,500 and the 80,000 population scenarios. The base roadway network studied is the system of roads Corvallis has today. This base analysis was aimed at determining future deficiencies before improvements were made. Some base network changes were made to account for state highway improvements that are currently funded or are likely to be implemented before the 62,500 scenario is reached. This analysis assumes that the following improvements will be made:

- US 20/ORE 34 as a four lane facility west of Western Boulevard to Philomath;

- Van Buren Street Bridge replaced or supplemented with a two lane bridge; and
- Street improvement projects funded in the current CIP including Kings Boulevard.

For each population scenario, daily traffic volumes were forecast. The scenarios were developed based upon current land use designations and a continuation of the current **percentage** of use of public transportation. Land uses were added to individual Traffic Analysis Zones (TAZ) based on input from City records¹⁴ and comprehensive plan maps (a technical appendix provides a detailed list of uses). Estimates were made of the approximate splits between land types for each scenario to produce a balance between trip productions and attractions, and provide the desired population and employment for Corvallis. The actual mix of land uses may vary as Corvallis builds out; however, this analysis provides a control total, or likely example, of development that is supported by the circulation system. Any significant variations in this development pattern will need to provide a corresponding verification that the circulation system can support such changes.

The traffic volumes and associated impacts on roadways for both the 62,500 and the 80,000 population scenarios were calculated by the traffic model assuming no significant changes in mode share (i.e. no increase in the transit, bicycle, or pedestrian shares of peak hour traffic when compared to the automobile) or other efforts to reduce the number of trips that occur in the peak hour. Several efforts are underway that may help to avoid or postpone these traffic volumes and their impacts. These include transportation system management, transportation demand management, refinement of the Transit Master Plan, and broad evaluation of transportation alternatives that includes consideration of the interrelationship between transportation and land use. These efforts are further described below.

¹⁴

Land Development Information Report, City of Corvallis, Community Development Department, 1990.

a. **62,500 Scenario Traffic**

Table 3-12 shows existing (1991) daily traffic counts observed at a variety of locations within Corvallis and compares them to the forecasts of daily traffic volumes from the traffic model using the base roadway network and a future population of 62,500. As noted above, these daily volume forecasts are indications of travel desires and do not reflect capacity constraints on the network. Traffic volumes nearly double on some routes (ORE 99W/South 3rd Street and Western) and other streets experience only minor growth (Kings and Buchanan). Traffic volumes on state highways are projected to increase significantly due to regional and local growth. Specifically, the increase in employment increases the demand on state highway routes entering and leaving Corvallis. Western Boulevard therefore takes on a disproportionate share of traffic growth since it is close and parallel to US 20/ORE 34. In contrast, there is little land-use growth adjacent to Kings or Buchanan, hence these routes do not experience large traffic increases. Traffic growth on key arterials and collectors is a function of the amount of new development and ability of the route to absorb additional traffic load. This leads to the variation in growth rates between specific streets.

Table 3-12
FUTURE TRAFFIC VOLUMES
62,500 Scenario ADT

<u>Street</u>	1991 <u>Existing</u>	62,500 <u>Scenario</u>	Percent <u>Growth</u>
Walnut @ Harrison	6,200	8,600	38 %
35th @ Western	4,600	8,100	76 %
Kings @ Buchanan	12,950	16,200	25 %
9th @ Buchanan	20,750	24,400	18 %
ORE 99W @ Elks	13,800	21,100	53 %
ORE 99W @ Goodnight	8,500	16,400	93 %
US 20 @ Conifer	13,400	20,150	50 %
Walnut @ Highland	15,700	21,800	39 %
Circle @ Highland	13,200	15,750	20 %
Buchanan @ Highland	6,300	6,400	2 %
Harrison @ 32nd	11,000	13,500	23 %
Western @ 15th	6,600	13,000	97 %
US 20 @ 53rd	11,400	21,250	87 %
ORE 34 @ River	25,900	41,200	59 %

SOURCE: DKS Associates

Table 3-13

FUTURE SIGNALIZED INTERSECTION PERFORMANCE WITH NO IMPROVEMENTS
62,500 Scenario
p.m. Peak Hour

	1991 Existing Conditions			62,500 Scenario Future Conditions		
Signalized Intersections	Volume/ Capacity	Average Delay	Level of Service	Volume/ Capacity	Average Delay	Level of Service
Harrison/29th-Arnold	0.92	43.6	E	1.34	214.3	F
US 20/35th	0.70	23.5	C	1.17	120.1	F
ORE 99W/Conifer	0.78	29.3	D	1.08	68.7	F
Harrison/Kings	0.93	28.2	D	1.08	56.3	E
ORE 99W/Circle	0.82	30.1	D	0.98	51.4	E
Van Buren/9th	0.67	21.5	C	0.89	41.0	E
Buchanan/Ninth	0.79	26.3	D	0.98	49.4	E
US 20/15th	0.59	15.9	C	0.90	151.7	F
Monroe/14th	0.75	33.0	D	0.92	93.9	F
Walnut/9th	0.65	22.8	C	0.85	33.3	D
Circle/9th	0.70	24.5	C	0.83	32.6	D
Western/15th	0.42	21.3	C	0.66	27.3	D
Grant/Kings	0.62	24.2	C	0.71	26.7	D
Circle/Kings	0.64	24.7	C	0.67	25.8	D
Harrison/2nd	0.57	9.5	B	0.86	17.7	C
Van Buren/2nd	0.56	8.0	B	0.74	11.5	B
Harrison/4th	0.64	9.6	B	0.78	11.8	B
Harrison/9th	0.50	11.7	B	0.90	19.1	C
Harrison/3rd	0.55	8.6	B	0.67	9.9	B
Buchanan/Kings	0.58	15.5	C	0.61	16.3	C
Walnut/Kings	0.39	13.8	B	0.53	14.2	B

- Notes: 1. Level of service for unsignalized intersections is defined in Table 3-9.
2. Dashed line is cutoff for intersections with future level of service E or worse.

FIGURE 3-4 62,500 LOS SUMMARY

DKS Associates

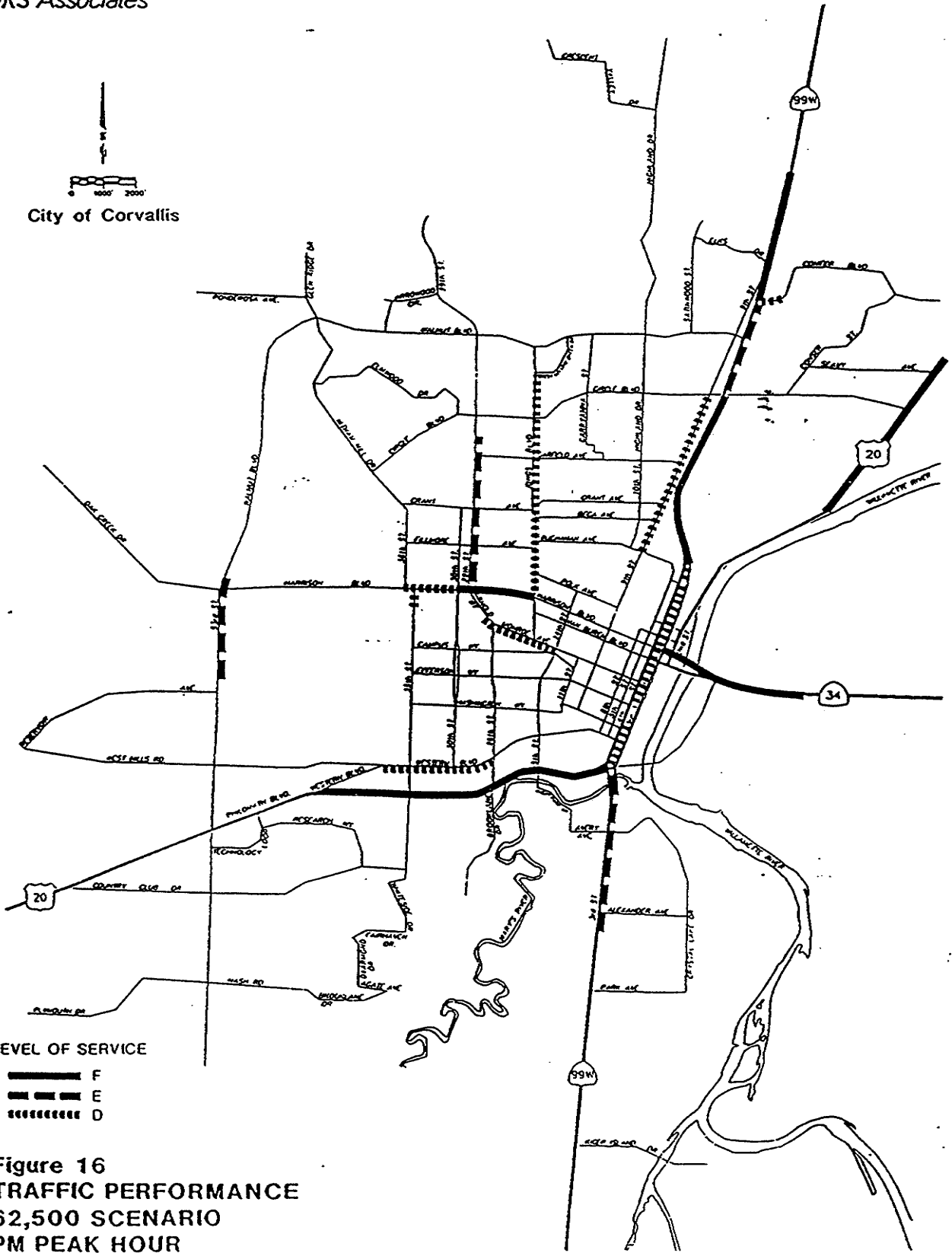
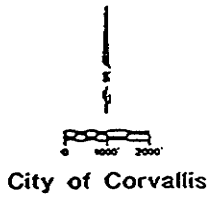


Figure 16
TRAFFIC PERFORMANCE
62,500 SCENARIO
PM PEAK HOUR

Most noticeably in the model, the new bypass attracts nearly 16,000 vehicles per day, but traffic growth keeps downtown volumes high, particularly along the 3rd/4th and Harrison/Van Buren couplets. North of town, ORE 99W would experience congestion with 20 year growth in traffic without improvement. Other trouble spots that worsen in the future if improvements are not made include US20/ORE34 (between the bypass and Western), US 20 (toward Albany), Harrison Boulevard (Kings to 36th), 29th Street, 53rd/Walnut, Highland Drive, South Third Street, and Ninth Street. Figure 3-4 summarizes the p.m. peak hour traffic operation for the 62,500 scenario if transportation patterns continue and no street improvements are undertaken beyond those identified in the base roadway network. However, before improvements are made to existing facilities, the City will explore options to reduce traffic volumes through other planning efforts such as the Transportation Alternatives Analysis Project.

Table 3-14
UNSIGNALIZED INTERSECTIONS FUTURE PERFORMANCE
 62,500 Scenario
 p.m. Peak Hour

	1991 Existing Conditions		62,500 Scenario Future With Improvement Plan	
	Major Street Level Of Service	Minor Street Level Of Service	Major Street Level Of Service	Minor Street Level Of Service
Two-Way Stop Control				
Grant/9th*	C	F	C	F
Harrison/30th	A	D	A	D
Harrison/35th	A	E	A	D
Harrison/36th	A	C	A	B
Four-Way Stop Control				
Harrison/53rd**	F (1.28)		F (1.57)	
* - Meets Signal Warrants Under Existing Conditions ** - Meets Signal Warrants Under Future Conditions				

Intersection capacity analysis was performed for conditions with the 62,500 population scenario. The 27 study intersections were evaluated in the p.m. peak hour. The 1985 Highway Capacity Manual methodology was used to assess capacity at signalized and unsignalized intersections. Tables 3-13 and 3-14 summarize the performance of intersections comparing existing conditions to future with the 62,500 scenario. The signalized intersections are ranked from locations with the highest volume-to-capacity (V/C) ratios to the lowest. Those intersections with V/C ratios above 0.85 and level of service (LOS) D or worse, as indicated by the dashed line, are sites where

mitigation measures are considered in the **Chapter 10.0 Transportation Plan**. The unsignalized intersections present the LOS of the left turn from the major approach and the minor approach separately. Typically, unsignalized intersections are not widened until they become signalized. Sometimes a turn lane is added on the minor approach.

It is clear that without improvement, several of the key intersections in Corvallis would operate at deficient levels of service in the 62,500 scenario. Improvements needed to produce desirable operation will include roadway widenings, circulation improvements, intersection modifications and signal timing changes. The most significant improvements include:

- Widening from two through to four through lanes of ORE 99W northbound from the railroad overcrossing to Lewisburg Road,
- Widening of US 20/ORE 34 between ORE 99W/South 3rd Street and Western Boulevard,
- Widening of US 20 north of Circle Boulevard to Albany,
- Construction of connecting ramps between ORE 99W/South 3rd Street and US 20/ORE 34,
- Improvements to provide for efficient traffic movement in the Harrison Corridor (Harrison, Arnold/29th, 35th, 36th),
- Provision of circulation roadways in north Corvallis for new land developed in the area bounded by ORE 99W, Walnut Boulevard, Kings Boulevard and Lewisburg Road,
- Construction of two lanes of the north leg of the Corvallis bypass in Linn County.

Many of these projects would improve arterial operation by eliminating traffic diverted from the major highways. Improvements for the next ten years, for the 2010 scenario and long-term buildout conditions 35 to 40 years from

Table 3-15
LONG RANGE TRAFFIC VOLUMES
80,000 Scenario ADT

<u>Street</u>	<u>1991 Existing</u>	<u>80,000 Scenario</u>	<u>Percent Growth</u>
Walnut @ Harrison	6,200	12,450	101 %
35th @ Western	4,600	12,650	175 %
Kings @ Buchanan	12,950	14,400	11 %
9th @ Buchanan	20,750	28,350	37 %
ORE 99W @ Elks	13,800	32,950	139 %
ORE 99W @ Goodnight	8,500	25,550	201 %
US 20 @ Conifer	13,400	24,850	85 %
Walnut @ Highland	15,700	26,050	66 %
Circle @ Highland	13,200	20,700	57 %
Buchanan @ Highland	6,300	6,600	5 %
Harrison @ 32nd	11,000	14,250	30 %
Western @ 15th	6,600	16,450	150 %
US 20 @ 53rd	11,400	28,600	151 %
ORE 34 @ River	25,900	56,900	120 %

(Harrison/Van Buren Bridge)

SOURCE: DKS Associates

now must be coordinated to assure that each incremental improvement builds to a long-term solution of Corvallis' transportation needs.

Table 3-16
FUTURE SIGNALIZED INTERSECTION PERFORMANCE WITH NO IMPROVEMENTS
80,000 Scenario
p.m. Peak Hour

Signalized Intersections	1991 Existing Conditions			80,000 Scenario Future Conditions		
	Volume/ Capacity	Average Delay	Level of Service	Volume/ Capacity	Average Delay	Level of Service
Harrison/29th-Arnold	0.92	43.6	E	1.49	295.4 ⁺	F
US 20/35th	0.70	23.5	C	1.39	407.4 ⁺	F
ORE 99W/Conifer	0.78	29.3	D	1.51	294.5 ⁺	F
Harrison/Kings	0.93	28.2	D	1.20	79.0	F
ORE 99W/Circle	0.82	30.1	D	1.07	75.0	F
Buchanan/Ninth	0.79	26.3	D	1.21	103 ⁺	F
US 20/15th	0.59	15.9	C	1.27	212.1 ⁺	F
Monroe/14th	0.75	33.0	D	0.98	101.4	F
Walnut/9th	0.65	22.8	C	1.07	63.4	F
Circle/9th	0.70	24.5	C	1.00	48.1	E
Van Buren/9th	0.67	21.5	C	1.05	57.5	E
Harrison/2nd	0.57	9.5	B	1.19	95.8	F
Van Buren/2nd	0.56	8.0	B	0.90	26.5	D
Harrison/4th	0.64	9.6	B	0.89	15.4	C
Circle/Kings	0.64	24.7	C	0.76	31.2	D
Grant/Kings	0.62	24.2	C	0.77	31.5	D
Harrison/3rd	0.55	8.6	B	0.77	11.6	B
Western/15th	0.42	21.3	C	0.94	43.6	E
Harrison/9th	0.50	11.7	B	1.08	36.1	D
Buchanan/Kings	0.58	15.5	C	0.62	16.4	C
Walnut/Kings	0.39	13.8	B	0.82	18.4	C
Grant/9th*	0.49	4.6	A	0.54	9.2	B
US 20/Circle*	0.41	11.2	B	0.84	16.9	C
Harrison/53rd*	0.43	15.6	C	1.03	56.9	E

* Assumed signalized by 80,000 population scenario.

b. 80,000 Scenario Traffic

Traffic conditions were analyzed in a future condition that would be associated with buildout of most land in the UGB. This evaluation provides long term direction to land use and transportation decisions. It is not the intent of this analysis to specify land uses and details of street improvements so much as to provide a long-term vision for transportation planning for a 30- to 50-year horizon. As with the 62,500 scenario, conditions are tested without any improvements (beyond those with funding committed) to provide clear identification of needs. Many of the improvements needed by the 80,000 scenario are well beyond the financial resources of the city, county, and state at this time. However, many of the major improvements in transportation infrastructure identified in this scenario require long lead times and coordinated technical and political support. This assessment summarizes the need for major improvements, which can be used in future years to garner support for these projects.

Table 3-15 compares Corvallis daily traffic volumes in the buildout scenario to existing traffic levels. All key roads have greatly increased traffic. Traffic grows at a rate of 1.5 to 3 percent per year on most routes. Growth in traffic follows a pattern similar to the 62,500 scenario because the state highways are over capacity and divert traffic to parallel reliever routes (such as 9th Street and Western Boulevard). Without circulation improvements, key streets in Corvallis such as Harrison Boulevard, Ninth Street, Kings Boulevard, 29th Street, Walnut Boulevard, Highland Drive, Western Boulevard, 53rd Street, 35th Street and South 3rd Street would experience substantial congestion and would fail during peak periods. The southern leg of the bypass would carry over 22,000 vehicles per day. The interchanges of ORE 34 at the bypass, ORE 99W at US 20/ORE 34, US 20 and ORE 99W coming into downtown would all need to be upgraded to deal with growth in traffic with a community of 80,000 people. The connections as presently designed and planned would be inadequate for the volumes of traffic projected with the 80,000 scenario.

Traffic operating conditions for the 80,000 scenario are summarized on Figure 3-5. During the evening peak hour, the potential for intrusion of traffic into neighborhoods increases dramatically without street improvements to key state highways and arterials. Streets such as Highland Drive, 29th Street, and 36th Street are particularly impacted under these conditions. Vehicle delays increase dramatically, affecting not only through traffic but local circulation. North-south circulation fares worst, since both ORE 99W and US 20 are over capacity. A roadway network that allows circulation and access without using the state highways would be needed in the developing northern areas of Corvallis. Additionally, improved north-south circulation west of OSU would be needed to reduce impacts on Kings, 29th, 36th, and 53rd Streets. East-west circulation improvements are needed to improve operation of the US 20/ORE 34 corridor. This includes new access to ORE 99W/South 3rd Street and provision of a new southern beltway connection, potentially via 53rd Street to Kiger Island Drive.

FIGURE 3-5 LOS FOR 80,000 SCENARIO

DKS Associates

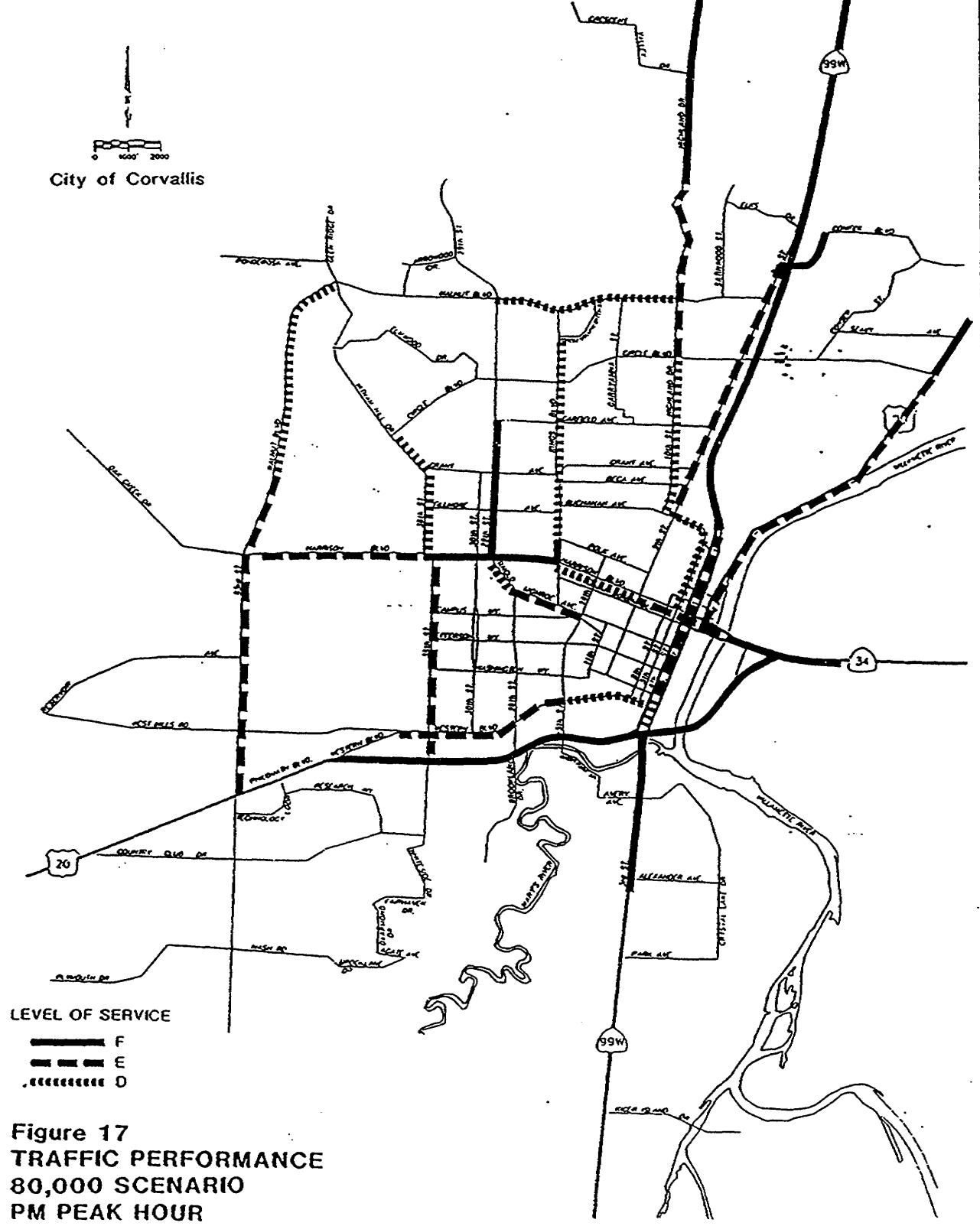


Figure 17
TRAFFIC PERFORMANCE
80,000 SCENARIO
PM PEAK HOUR

Nearly all of the key study area intersections would operate at unacceptable levels of service with the 80,000 scenario if transportation choices continued within current patterns and no street improvements were made. Nearly all the arterial streets in Corvallis would be at or near capacity with lengthy delays. Congestion would be substantial and the ability to circulate through town would be substantially impaired. Without street improvements to support this level of growth, emergency services would be nearly impossible to provide throughout the community in desirable response times. The most significant deficiencies would be on the state highways serving Corvallis. Access to the north, south, and east would be particularly impaired. Oregon State University access would be congested on a daily basis as employees and students depart from campus in the evening peak. Access to the north of campus would be most impacted on routes such as 29th Street and Harrison Boulevard.

Table 3-16 summarizes the levels of service for signalized intersections compared to existing conditions for the study intersections in Corvallis. The intersections of Circle/US 20, Harrison/53rd and Grant/9th were assumed to be signalized for analysis.

It is clear that it will take a significant investment in infrastructure or a significant change in transportation habits to support a community at this size. This analysis provides a picture of the impact of community growth on the street and roadway system. While adjustments can be made to the land use plan and/or modes of alternative travel, major new roadway construction will be necessary by the time Corvallis reaches 80,000 people. General descriptions of these improvements are identified in **Chapter 10.0 Transportation Improvement Plan**.

3.50 SYSTEM ISSUES

This plan addresses specific community transportation issues. Primary issues raised by the community, the Planning Commission, or by the City Council include:

- Transportation Alternatives Analysis
- OSU transportation issues and linkages
- Traffic Control
- Neighborhood traffic management and safety
- Future development
- Downtown traffic
- Residential Parking districts
- State highway improvement program
- Traffic control devices
- Emergency preparedness and response
- Funding
- Regional coordination
- Harrison Corridor concerns

Each issue is addressed separately in the sections which follow.

3.50.10 TRANSPORTATION ALTERNATIVES ANALYSIS

As a means of prioritizing the needs of the transportation system, a method of evaluating alternative approaches to meeting those needs is required by the Transportation Planning Rule (TPR). In addition, the TPR requires urban areas with a population greater than 25,000 to have a plan for transportation demand management by May of 1997. One of the largest employers in Corvallis, Hewlett Packard, utilizes traffic demand management by allowing many of its employees to use flex-time. The rule requires the following to be evaluated as components of system alternatives.

- Improvements to existing facilities or services;
- New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
- Transportation system management (TSM) measures;
- Transportation demand management measures (TDM); and
- A no-build system alternative.

The alternatives are to be evaluated based on the following:

- Their ability to serve the land uses identified in the Comprehensive Plan;
- Their consistency with state and federal environmental standards;
- Their ability to minimize adverse economic, social, environmental, and energy consequences;
- Their ability to minimize conflicts and facilitate connections between modes of transportation;
- Their ability to avoid principal reliance on any one mode of transportation and to reduce principal reliance on the automobile.

Based upon this review, the community can decide on an appropriate means of addressing its transportation needs. In FY 1995-96, the City is initiating a project to complete this transportation alternatives analysis (TAA) within the required time frame. The TAA project will provide a consolidated public process for an analysis of transportation alternatives that includes analysis of TDM and TSM opportunities and the development of a Transit Master Plan. When the transit planning effort has developed a set of alternatives for transit service (service types, specific current and future routes, appropriate land use and land development code changes, etc.), these alternatives will be incorporated into the global analysis of TSM, TDM, and other modal alternatives for the Corvallis area. From this analysis, a preferred alternative for provision of transportation services and

facilities in Corvallis will be developed. Finally, the preferred alternative resulting from this analysis, will include information and recommendations to be included in the Transit Master Plan and a Transportation Demand Management Plan.

A transportation demand management plan requires the following elements:

- Define the study area
- Identify key employers that significantly contribute to congestion and quantify their contribution of single occupancy automobile trips
- Quantify the reduction of automobile commuter trips required to relieve peak hour congestion
- Evaluate the practicality of achieving needed reductions through transportation demand management aimed at key employers
- Provide incentives and regulations to achieve the targeted reductions in peak hour traffic volumes

A transportation demand management plan requires in-depth study and analysis of employers, travel patterns, and intersection capacity and is beyond the scope of this document to provide such a plan at this time. A Transportation Demand Management Planning Report was completed in FY 1994-95 with funding assistance from the ODOT/DLCD Transportation and growth Management Program. This report identified a progressive series of TDM efforts and their relative effectiveness on Corvallis traffic. This report is a sound starting point for the TDM efforts required in the TAA project.

Transportation Demand Management is a means of avoiding or delaying construction of new transportation facilities by managing how or when existing transportation facilities and services are used. Most transportation facilities are designed utilizing peak-hour traffic conditions as a major consideration, since the greatest load on the system and the greatest need will occur during peak hours. If peaks in traffic flow can be spread out over time, or reduced, substantial extension of transportation system capacity can be realized without requiring street expansion.

Imagine a city street that has stop-and-go traffic during evening peak hours primarily due to commuters leaving work for the day. One solution to eliminate the congestion would be to add an additional travel lane at significant expense. Another method, however, to have some employees leave work an hour earlier, some an hour later and some that normally drive use the bus, car pool or ride a bike. Sufficient reduction can have the previously congested street flowing smoothly without delay. This example shows that better management of the traffic flow would be a good solution if it were possible. This type of management is known as Transportation Demand Management (TDM), which is a strategy to mitigate commuter trip traffic congestion through actions that reduce traffic volumes rather than actions that expand road capacity. These actions concentrate on changing the mode of commuter travel from single-occupancy vehicle to another form of transportation, such

as transit, carpooling, bicycling, or walking, and changing the time of travel to occur outside of peak congestion times.¹⁵

The City of Fremont, California, recently performed a study to determine what effect a city-wide demand management program might have on reducing congestion when the city is fully developed. The city evaluated 42 major employers or employment zones (500 employees or more) and 92 intersections. Their study assumed that it would be reasonable to **expect** a reduction in single occupancy commuter trips of 15 percent. They found that they **needed** a 27 percent reduction in peak traffic to recognize improvement in the level of service of intersections. Their study concluded: "TDM can have positive effects on improving intersection level of service. The greater the increase in Average Vehicle Ridership, (AVR), (AVR is the ratio: number of people commuting, divided by, number of vehicles commuting), the greater the improvement in intersection level of service. Traffic demand management cannot, however, be expected to single-handedly eliminate traffic congestion."¹⁶

3.50.20 OREGON STATE UNIVERSITY TRANSPORTATION ISSUES AND LINKAGES

With approximately 14,000 students and 4,000 employees, Oregon State University (OSU) represents a sizable portion of the 47,000+ population of Corvallis for 1995. Geographically, the OSU campus is located near the center of Corvallis, with land ownership extending from the western city limits to within a few blocks of the Downtown Central Business District. Enrollment has declined since the 1990 Census.

In population, location, and physical size, OSU has a large impact on the city's street network. Student housing is densely located in areas on the north and east border of the university and less densely on the south border. Student and faculty population create significant automobile, bicycle, and pedestrian traffic to, from, and around the university. The physical size and central location of the university place vital east-west and north-south arterial and collector streets on the border of, and through, the university, creating a great deal of interaction between general traffic and university-bound traffic. Traffic congestion around and through the university, and the adequacy of the streets to handle the traffic, are of concern to Oregon State University and Corvallis.

a. North of the University

The north boundary of the university is formed by Monroe Avenue from 9th to 26th, Arnold Way from 26th to 27th, 27th from Arnold Way to Orchard Avenue and Orchard Avenue from 27th to 35th.

¹⁵ Improving Intersection Level of Service By Transportation Demand Management, By: Thomas P. Folks and Reh-Lin Chen, ITE Journal, January 1992, p. 31

¹⁶ Improving Intersection Level of Service By Transportation Demand Management, By: Thomas P. Folks and Reh-Lin Chen, ITE Journal, January 1992, p. 31

Monroe Avenue from 14th to 26th borders the central campus with classroom buildings along its south side. The north side of Monroe is lined with businesses that include restaurants, stores such as clothing, computers, photography, groceries, copying services, and bike shops. Monroe has one travel lane in each direction, sidewalks of varying width on each side, an on-street bike lane in each direction, and parallel metered parking on the north side. Business patrons are largely OSU students and faculty. Student housing is densely located for several blocks to the north of this section of Monroe.

The major concerns along this section of Monroe are the high level of interaction among bicyclists, pedestrians, and automobiles; the combination of through-traffic, Monroe business traffic, university-bound traffic, and university-related parking. In June of 1988, a three-way-stop was installed at Monroe Avenue and Kings Boulevard to accomplish four things: create a break in the east-west traffic flow for pedestrians and bicyclists crossing Monroe; help channelize pedestrians and bicyclists to a common crossing point; provide some limited speed control; and make Monroe a less attractive route than Harrison and Van Buren for east-west through traffic. This three-way-stop continues to work well and should be maintained.

Motorized vehicle traffic on Monroe Avenue is hoped to be reduced over time and the level of service on Monroe improved because of improvements elsewhere. Other locations for improvements that would benefit traffic movement and pedestrian safety on Monroe include the intersections of Kings and Van Buren, Kings and Harrison, Harrison and Arnold Way, Harrison and 30th, Harrison and 35th, and the extension of Circle Boulevard.

Harrison Boulevard is an east-west arterial street that provides connections to downtown, OSU, US Highway 99, US Highway 20, Highway 34, 9th, Kings, 29th, 35th and Walnut/53rd Street. The section of Harrison Boulevard from 29th to 36th is currently reaching capacity during peak hours. Harrison Boulevard and 29th Street/30th Street provide access to and from OSU parking located in the northwest quadrant of the campus. During peak hours, traffic conditions on Harrison are congested in this area, creating long traffic delays. Currently, 30th Street carries 5,400 average daily trips, with 74 percent estimated to be university bound.¹⁷ The net effect is that university traffic coming from the north travels primarily on Harrison, 29th and 30th to and from the university. This traffic pattern adds to delay on Harrison and diverts through-traffic onto local neighborhood streets. Traffic projections indicate that without mitigation, congestion along Harrison Boulevard and delay to traffic accessing the university will degrade to a level of service "F" by the time Corvallis reaches a 62,500 population, creating forced flow with traffic jams.

b. West of the University

The July 1991 draft of the Campus Development Plan for OSU proposes that a primary access point to the university be located off 35th Street. The draft plan proposes that research expansion be located along 35th between Campus Way and Washington Way; a new field sports complex be

¹⁷ 30th Street / Oregon State University Access Study

constructed west of 35th, and construction of improvements to the animal science complex at 35th and Campus Way. These improvements would include additional parking. The draft OSU plan supports widening and improving 35th street.

The improvements anticipated in the draft Campus Development Plan adjacent to 35th Street will generate new traffic, impacting 35th Street and the streets that feed traffic to 35th. Making 35th Street the university's primary western access would increase traffic somewhat. Future campus development along 35th would benefit from a north-south arterial connection between 35th Street and north Corvallis, as a majority of current residential development and housing in Corvallis lies to the north of the university.

c. South of the University

The south part of campus is the primary location of sporting and cultural events. Gill Coliseum, LaSells Stewart Center, and Parker Stadium are all located on 26th Street. Gill Coliseum is the location for university basketball games, gymnastic competitions, concerts, and other events. LaSells Stewart Center is a conference center that houses a performing stage for small concerts, pageants, and other events. Parker Stadium is the university football stadium serving Pac 10 and high school football games. Also located in the area are baseball and soccer fields, a track, tennis courts, a recreational sports facility, and a proposed Alumni and Conference Center.

These and other events draw large numbers of regional and local traffic to Gill Coliseum, Parker Stadium, and LaSells Stewart Center. The primary access to this area of campus is Highway 20/34 or Western Boulevard. In the past, regional traffic would travel ORE 34, 3rd and 4th Streets through downtown, Highway 20 and Western Boulevard to campus. Recent improvements to Western Boulevard, coupled with special event traffic management and signal timing for Western Boulevard and the downtown, have greatly improved traffic flow to and from these events. The recently completed phase 1 of the downtown bypass, and the completion of five lanes on Highway 34 to I-5, facilitate rapid regional traffic to major events held in the south campus area. The bypass and Highway 20/34 now provide the primary regional access to south university locations. Fifteenth, 26th, and 35th Streets are north-south streets connecting Highway 20/34 to the university. It is recommended that the university utilize 26th Street as the primary southern access for regional traffic coming to special events located at Gill Coliseum, Parker Stadium and LaSells Stewart Center.

d. East of the University

Previous Oregon State University studies have suggested the southerly extension of 9th Street to Western in combination with a closure of 14th/15th Street. The current draft Campus Development Plan proposes that 9th be connected to Western Boulevard. The analysis of future traffic conditions does not point to a high demand for the southern connection of 9th to Western due mainly to an existing connection at 11th Street. The proposed southerly connection would involve a new railroad grade crossing and increased traffic on the southern segment of 9th Street where residents have indicated a concern. An alternate circulation improvement would be to realign Washington Avenue

with Washington Way at 15th Street, thereby connecting 9th and 15th via Washington Avenue. This improvement, aimed at improving access and circulation in the southeast campus area, is not required for safety, access or capacity reasons. This plan does not recommend the extension of 9th Street at this time.

e. Through Campus

Fourteenth/15th Street, 30th, 35th, and 53rd Streets, and Washington Way currently pass through the university campus. These streets, along with the current campus circulation, function well for autos, and some changes are proposed for bicycles. Through streets are needed to ensure adequate access for emergency response to all sectors of campus. Any proposal to modify internal campus circulation must incorporate review and concurrence by City police and fire departments.

f. Parking

Although in total numbers there is sufficient parking on the OSU campus, it is inconvenient to many and does not keep OSU bound traffic from filling up residential streets, creating parking shortages for residents. Parking districts that restrict nonresident parking have been created by the City in neighborhoods located on the north and northwest side of the university. This has provided relief to the residents but is not a perfect solution. Residents must pay to park in the street and deal with permits for visitors. It is recommended that the university develop an adequate and comprehensive on-campus parking plan to be reviewed by the Corvallis Planning Commission. This plan should include an evaluation of Transportation Demand Management measures that may be effective in helping to address parking issues related to the university.

g. Transit

Oregon State University is currently served by Corvallis Transit System and Linn-Benton Loop System. These systems provide cost-effective service to Oregon State University from Corvallis and Albany. Current surveys indicate 48 percent of the ridership is university bound. It is recommended that Oregon State University continue to provide funding that allows students and faculty use of the transit system. It is also recommended that the City evaluate the need for a transit station near campus.

h. Bicycles

Oregon State University is probably the single greatest destination for bicyclists in Corvallis. Although not scientific, a 1993 OSU survey of travel behavior by faculty and staff indicated that 70 to 80 percent of faculty and staff arrive on campus between 7 and 9 a.m. and leave between 4 and 6 p.m.. Sixty-eight percent of this group drives alone to campus. This survey is roughly consistent with figures in the 1983 **Report on Transportation, Circulation and Parking, Oregon State University**. Eighteen percent of the faculty and 30 percent of the students rode their bikes to school. Further enhancement of bicycle facilities (some of which are required by the newly updated Land

Development Code) on and through the campus should help maintain or increase these percentages.

i. Summary

- Traffic access between north Corvallis and the University is inadequate.
- On-campus parking is inconvenient for many.
- Transit is a cost-effective service but not fully utilized.
- Monroe Avenue experiences hazardous traffic/ bicyclist/pedestrian conflicts.
- Possible solutions have been identified, and further work will be done through development of a Transportation Demand Management Plan and through the Transportation Alternatives Project. The University and City must work together to implement these or other improvements.

An important effort aimed at addressing some of these issues is the Transportation Alternatives Analysis Project initiated in Spring, 1996. This project will review Transportation Demand and System Management options for reducing auto traffic impacts and improving alternate mode opportunities. This effort can provide direction for resolving some of the OSU related issues, as well as those posed by other major employers or destinations in the City.

3.50.30 TRAFFIC CONTROL

Design of transportation facilities for automobiles plays an important role in how these facilities function. Street design is the first element of this system. Obviously, the wider and straighter the street, the greater the number of automobiles the roadway can accommodate and the greater the speed at which vehicles can move. Also, an integrated network of streets (a grid or modified grid) can disperse traffic and reduce volumes on individual sections. Sections 3.30.10 Street Network and 3.30.20 Traffic Speed and Volume provide further discussion of this issue.

Traffic-control devices ensure the orderly and predictable movement of traffic. They provide guidance and warning to vehicle operators. Traffic-control devices comprise the signs, signals, markings, and devices placed on, over, or adjacent to a street or highway.

Traffic-control devices do not cure all problems. Accidents occur each year at intersections controlled with signals and stop signs. Installing a traffic-control device where unwarranted undermines respect for the device and may encourage intentional disobedience. A key to the success of traffic-control devices is their uniform application. Non uniform procedures and devices cause confusion among vehicle operators, prompt wrong decisions, and contribute to accidents. In order to achieve uniformity of traffic control, comparable traffic situations must be treated in the same manner.

The importance of traffic-control devices and the uniformity of such devices has long been recognized. In 1935, a joint committee of the American Association of State Highway and Transportation Officials and the National Conference on Street and Highway Safety developed and published the first edition of the Manual on Uniform Traffic Control Devices (MUTCD). Since then, the manual has been periodically updated to reflect advances in research and technology. Today, the MUTCD is the national standard recognized by federal and state law and by city ordinance.

The Manual on Uniform Traffic Control Devices sets minimum warrants and standards that should be met before installing most traffic control devices. Some devices are new and are not covered in the MUTCD.

The devices of greatest interest are:

- Traffic signals (including school signals)
- Traffic control signing and striping
 - Stop signs
 - Yield signs
 - Crosswalks including school crossings
 - Speed signs
- Structural traffic control
 - Speed humps
 - Traffic circles
 - Diverters, Forced-turn channelization and Cul-de-sacs
 - Chokers

The use of each device in Corvallis is discussed below.

a. Traffic Signals

Corvallis has 52 signalized intersections, with the majority located on arterial streets¹⁸. Traffic-control signals, properly located and operated, can have one or more of the following advantages:

- They provide for the orderly movement of traffic;
- They can increase the traffic-handling capacity of the intersection where proper physical layouts and control measures are used;
- They reduce the frequency of certain types of accidents, especially right-angle types;

¹⁸ 1992-1997 Five Year Traffic Signal Upgrade Plan, City of Corvallis, DPW, August 1991.

- They can be coordinated, under favorable conditions, to provide continuous or near-continuous movement of traffic at a constant speed along a given route; and
- They permit minor street traffic, vehicular or pedestrian, to enter or cross continuous traffic on the major street.

Improper or unwarranted signal installations may cause:

- Excessive delay, air pollution, and noise;
- Disobedience of the signal indications;
- Circuitous travel by alternative routes; and
- Increased accident frequency, particularly rear-end collisions.

Consequently, the application of traffic signals should be preceded by a thorough study and be based on consistent criteria.

Traffic signal installations range in cost from \$50,000 to \$120,000 per intersection depending on the geometry of the intersection and the equipment requirements. Typical annual maintenance of each signal costs \$2,000 to \$5,000. Due to the substantial costs, and more importantly, the liability of unwarranted controls, signals should be applied on the basis of established standards and credible engineering studies.

1) **School Signals**

Generally, the best location for schools is adjacent to local and collector streets to minimize pedestrian crossing of arterials. This results in safer pedestrian access. However, several older schools in Corvallis are located on arterials.

Specific warrants define the need for traffic signals near schools. As a general rule, signals should be limited to locations that meet the criteria given in *The Manual on Uniform Traffic Control Devices (MUTCD)*¹⁹. While traffic signals can effectively assign intersection right-of-way and promote the safe, orderly movement of both pedestrians and vehicles, they may not be practical in all situations. Moreover, the response of very young pedestrians (kindergarten to 3rd grade) to traffic signals is frequently so inadequate as to create a hazard rather than a solution. In these cases, officer control or adult crossing guards should be used.

2) **Priority and Preemption**

Emergency services in Corvallis use preemption equipment at signalized intersections to improve response time. Only emergency service providers should use this equipment; unauthorized use is

¹⁹ *Manual on Uniform Traffic Control Devices for Streets and Highways*, US Department of Transportation, Federal Highway Administration, 1988, pages 4C-1 to 4C-12.

dangerous. The current program should be continued to maintain good emergency response capability.

3) Audible Signals

As signals are installed or replaced due to age or obsolescence, the City of Corvallis is installing audible traffic signals to help the visually impaired safely cross busy intersections. The audible signals used in Corvallis automatically adjust to background noise levels to avoid disturbing adjacent residents.

4) Intersection Flashing Beacons

Intersection control beacons are intended for use at intersections where traffic or physical conditions do not justify conventional traffic signals but where high accident rates indicate a special hazard that may be diminished by achieving greater driver attention. The MUTCD does not define accident rates that justify the application of such beacons. The City should develop uniform standards and procedures for applying the Intersection Control Flashing Beacon. These standards should require an engineering evaluation after installation to measure the effectiveness of the device and to determine whether it should remain in service or should be removed and the problem addressed in other ways.

b. Traffic Control Signing and Striping

1) Stop Signs

A stop sign is a valuable and effective control device when used at the right place and under the right conditions. It is intended to help drivers and pedestrians at intersections decide who has the right-of-way.

One common misuse of stop signs is to arbitrarily interrupt through traffic to control speed. Where stop signs are installed as "speed breakers" there is a high incidence of intentional violation. In those locations where vehicles do stop, the speed reduction is effective only in the immediate vicinity of the stop sign, and frequently speeds are higher between intersections.

In neighborhoods where streets follow a grid and stop signs are warranted, a carefully planned order of placement can discourage through traffic without undermining respect for the stop sign. A consensus within the affected neighborhood should be reached before implementing a stop sign plan.

Guidelines and warrants for stop sign installations are outlined in the MUTCD. It is important for Corvallis to use these warrants because improper placement can create liability to the City.

The process for installing stop signs is under delegated authority²⁰ in Corvallis, allowing the City Manager and staff to evaluate need and installation of traffic control devices according to the guidelines of MUTCD. This plan recommends that the City continue to follow the MUTCD and use engineering studies when required.

2) Yield Signs

The yield sign assigns right-of-way to traffic on certain approaches to an intersection. Yield signs are typically used at intersections where oncoming traffic can be seen well in advance of the intersection. Vehicles controlled by a yield sign need to stop only when necessary to avoid interference with other traffic that is given the right-of-way. MUTCD standards and warrants should be followed.

3) Crosswalks

Crosswalk markings guide pedestrians in the proper paths at signalized intersections and stop signs. Crosswalk markings on nonsignalized roadways also warn motorists of a pedestrian crossing point. At non-intersectional locations, these markings legally establish the crosswalk.

Crosswalks should be marked at all intersections with substantial conflict between vehicle and pedestrian movements. Marked crosswalks should also be provided at pedestrian concentration such as at loading islands, midblock pedestrian crossings, or where pedestrians might not otherwise recognize the proper place to cross.

The MUTCD does not give specific standards for crosswalk or school crossing markings. It is recommended that based on traffic engineering principles, uniform standards be developed for the installation of the ladder or diagonal striped crosswalk, mid-block crosswalk, overhead illuminated crosswalk signs and the flashing beacon school speed zone. These standards should recognize and address speed of traffic, volume of traffic, speed of pedestrians, distance from other crossings, and other factors.

Corvallis has organized a student patrol program but has no adult crossing guard program. In contrast, school adult crossing guard programs have proven effective in many communities in Oregon and on the west coast. In most cities the school district either organizes or funds the guard program. Some districts let the individual schools set up programs. To be successful, the programs require the coordination of schools, the school district, city staff, police, and parents. Warrants for adult crossing guards have been developed²¹. Adult crossing guards should be considered to provide adequate gaps in traffic at school crossings where they otherwise may not occur. Traffic signals and school patrol programs should not be considered in lieu of an adult crossing guard and a safe route

²⁰ *Ordinance for Traffic Control*, City of Corvallis, Municipal Code, Section 6.10.020.030, provides for council delegation of authority to City Manager to locate stop signs, crosswalks and truck routes.

²¹ *Traffic Control Devices Handbook*, US Department of Transportation, FHWA, 1983, pages 7-19.

to school program. An adult crossing guard program can be less expensive than installation of infrastructure.

4) Speed Signs

Speed limits are set by Oregon law for situations covered by the basic rule and not otherwise signed; the limits are 15 mph for alleys, 20 mph in a business district or posted school zone with children present, 25 mph in a residential district, 65 mph on any rural interstate highway, and 55 mph on other locations not posted.

Speed zones other than described above are established by the State Traffic Engineer based on an engineering study that examines many factors. These factors include:

- Road surface characteristics, shoulder condition, grade, alignment and sight distance
- Speed not exceeded by 85 percent of vehicles
- Ten mph range with largest number of vehicles
- Roadside development and culture
- Curves and hazardous locations
- Recent accident history
- Parking practices and pedestrian activity

The City may do an engineering study that indicates a speed zone is appropriate and request a speed zone or change from the State Traffic Engineer. The State Traffic Engineer will review the request, verify the engineering study, and make a ruling regarding the speed zone request.

Speed zones established on arterials and collectors should be reviewed periodically as traffic patterns and volumes change to insure the speed zones remain appropriate and to provide for continued safe and efficient movement of traffic.

Speed signs should not be overused. Where the basic rule applies, speed signs should be used only where there is a change from a speed zone to the basic rule speed and traffic volumes are significant, or where a street's appearance may lead a driver to believe the speed limit is greater than the basic rule speed.

c. Structural Traffic Control

Structural traffic control means physically altering the driving environment to encourage or require a desired driving action. This can mean to alter where people go, how they get there, or at what speeds. Many of the techniques listed below are known as traffic calming techniques. These efforts can be used to reduce speeds to those posted or below, as desired.

1) Speed Humps

Speed humps may become a valuable traffic control device in the public right of way. They have been studied for many years and show positive results. A speed hump differs from a speed bump by its size. A **speed hump** is 12 to 14 feet long and three to four inches high, while a **speed bump** may be only two to three feet long and three to four inches high. A properly designed speed hump will not cause a speeding vehicle to lose control, while a speed bump causes a sudden, potentially dangerous jar to the vehicle. Properly designed speed humps have mild effects that tend to slow drivers down without losing control when crossing a hump. Raised crosswalks or intersections can be designed to have similar effects.

The use of speed humps is evolving. The City of Portland is currently testing a 12 foot long by three inch high speed hump on several neighborhood streets and plans to use them as a standard speed control device if found to be effective. The City of Corvallis has installed speed humps on the private park road through Avery Park. No significant issues have been identified with this application. The Institute of Traffic Engineers (ITE) proposed guidelines for the design and application of speed humps in March of 1993²². Guidelines developed for Corvallis should incorporate these ITE efforts.

Speed humps are much cheaper than traffic circles and may prove to be as effective. The City of Corvallis should experiment with using speed humps in the public right of way. It is recommended that guidelines be established for the testing and evaluation of speed humps on local neighborhood streets where speed appears to be a problem. If speed humps prove beneficial and economical, Corvallis should broaden their use in such neighborhoods. A consensus within the affected neighborhood should be reached before using this traffic control device.

2) Traffic Circles

Traffic circles reduce vehicle speeds and eliminate very fast vehicles on local residential streets. Traffic circles do not divert local traffic and do not restrict access to adjacent streets or land uses. They are usually installed in a series of two or more adjacent intersections to create a reduced-speed corridor. Traffic circles are commonly used in European countries, particularly in Great Britain, instead of four way stop signs or traffic signals.²³ Traffic circles are also used locally in Portland and Seattle. Traffic circles reduce speed while maintaining a high level of service and capacity.

A traffic circle may cost as much as \$10,000 to construct. Development of a plan for the use of traffic circles in a particular neighborhood (public meetings, testing, traffic engineering evaluation of testing and final design) may also cost as much as \$10,000. Traffic circles generally have landscaped interiors requiring ongoing irrigation and maintenance.

²² A Proposed Recommended Practice: Guidelines for the Design and Application of Speed Humps; Institute of Traffic Engineers; March, 1993.

²³ Brilon, W. (editor), *Intersections Without Traffic Signals II*, Springer Verlag, 1988

Because of traffic circle expense, speed humps should be evaluated before uniform standards for traffic circles are developed. Specific attention should be given to warrants and to provisions for testing and evaluation when developing standards. A consensus within the affected neighborhood should be reached before using this traffic control device.

3) Diverters, Forced-Turn Channelization and Cul-de-sacs

Diagonal diverters involve the installation of a diagonal barrier in the intersection. This forces vehicles into a 90-degree turn. These devices permit better circulation than cul-de-sacs and can be designed to allow the passage of emergency vehicles. Certain maintenance aspects, such as manhole cover access, should be considered when applying this type of device.

Semi-diverters limit access to a street by blocking one direction of travel at an intersection. Semi-diverters reduce traffic volumes and retain easy access for emergency vehicles. However, because half of the street is still open to traffic, the violation rate can be high.

Forced-turn channelization generally involves the installation of traffic islands to prohibit certain movements. For example, to force right turns only at an intersection, an island could be installed to make left or through movement difficult. This installation can increase safety at an intersection by discouraging unsafe movements.

Cul-de-sacs involve closure of a street, either midblock or adjacent to an intersection. Their purpose is to fully block access to the adjacent street. Cul-de-sacs can have the largest negative impact on emergency vehicle access time. Use of cul-de-sacs reduces the permeability of the street network and forces drivers to use a limited number routes to their destinations. In effect, the traffic removed from a cul-de-sac is forced on to other streets, potentially causing traffic problems in these locations.

All of these traffic control devices force changes in the flow of traffic and create obstacles for emergency service vehicles. They should be considered only where a significant traffic problem could be greatly reduced or eliminated and adequate access for emergency service can be maintained. They should be considered on a case-by-case basis and used only with a consensus of the affected residents.

4) Chokers

Chokers, also called curb extensions, narrow the street by widening the sidewalk area or landscaping to provide safer pedestrian crossings. Additionally, the narrowed street reminds drivers that they are not on a major thoroughfare.

Chokers may effectively reduce speeds on local streets in neighborhoods or commercial areas while increasing pedestrian safety. Corvallis should experiment with chokers in the public right-of-way. Guidelines should be established for the testing and evaluation of chokers on local neighborhood streets.

d. Summary

Many methods can play a role in structural traffic control. Narrowing streets or making them feel narrower with placement of parking or planting of trees along the sides or in median strips can slow traffic. Building discontinuity into a grid with T-intersections or chicanes is also effective. Below is a summary of proposed actions regarding structural traffic control.

- Standards for uniform application of traffic control devices are important
- Standards for Traffic Signals, Stop Signs and Yield Signs are contained in the MUTCD and should be adhered to
- Standards for the application of **stop sign plans** should be developed for Corvallis
- Standards should be developed for the uniform application of Intersection Control Flashing Beacons and Crosswalks in Corvallis
- Speed zones are established by the State Traffic Engineer and should be reevaluated as conditions change
- Speed humps and similar design techniques should be tested and evaluated in Corvallis
- Traffic circles are effective at reducing speed and are expensive. Their use should be considered after speed humps have been evaluated because speed humps are potentially more economical
- Diverters, forced-turn channelization and cul-de-sacs should be considered only where a significant traffic problem could be greatly reduced or eliminated by their use and adequate access for emergency services can be maintained
- Chokers should be tested and evaluated in Corvallis
- A consensus within an affected neighborhood should be reached before implementing stop sign plans, or installing traffic circles, speed humps, diverters, forced-turn channelization, cul-de-sacs, and chokers

3.50.40 NEIGHBORHOOD TRAFFIC MANAGEMENT AND SAFETY

The vision for Corvallis neighborhoods is livability and safety. The neighborhood is the home, a place for refuge, rest, enjoyment, raising children and living. Streets and motorized vehicle traffic have a large impact on the safety and livability of the neighborhood. The ideal neighborhood street is, above all else, one that is safe.

The four problems that are cited most by residents concerning the safety of their neighborhood streets are: high speed of traffic, large volume of traffic, the safety of their children walking to and from school, and the need for traffic control at intersections.

Two other issues that are important to neighborhoods are the ability of residents to find adequate parking and multiple access points to neighborhoods.

The following discussion provides recommendations for each of the issues mentioned above in the context of transportation planning.

a. Speed Control

Speed control is difficult to achieve without 24-hour-a-day speed enforcement. As long as there are vehicles, there is no perfect solution, but programs and measures have been successful in reducing the extent of speeding.

A SPEED WATCH PROGRAM can reduce speeding. The program is set up with a neighborhood volunteer using a radar gun to detect speeding vehicles. The volunteer records the speed, direction of travel, license plate, date, and time of speeding vehicles, and provides the City with the data. The City then sends the owner of the vehicle a friendly notice of the incident, with a reminder of speed limits for the area, and a discussion of safety concerns. The speeding data gathered by volunteers can also be used to effectively target speed enforcement efforts.

SPEED READER BOARDS are portable devices that contain speed-detecting radar and large readout screens. These devices inform oncoming vehicles of the speed limit and the actual speed of the vehicle. They can be placed on streets and are intended to remind drivers to obey the speed limit. These may be especially helpful on streets near schools. Enforcement personnel can periodically be stationed near the equipment and issue speeding citations to add to the effectiveness of the equipment. A program using a speed reader board is currently underway in Corvallis.

LEGISLATIVE EFFORTS are being pursued that will make the use of photo radar possible. Photo radar is a portable device that photographs speeding vehicles. The photograph records the driver, license plate number, and speed the vehicle was traveling at the time the photo was taken. Citations are then issued from this evidence. Photo radar may have a useful role in speed reduction in the near future.

SPEED HUMPS may become a usable traffic control device in the public right-of-way. They have been studied for many years and show positive results. Speed humps are further discussed in **Section 3.50.30 Traffic Control** of this element.

NARROW RESIDENTIAL STREETS that have parking along both sides of the street, leaving one wide travel lane, can be effective in reducing speeds. A street 28 feet wide with 7 ft parking width on both sides leaves a 14 ft travel lane. Two cars conceivably can pass within the 14 ft lane, but the street does not feel comfortable to the driver at high speeds. Streets with a narrow, residential look tend to keep drivers from speeding. Sidewalks and street landscaping help provide a residential look and feel. Narrowing streets at intersections or intermittently along their length with the use of chokers can have similar effects.

Neighborhoods, as much as possible, should have only local resident traffic on their streets. Nonresident traffic increases the volume of traffic in a neighborhood and the incidence of speeding, which degrades livability aspects.

Stop signs and traffic signals are not speed control devices. A long history of traffic studies has shown these devices do not work to reduce speeds, and their misuse can degrade safety.

TRAFFIC CIRCLES are used successfully as speed control devices in other cities such as Portland and Seattle. Used in a series, they effectively reduce speeds without impeding traffic flow. They also greatly reduce accidents at intersections. Traffic circles are further discussed in **Section 3.50.30 Traffic Control**.

Following are recommendations for dealing with speed control issues.

- The City of Corvallis should experiment with using speed humps in public rights-of-way. If testing in other communities and in Corvallis neighborhoods shows a beneficial application of speed humps, Corvallis should broaden their use in Corvallis neighborhood streets.
- Once there is community support and funding, a speed watch board program should be implemented on a trial basis. The program would be evaluated for effectiveness and continued if it is found to be effective.
- The City of Corvallis should monitor efforts to make photo radar available. If photo radar becomes available, the City should investigate and consider its application.
- Street design standards should be reviewed to identify alternatives that discourage speeding. Such opportunities are identified in Section 3.30.10 and detailed in Table 3-5. Alternate standards should be incorporated into the land development code.
- Uniform standards and procedures should be developed for the application and use of traffic circles, chokers, and other structural speed control facilities.
- Continue the speed reader board program.

b. Traffic Volume Control

A problem of major significance to neighborhoods is nonresident traffic using a neighborhood street instead of adjacent collector or arterial streets. The primary reason for this happening is inadequate arterial and collector service levels to and around the neighborhood. Insufficient capacity on a collector or arterial causes drivers to seek less congested routes that may go through neighborhoods. Poor connections between collectors and arterials or a lack of adequate arterial and collector streets influences drivers to seek connections between arterials and collectors that pass through neighborhoods. Neighborhood streets that facilitate easy, direct, and rapid movement will influence drivers to use neighborhood streets more than the nearby collectors and arterials.

A prime example of this problem is the College Hill neighborhood located on the northwest boundary of Oregon State University. The disconnected nature of the arterials serving that area (35th Street, Harrison Boulevard and Circle Boulevard) largely contribute to the intrusion of through-traffic into the surrounding neighborhoods.

For new construction, care must be taken to assure direct and convenient pedestrian and bicycle movement within and between adjacent developments; however, streets should be designed to be discontinuous between collectors and arterials. Local streets should be kept to less than a quarter mile in length. Current development code standards allow a maximum length of 600 feet for a cul-de-sac. Access to new residences should not be allowed on an existing or proposed arterial but should be provided for by a local street. New local streets should be designed to provide the feel and look of a local street and not of an arterial or collector. New neighborhood developments and streets should be allowed only where arterial and collector streets have adequate capacity and connections will prevent local traffic volumes from exceeding levels appropriate for local streets.

For existing neighborhoods, the best solution for reducing traffic volumes is to provide for any lacking elements in the collector and arterial system that may be contributing to high levels of through-traffic. In some cases, making the local street less attractive through the use of traffic circles, diverters, chokers and stop sign plans may provide a good solution. A discussion of these devices is contained in the section on traffic control devices, and uniform standards and procedures should be developed for their application and use.

c. School Route Safety

The safety of elementary school children walking to and from school is a concern for all neighborhoods. Safety is achieved through education and appropriate traffic control used along identified routes to school. Corvallis has an excellent safety record through working continually to provide safe pedestrian routes to schools. These efforts should include educating students, parents and teachers as to which routes are the safest.

For each elementary school, pedestrian routes and traffic control devices along those routes should be reviewed periodically by the City and the school district for adequacy and completeness. If necessary, the City and School District should coordinate the provision of additional traffic control. A map for each elementary school, clearly showing the safest routes to the school, should be provided by the school district to each student annually. The schools and Corvallis Police Department should ensure that teachers educate students and parents regarding which routes are safest and should be used.

d. Intersection Traffic Control

Intersection traffic control consists primarily of stop signs, yield signs and traffic signals. The most frequent request from citizens is for the installation of a stop sign. Intersection traffic controls should be installed only where warranted. In neighborhood areas where intersection control is warranted and traffic volume is a problem, consideration should be given to a stop sign plan that maintains intersection safety, maintains respect for stop signs, and discourages through-traffic. Further discussion of these tools is contained in **Section 3.50.30 Traffic Control**.

e. Parking

Parking becomes a problem for neighborhoods when residents cannot find a parking space in the same block as their residence. This can be the result of a traffic generator located near a neighborhood that does not have adequate or convenient on-site parking. When the parking is inadequate or inconvenient, drivers can park in nearby neighborhoods. This problem is experienced by neighborhoods near the university, especially the north side of the university, and between the downtown and the university.

Parking districts restrict non-resident parking and provide some relief to residents, but are not an ideal solution. Solutions include provision of adequate and convenient off-street parking for residents and traffic generators such as Oregon State University, and walking, cycling and use of transit to diminish the need for parking space. Current development code standards require the provision of adequate parking. More discussion on parking districts is contained in the section titled Parking Districts.

f. Single Access Neighborhoods

Neighborhoods that have only one primary access point are at risk in the event of a major catastrophe. Multiple public street access is important to ensure that emergency services are not cut off and that trip times are not greatly lengthened in the event that one access to the neighborhood becomes impossible to traverse. There are two ways to address neighborhoods that have only one primary access. Emergency services can be established in the neighborhood or new access can be built. Two areas of concern within the City that have single access are South Corvallis, and the Skyline West subdivision.

Connections to south Corvallis are via Avery Avenue and South Third Street. South of Avery Avenue, 3rd Street is the only rapid link between emergency services and neighborhoods. Avery Avenue is not an adequate alternate access since a 100-year flood would cover areas around the northeast perimeter of Avery Park with over five feet of water. South 3rd Street at the intersection of Avery Avenue and Crystal Lake Drive would be covered with approximately 1.5 feet of water in a 100-year flood. The 100-year flood plain covers South 3rd Street from approximately "C" Street to Alexander Avenue, with maximum depths of about 2 feet of water.²⁴

South Corvallis can be reached on county roads by traveling between Highway 20/34 and Highway 99 using 53rd Street, Bellfountain Road and Airport Road. The route using county roads lengthens the trip by about ten miles creating trip times much longer than desired for emergency services. Portions of each of these county roads are also inundated with 100-year flood waters.

A new corridor that would provide a circumferential route from south to west Corvallis would be the extension of 53rd Street to intersect Highway 99 at Kiger Island Drive. This Corridor would

²⁴ From Federal Emergency Management Agency Flood Maps

provide improved access for all modes to South Corvallis but would not shorten response times to South Corvallis for emergency services. This corridor also crosses flood plains and potential wetlands and is located outside the Corvallis urban growth boundary. This corridor is not expected to be constructed until Corvallis nears build-out of the urban growth boundary, some 20 to 50 years from now.

After considering all the difficulties involved in providing rapid alternate access into South Corvallis, an effective effort to be made is to locate appropriate services within South Corvallis. To begin to deal with public safety concerns, the City constructed a fire station on Tunison Avenue in South Corvallis. To address other services, the City has initiated a South Corvallis Refinement Plan project to evaluate land use and transportation and make appropriate recommendations for increasing the self-sufficiency of the area.

Skyline West Subdivision can be accessed only by Ponderosa Avenue. Future development in the area will provide for an alternate route connecting Fair Oaks Drive and Walnut Boulevard. Development of this route is expected within the next 10 to 20 years.

To avoid similar problems in the future, the City's ability to provide effective emergency response must be evaluated in all transportation planning efforts. In addition, new developments should provide for multiple points of access.

3.50.50 DOWNTOWN TRAFFIC ISSUES

The downtown business area is bounded by Harrison Boulevard on the north, 6th Street on the west, Western Boulevard on the south and the Willamette River on the east. Highway 20 and Highway 99W run through downtown as a couplet with northbound traffic on 3rd Street and southbound traffic on 4th Street. Highway 20 is on 2nd Street north of Van Buren Avenue. The one-way street system is shown in Figure 3-6.

The downtown street network has 19 traffic signals that operate in coordination with three traffic signals on 9th Street, one traffic signal at 14th Street and Monroe Avenue, and one traffic signal at 15th Street and Jefferson Way. The signals are hardwire-interconnected and a master controller keeps the signals in phase with each other to provide for efficient movement of traffic through downtown.

Existing comprehensive plan policies place a priority on pedestrian movement, access, and parking for the downtown area. The vision is to have a downtown that safely and efficiently accommodates pedestrian and bicycle movement, that allows adequate access to businesses and residents, and provides adequate parking. The vision for the downtown area includes improvements to the streets and riverfront that will make downtown an interesting, beautiful, pedestrian-oriented, and attractive center of business and activity. These provisions encourage the success and vitality of the downtown area.

a. Pedestrian Movement

One-way streets with traffic signal controls at major intersections provide gaps in traffic for safe crossings by pedestrians at unsignalized intersections within the one-way grid. Pedestrians need look in only one direction to observe oncoming traffic. One-way streets prevent pedestrians from becoming entrapped between opposing traffic streams. The downtown system of one-way streets also benefits pedestrians at unsignalized intersections on Jackson, Adams, Washington Avenues and 2nd Street, and is safe for pedestrians.

b. Downtown Traffic Flow and Access

In major activity centers, such as central business districts, with high levels of traffic and closely spaced intersections, one-way streets are frequently used to reduce congestion and increase capacity. On one-way street networks, signal timing can be established that is more efficient than for two-way street operation. Traffic conflicts and delay at intersections are a principal cause of congestion and reduced travel time on two-way urban streets. On one-way streets, left turning movements are not delayed by opposing traffic. Efficient signal timing and no left turn conflicts create less delay, better movement of traffic and less congestion.

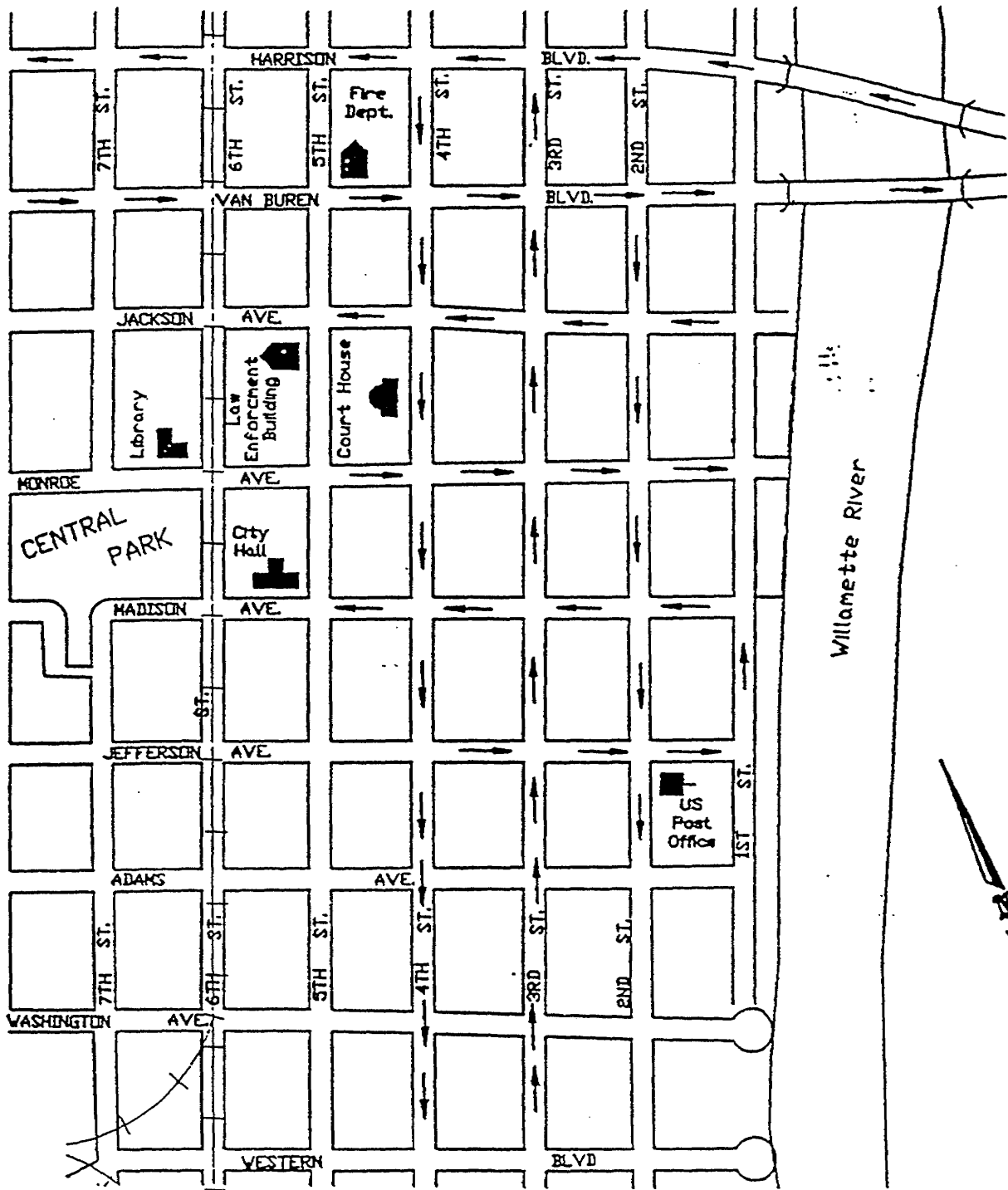
Safety at intersections is increased for vehicles on one-way streets. Signals on the one-way network create gaps in the flow of traffic that make cross street movements easier and safer for vehicles crossing at unsignalized intersections within the network. Vehicles traveling through an unsignalized intersection need only observe oncoming traffic from one direction.

A disadvantage of a one-way system is that some motorists must travel extra distances to reach their destination. This wastes time and fuel. In Corvallis, this is a minor disadvantage since the regular pattern of streets in the downtown area requires very little out of direction travel to reach any destination in the downtown area.

The 3rd and 4th Street couplet for Highway 99W would pose safety problems if returned to two-way operation. Third and 4th Streets will continue to carry larger volumes of traffic than other parallel downtown streets until the north bypass is completed. Transition zones between one-way and two-way streets can be hazardous. The type of transition needed to return 3rd and 4th Streets to two-way operation would require an abrupt change from one-way to two-way at intersections. This greatly reduces capacity as several lanes of traffic on one-way sections merge into one lane of traffic on two-way sections. The potential for confusion and intersection accidents would be greatly increased.

There would be a substantial cost involved with traffic signal, signing, and striping changes to convert the downtown one-way street system to a two-way street system.

FIGURE 3-6 ONE-WAY STREET SYSTEM



The improved traffic movement and increased safety afforded by the downtown one-way street system provides convenient, safe access to businesses making the downtown more attractive, friendly and useable. For capacity and safety reasons it is recommended that the one-way street network continue in the downtown area.

To ensure the one-way system is efficient and safe, clear, easily-seen street signs that identify the one-way street system are critical. It is recommended that street signing for the downtown one-way street system be reviewed and improved for appropriateness and effectiveness.

Phase I of the downtown bypass has reduced downtown traffic. It is recommended that regular counts be taken to quantify the reduction in traffic. The reduction of traffic should be evaluated to determine if there would be sufficient capacity to remove one lane of traffic from 3rd and 4th Streets. Removing one lane of traffic from 3rd and 4th Streets would allow for wider sidewalks and/or bike lanes along 3rd and 4th Streets, making downtown more attractive, friendly, useable, and would help meet requirements of State Transportation Planning Rule 12 concerning bicycles and pedestrians. Currently, the Corvallis five-year Capital Improvement Program lists the following improvements to downtown traffic circulation and safety:

- Downtown traffic signal rehabilitation
- New traffic signal at 3rd Street & Adams Avenue

As Corvallis reaches a population of 80,000, traffic analysis indicates several important improvements will be needed to avoid congestion and delay on downtown streets unless significant reductions in single occupant vehicles is realized. These improvements are:

- Northern phase of the downtown bypass
- South bypass widened to four lanes
- Improved pedestrian and bicycle connections across the Willamette River
- Replace or supplement the Van Buren Bridge over the Willamette River

c. Downtown Parking

Adequate downtown parking is important to allow the downtown to be easily accessible to the community. This promotes strength and vitality in the downtown area.

Studies of parking demand in the downtown area²⁵ indicate that parking is 56 to 73 percent occupied on typical days. There are 1,291 on-street metered or free parking spaces and over 2,000 off-street parking spaces downtown. With parking occupancy below 80 percent on typical days, the parking supply is adequate; the concern is convenience of parking.

²⁵ An analysis of parking Demand in Downtown Corvallis, City of Corvallis, August 1990.

To help ensure convenience of parking, Corvallis Municipal Code Section 6.11.030 restricts employees, residents, and students from parking in the central business district between 10 a. m. and 4 p.m., Monday through Saturday excluding holidays. The ordinance requires residents, employers, and operators of educational institutions, located in the central business district to supply to the City the names, addresses and vehicle license numbers of residents, employees, and students on a quarterly basis. The names, addresses and vehicle license numbers are necessary to provide enforcement of the parking ordinance. In the past, compliance, and thus the ability to enforce this ordinance, has been minimal.

The Land Development Code requires off-street parking for new development or major alterations to existing developments except in the downtown area assessed for parking lots (roughly bounded by the alley between 1st and 2nd Streets and the alley between 3rd and 4th Streets and a line roughly half way between Adams and Jefferson Avenues and a line roughly half way between Monroe and Jackson Avenues). The number of required spaces depends on the size and type of use of the development. The off-street parking code requirements assure future provision of adequate parking. This may include structure parking as part of future development.

The City has public lands, including the riverfront, being temporarily used for parking lots. The river-front parking lots currently provide for approximately 194 parking stalls. There is a vision to develop the riverfront into a center of high activity, providing an additional enhancement to the downtown area. As the riverfront is developed and parking areas are lost, new solutions to parking demand and access will need to be identified in cooperation with users of downtown. The City of Corvallis 1995 Downtown Parking Study Final Report recommends that the City construct a parking structure to address future parking deficiencies. In addition, it recommends preferential parking for employee car pool/vanpools and improved transit service to the downtown as means to reduce parking demand.

An upcoming project that may have an impact on downtown parking is the Combined Sewer Overflow project. Construction may include underground placement of a large diameter pipe along the riverfront, causing significant disruption to this area during construction.

The following actions or improvements are recommended:

- Maintain the current downtown one-way street system
- As traffic conditions allow, add wider sidewalks and/or bike lanes to 3rd and 4th Streets
- Provide downtown traffic signal rehabilitation
- Install traffic signal at 3rd Street & Adams Avenue
- Construct northern bypass crossing the Willamette River
- Widen South bypass to four lanes
- Review and improve downtown one-way street signing
- Replace or supplement the Van Buren Bridge
- Improve pedestrian and bicycle connections to east side of Willamette River

- Replace parking removed from the riverfront upon completion of the riverfront redevelopment project

d. Bicycle Movement

The downtown area and associated auto traffic pose some problems to safe bicycle movement. North-south bikelanes exist on 5th Street, but none exist between there and the river. East-west bike movement is also difficult and dangerous due to the lack of bike lanes and the diagonal parking on east-west streets. Options for bikelanes on 3rd and 4th Streets are discussed in Section 4.30.40 Current Bikeway Needs of this plan. Options for east-west bike movement in the downtown should be developed and evaluated.

3.50.60 RESIDENTIAL PARKING DISTRICTS

Parking becomes a problem for neighborhoods when residents can not find parking space near their house. When a large traffic generator does not have adequate on-site parking, parking spills over into nearby neighborhoods. Heavy concentrations of non-resident vehicles, parked all day on neighborhood streets, create undue restrictions on residents that need access and entry to their homes. In order to provide for parking needs of residents, residential parking permit districts were formed by the City.

Residential parking permit districts are established by City Council for the expressed purpose of controlling parking within a residential neighborhood. Each district is marked with signs installed on the streets within an established boundary. Weekday parking within the boundary is restricted to two hours unless a residential parking permit is displayed. Residential parking permits are sold only to residents within the boundary. Permits are good for one year. The number of permits is limited to three per residence. Residents can get visitor permits for visitors that need to stay longer than two hours. Fines are levied for parking violations in the districts.

Corvallis currently has two residential permit parking districts. One is located on the north boundary of Oregon State University between Harrison Boulevard and Monroe Avenue. The other is located on the northwest boundary of the university near 29th Street and Orchard Avenue. Both districts have been created in response to heavy concentrations of university-related parking in nearby residential neighborhoods.

Under present policies, the process for establishing a new district begins with the effected neighborhood petitioning the City for the formation of the district. City staff assesses the problem, and if the assessment of the problem indicates a parking district is warranted, staff notifies those requesting the district and prepares a report to the City Council indicating the findings. A neighborhood meeting is scheduled to determine the boundary of the district. If the district is approved and an ordinance is adopted, signs are installed to mark the district, and residents are notified that permits are required. Enforcement begins after ample time is allowed for obtaining permits. This process generally takes from four to six months and can be substantially longer if there is controversy over establishment of the district.

This process has worked well in the past to serve the parking needs of neighborhood residents. It is not a perfect solution, but should remain as an option when other solutions are not possible. Provision of adequate parking that alleviates the need to park in residential neighborhoods should always be examined as a possible solution.

Parking districts should be provided where:

- There is a significant need
- Providing adequate parking elsewhere is not an option
- There is a consensus of affected residents for establishment of the district
- Negative impacts of the district are acceptable
- Long-term, more effective solutions are being pursued

3.50.70 OREGON STATE HIGHWAY IMPROVEMENT PROGRAM

Oregon highways provide links between Corvallis and the state and nation, and are important for that reason. However, the importance to Corvallis is more significant than having regional access because, within Corvallis, the state highways are an integral part of the transportation system for Corvallis.

Highway 99W is the primary access to south Corvallis. Highway 99W passes through downtown Corvallis and provides arterial service to north Corvallis. Highway 99W intersects and provides access to Circle Boulevard, Walnut Boulevard and 9th Street, three important Corvallis arterials. Highway 20/34 is a significant east-west arterial in Corvallis. It provides access to Oregon State University, Avery Park, and downtown Corvallis. Highway 20/34 intersects and provides access to 53rd Street and 35th Street, two important Corvallis arterials. Highway 20/34 also intersects and provides access to 26th Street and 15th Street, two streets vitally important for access to Oregon State University.

Highway 20 follows the east perimeter of Corvallis, providing a north-south arterial between downtown Corvallis, Circle Boulevard, and Conifer Boulevard. Cheldelin Middle School is located on Conifer Boulevard, and Fairplay Elementary School is located on Highway 20 near the intersection of Conifer Boulevard. Highway 20 provides access to these schools. Highway 20 also provides access to passenger rail service in Albany.

Highway 34 links Corvallis to Peoria Road, Highway 99E and I-5. State Highways 20, 20/34, 34, and 99W provide access to Corvallis for rural farm and residential areas in Benton County and Linn County. They also connect nearby cities such as Philomath, Monroe, Adair, and Albany to Corvallis.

Because the state highways within Corvallis are an integral part of the transportation system, they experience significant interaction between Corvallis circulating traffic and State regional traffic. The Corvallis transportation system and the State highway system will suffer from congestion and delay unless appropriate improvements are made to the State highway system in and around Corvallis.

a. State Highway Projects Scheduled For Construction

Every two years the Oregon Department of Transportation (ODOT) develops a new plan for transportation improvements. The plan lists improvement projects scheduled for construction or other phases of development within the next six years. Projects listed here are from the July 1994 Transportation Improvement Program, as adopted by the Oregon Transportation Commission.

1) Federal Fiscal Year 1996

- No Construction Projects Programmed in the Corvallis Area

2) Federal Fiscal Year 1997

- No construction projects identified in the Corvallis Area

3) Federal Fiscal Year 1998

- Marys River Bridge Rehabilitation

b. Proposed State Highway Projects

The following proposed State highway improvements have a significant impact on the Corvallis transportation system. These improvements are recommended by this plan based on traffic forecasts, traffic engineering, and traffic modeling for the entire city of Corvallis. A more detailed description of the analysis used to identify these projects, and the results, can be found in a separate Technical Appendix

1) Within Ten Years

- Highway 20 reconstruction to four lanes with left-turn refuges and bike lanes from Newton Creek (Philomath) to 53rd Street. Access will need to be limited and a median barrier used to prevent left turns except at major intersections. Major intersections should include those detailed in the West Corvallis Interim Transportation and Access Strategy.
- Highway 20 widening from 53rd Street to Western Boulevard.
- Replace or supplement the Van Buren Avenue Bridge

2) Before 62,500 Population, 20 Years

- Widen Highway 99W to four lanes with left turn refuges from the Southern Pacific railroad overcrossing to just north of Lewisburg Road.

- Widen Highway 20 to four lanes with left turn refuges from Circle Boulevard to Albany.
- Widen Highway 20/34 to four lanes with left turn refuges from Western Boulevard to Highway 99W.
- Provide ramps for south to west and west to south movement between Highway 99W and Highway 20/34.
- Remove the traffic signal and provide an interchange between the south bypass and Highway 34 that does not require a stop.
- Construct two lanes of the northern leg of the bypass.
- Provide traffic signal at Highway 20 and Western Boulevard.
- Provide traffic signal at Highway 99W and Goodnight or Rivergreen Avenue.

3) Before 80,000 Population, 30-50 Years

- Widen south and north bypass to four lanes and complete the bypass.
- Provide traffic signal at Highway 99W and Kiger Island Drive.

3.50.80 EMERGENCY PREPAREDNESS AND RESPONSE

A good system of arterial, collector, and local streets is vital to the provision of emergency services. The response time to an emergency, whether fire or medical, is a critical element in successfully managing the situation. A well-planned system of connecting streets will ensure rapid response times while minimizing the need to add additional fire stations. Corvallis fire stations provide fire and emergency medical response.

It is estimated that most deaths from life threatening accidents and the greatest loss from fire damage occur when emergency response times are greater than four minutes. Homeowner insurance rates are also greater for response times of more than four minutes. Current goals for emergency response are to arrive at the scene of an emergency within four minutes of the time a call is placed to the 9-1-1 center. The average response time is currently 5.5 minutes.²⁶ There are currently four fire stations in Corvallis: downtown, on Tunison Avenue, on Circle Boulevard, and on 35th Street. In the next five to ten years, one additional fire station is planned to be constructed in northwest Corvallis near Walnut Park. These improvements will help meet the goal of a four-minute response time and support a hub-and-satellite combined approach to fire suppression. The hub fire station provides

²⁶ Corvallis Fire Department Strategic Master Plan, November 1990, page 16

the first arrival attack while satellite stations send additional support for fire suppression and emergency management.

The following improvements are listed to indicate current needs within the next ten years and future needs for emergency response.

- Circle Boulevard extension from Witham Hill to Harrison Boulevard
- Replace or supplement the Van Buren Street Bridge over the Willamette River
- Maintain level of service D or better at all intersections of arterial or collector streets
- Develop an alternate access into Skyline West subdivision
- Provide an emergency response traffic signal for emergency vehicles exiting from Tunison Avenue onto South Third Street

3.50.90 FUNDING

Funding for improvements to the street network are available from several sources. All of the sources identified below could be used to fund such improvements.

a. Existing Funding Sources

- 1) **Surface Transportation Program** - Established through federal legislation (ISTEA), annual revenue-sharing guidelines established by ODOT.
- 2) **Street System Development Charges** - Established through City Council ordinance and affirmed by state legislation. Fees are based upon and used to fund the costs of capacity-related improvements required to accommodate new development. Fees are collected from new development provide up to \$100,000/year toward construction projects.
- 3) **City Street Fund** - Established through state legislation. State gas tax revenue sharing to local governments and a small property tax levy provide revenue. Current and projected revenues are sufficient to fund some construction in addition to operation and maintenance.
- 4) **Property Assessments** - Established by state legislation, local program created by ordinance and policies. Benefitted properties pay fair share of street improvement costs through property assessments. Measure 5 implications must be evaluated for this source.
- 5) **Developer Installed Improvements** - As a condition of development, developers are required to install improvements that are necessary to gain access and relieve the impacts of development.

b. Alternate Funding Sources

The City Council has reviewed the following alternative funding sources in recent years.

- 1) **Property Tax Supported Bond Sales** - One-time voter-approved bond sale for specific purposes with debt service paid by new property taxes. Carries specific timing requirements on use of funds. **Variable, depending on bond sale offering.**
- 2) **Serial Levy** - An ongoing periodic bond election (three to five years) to fund continuous street improvements. Falls under the Measure 5 \$10/\$1,000 valuation limit. **Variable, depending on election.**
- 3) **Local Option Fuel Tax** - City ordinance to establish local fuel tax paid by fuel distributors and passed on to consumers at the pump. **\$0.01/gallon = \$200,000/year.**
- 4) **Local Option Vehicle Registration** - County-wide vote to establish a local add-on fee for vehicle registration. **\$5 per vehicle = \$180,000/year**
- 5) **Transportation Utility** - City ordinance to establish user-fee funding for street construction. Care must be taken to establish a basis of rates which does not fall under Measure 5. **\$1 per month for a residence = \$100,000/year**
- 6) **State Gas Tax** - Local support for Oregon legislature to increase statewide gas taxes and the proportionate share to local governments. **\$0.01/gallon = \$200,000/year.**

c. Street Assessment Policy

Street improvements that result from this plan could receive partial funding through property assessments. Previous studies have shown property assessments will yield 43 percent of arterial and collector street improvement costs. The typical application will be the extension of arterial or collector streets to provide access for new development within annexed areas.

Arterial and collector streets have previously been determined to benefit adjacent property. Benefits include access, safety, and ability to develop. Assessments have been limited to the amount the adjacent property would pay for a local service street. Undeveloped residential properties adjacent to an arterial or collector are assessed the equivalent cost of a local residential street, and commercial property an equivalent commercial service street. The current street assessment policy exempts developed residential properties from assessments.

3.50.100 REGIONAL COORDINATION

Coordination with the State of Oregon, particularly ODOT, regarding state highways and their interaction with city facilities, and Benton and Linn Counties is also included in these efforts. A more comprehensive discussion of interagency coordination is include in **Chapter 2.0 Transportation System Planning**. A significant coordination effort is that required for corridor planning, primarily on facilities of statewide significance such as ORE 34/US 20, but also for roadways in the urban fringe.

Coordination among agencies that provide transportation facilities and services is more than just a requirement of the State Transportation Planning Rule, it is vital to the success of the transportation system. The Motorized Vehicle Street Traffic and Circulation element of this plan has identified a number of areas where coordination is needed. First is working with Benton County to ensure that the two agencies' efforts are compatible. This is especially true in the developing areas of the city and in the Urban Growth Boundary where development under County jurisdiction can impact the City's future roadway network. This plan recommends cooperative development of corridor plans in these areas to help guide both agencies where responsibilities and needs overlap. Benton County is proposing doing such cooperative planning in its Transportation Plan project.

As a part of the coordination effort, the City is participating in planning activities that include Benton County. These include the Cascades West Council of Government's (CWCOG) Transportation Advisory Commission and US 20/ORE 34 Corridor Planning Project and the Benton County Transportation Plan Technical Advisory Committee.

3.50.110 HARRISON CORRIDOR CONCERNS

Harrison Boulevard is an east-west arterial street that provides connections to downtown, OSU, Highway 99, Highway 34, 9th, Kings, 29th, 35th and Walnut/53rd Street. The section of Harrison Boulevard from 29th to 36th is currently reaching capacity during peak hours. Past recommendations have focused on widening of Harrison Boulevard to accommodate additional through lanes and turn storage lanes. Additionally, a recent city study evaluated the closing of 30th Street as a means to reduce traffic in the area.

To address these problems, requires some background. As a guideline for good circulation in a community, arterial roadways should be spaced in a mile grid configuration with a few north-south and east-west collectors in between. For Corvallis, this grid (while not perfect) exists with the following streets:

North/South

- 53rd Street
- 35th Street
- Kings Boulevard
- 9th Street
- ORE 99W & US 20

East/West

- Walnut Boulevard
- Circle Boulevard²⁷
- Harrison Boulevard
- Western Boulevard
- US 20

The breakdown in continuity of this system occurs with 35th Street at Harrison Boulevard where the route is not continuous. Additionally, where the other streets are designed or are being improved to handle traffic loads they currently carry, Harrison Boulevard in this segment remains a two-lane roadway. For good circulation in Corvallis, improvements to the Harrison Boulevard and 35th Street arterials will be needed. If conditions are not improved, increases will occur on local streets in this

27

Circle Boulevard is a collector west of Kings Boulevard.

area, congestion will remain and other measures of environmental quality (emissions, fuel consumption, noise) will degrade. The intent will be to find a set of improvements which accomplishes the transportation service needs for Corvallis, improves traffic for neighborhoods and minimizes the impact of the improvements on the residents and their environment. Most of the traffic using Harrison Boulevard and 30th Street stays on these streets for from less than a half mile to a mile in distance. Most turn off or find destinations near these streets. Much of OSU's parking is readily accessible to 30th Street which makes it an attractive route for access. Harrison traffic builds from traffic turning on from 36th Street southbound, 35th Street northbound and 30th Street northbound as it passes nearly 20 homes fronting Harrison Street. Both of these streets act more as funnels of traffic that have no other options for routes in this sector of the city.

Thirty-fifth Street traffic and 36th Street traffic must use Harrison Boulevard for a short block to proceed through for north-south travel. Very little traffic proceeds north on 35th Street north of Harrison (10 vehicles an hour or less). Thirty-sixth Street has nearly 70 fronting residents between Harrison and Grant Avenues, rendering this segment of the street dysfunctional as an arterial roadway.

a. Discarded Harrison Corridor Strategies

With these issues in mind, improvement alternatives have been developed to address the problem at different times and in different ways, with none to date finding consensus. **The following sections describe the alternative improvement approaches that have been discarded.**

1) Widen Harrison Boulevard

Previous plans for the city have discussed widening Harrison Boulevard to accommodate smooth traffic flow. In the problem areas, Harrison has less than 30 feet of paved width, and to accommodate left-turn lanes and bicycle lanes, this paved area would have to increase to 50 feet. Since this would have significant disruptive effect on the mature trees along Harrison and to the fronting properties, this option has not been implemented. This improvement would bring levels of service to acceptable levels (LOS C) and would reduce accidents. By itself, this improvement would address east-west circulation problems in the area from a capacity standpoint. **This improvement would do little to improve neighborhood traffic conditions in the immediate area, except to reduce some intrusion of traffic for local streets by reducing congestion on the arterial route.**

2) Extend the Van Buren/Harrison One-way Couplet from Kings to West of 36th

This improvement would maximize the east-west traffic capacity for the corridor and significantly improve safety by eliminating vehicle conflicts at intersections. It is not physically possible to implement this improvement with existing streets due to alignment and width requirements. **This alternative would cause substantial unavoidable neighborhood and property impacts making this concept infeasible.** This alternative was not considered further in this plan update.

3) Widen and Improve 35th and 36th Street

Thirty-fifth Street between West Philomath and Harrison Boulevards functions as a north-south arterial in the Corvallis street network. Thirty-sixth Street functions as the collector extension of 35th from Harrison Boulevard to Grant Avenue. This discontinuity in the north-south arterial-collector network causes problems for travelers between the southwest to the northwest sectors of the City. Over the years, plans have been developed which aligned 35th Street with 36th Street at Harrison Boulevard providing continuity for that roadway. OSU master planning statements have recommended developing 35th Street into a divided boulevard south from Harrison to US 20. While this would resolve north-south arterial development, it would not resolve the fact that 36th Street north of Harrison Boulevard is heavily developed with fronting residents. **While this concept is feasible, it is unlikely that it will have public support** for the following reasons:

- It requires removal of homes; and
- It encourages greater traffic use of 36th Street, a street not designed to arterial standards.

4) Widen 30th Street and Provide Connection to 29th Street

This would include widening 30th Street north and south of Harrison Boulevard to improve traffic safety and capacity. This would establish an improved north-south corridor in the area to serve OSU. While it is possible to perform some widening on 30th Street, **this concept is not feasible due to neighborhood concerns, property impacts, intrusion of traffic and inability to improve city-wide circulation** since neither street is an arterial.

5) Open 26th Street into OSU

Many residents remember when 26th Street was open to southbound traffic into OSU. In this case, 26th Street would only be opened southbound to Orchard Avenue to allow traffic to access campus parking areas. **While this would attract traffic destined for OSU parking lots, it would not necessarily improve traffic flow on the Harrison corridor.** It would tend to reduce traffic on 30th Street, potentially eliminating the need for turn lanes on Harrison. At the same time, it could attract traffic to Monroe Street, which is a sensitive pedestrian/commercial corridor. It would also create significant pedestrian/vehicle conflict on the campus. This alternative would likely be opposed strongly by OSU.

6) Close 30th Street

This modification was proposed by neighborhood residents to reduce traffic on local streets. The *30th Street/Oregon State University Access Study* was performed to look at alternatives for 30th Street. The alternatives focused on street closures on 30th Street (a summary of this study is provided in the appendix). **This alternative has little traffic operational benefit and would tend to move traffic to other local streets in the area,** and with it the problem of neighborhood

intrusion. It would affect fire and police access and was not supported by OSU or others in the area where traffic would have moved. The benefit to 40 residential homes along 30th Street would be at the expense of other residents on other streets.

7) Extend Circle Boulevard from Witham Hill Drive to Harrison Boulevard and from Harrison to 35th Street with modifications to other streets

During the initial presentation of this transportation plan, the extension of Circle Boulevard across OSU property was proposed that intersected 35th Street at Orchard Avenue. The proposal provided direct access to OSU parking areas along Orchard Avenue and 30th Street from north Corvallis. The strategy included the following elements:

- Connecting Circle Boulevard to 35th Street with pedestrian and bike lanes.
- Adding left turn lanes on Harrison Boulevard at 29th and 35th Streets.
- Adding bicycle lanes to a portion of Harrison Boulevard near 35th and 36th.
- Restricting left turns off of Harrison Boulevard at 30th Street.
- Developing a parking access collector roadway for OSU on Orchard Avenue.
- Removing on-street parking on portions of Orchard Avenue, as needed
- Improving signage to OSU on Harrison Boulevard via 29th and 35th Streets;
- Closing Campus Way at 30th Street and 26th Street at Monroe Avenue to cars;
- Disconnecting OSU parking access to 30th Street.
- Partially closing or using traffic diverters on Johnson, Jackson and Van Buren to discourage pass through traffic between Monroe and 30th Street.
- Realigning the intersection of 36th/Grant/Witham Hill.

This proposal was dropped when it received strong opposition from neighborhoods south of Harrison Boulevard, west of 35th Street and from Oregon State University.

b. Current Planning Efforts

Finding a way to solve the problems in this area is important to both the community and to the residents of the surrounding area. Harrison Boulevard will need some improvement to address capacity problems. The intersections of 29th Street/Arnold Way, 30th Street, and 35th Street are frequently backed up causing problems at the intersections, and causing people to seek other routes through the neighborhoods. Much of the traffic is seeking access to the parking lots on 30th Street and south of Orchard Avenue on the OSU campus. A Harrison Corridor Strategy developed through the collaborative efforts of stakeholders in the community will need to address the specific concerns of the individual neighborhoods comprising the corridor as well as the interests of the community as a whole regarding Harrison Boulevard and the needs it provides for. For the task force charged with developing this strategy, it is important that these latter interests be clearly identified so that they may be adequately considered as a strategy is developed. Following is a statement of these interests as identified by City staff.

First, Harrison Boulevard is and should remain an arterial street. In the area between Western Boulevard and Circle Boulevard, Harrison Boulevard provides the only reasonable opportunity for movement through the community. This opportunity for connectivity to the rest of the community is one of the primary functions of an arterial. Because of this function, Harrison Boulevard must also be expected to effectively carry traffic volumes appropriate to an arterial street. Current volumes at 29th Street and 35th Street are 12,000 and 8,458 average daily trips (ADT) respectively. Other arterials in the community carry between 5,000 and 20,000 ADT.

Second, both the State Transportation Planning Rule (OAR660-12-045 (3) (b)(B)) and City policies (Comprehensive Plan Policy 10.4.2 and draft Transportation Plan Section 4.60.20 b. 1) require or encourage the placement of bike lanes on all major streets (collectors and arterials). Given this direction, and the strong recommendation of the Corvallis Citizens' Advisory Commission on Bicycles for bike lanes on Harrison Boulevard for its entire length, a solution that does not provide bike lanes on Harrison Boulevard between 29th and 35th Streets will need to provide very strong supporting arguments for such a solution and a compelling case that the bicycle travel desires through this corridor can be adequately met in some other fashion.

Third, the solution for the Harrison corridor should provide for reasonable access to the OSU campus and its established parking facilities. This should be accomplished in a manner that minimizes the impacts of this "community" traffic on the adjacent residential neighborhoods as much as possible. From staff's perspective, this means providing at least two routes to OSU.

Fourth, the grid nature of the neighborhoods north of the University should be maintained to the extent possible. This allows the traffic that originates in these neighborhoods to disburse through the network as it accesses the rest of the community, minimizing the traffic impacts on particular locations in the neighborhood and corridor.

Fifth, perimeter routes around the boundary of OSU should be maintained to accommodate access to the university.

Staff believes that the best way to address these concerns is to allow traffic to access the University on a system of perimeter streets. To start with this requires a recognition of the following:

- Harrison Boulevard and 35th Street south of Harrison are arterials and Arnold Way is a collector, and they should continue to function as such;
- 26th/27th Streets, Orchard Avenue and 35th Street are the OSU boundary perimeter streets in this area. These streets provide reasonable access to the OSU campus;
- Constructing left-turn lanes at 35th and 29th Streets would provide needed capacity to maintain the arterial function of Harrison Boulevard. Maintaining capacity would reduce traffic intrusion into the surrounding neighborhoods. Constructing a signal at 35th and Harrison when warranted would maintain capacity.

- Orchard Avenue is wide enough to accommodate on-street parking and function safely as an access route to OSU parking lots. Orchard is 34 ft wide, curb to curb, which provides 7 ft wide parallel parking lanes on each side of the street and two 10 ft travel lanes. The narrow feel of Orchard with on-street parking would tend to reduce travel speed, which is beneficial to residents along Orchard Avenue. Parking should remain on Orchard.

What remains to be accomplished is identification of a neighborhood traffic management plan that is acceptable to the neighborhoods and the community. To find such a solution, a neighborhood process is being used in FY 1995-96 involving the neighborhoods on either side of Harrison Boulevard between 26th Street and 36th Street. The Mayor has appointed a focused, short-term, eight member task force with representatives from each of six identified neighborhood/interest groups plus two at-large representatives. Engineering and Planning Division staff and the City Councilor from Ward 4 will provide initial guidance and periodic feedback during a series of task force, corridor, and neighborhood group meetings. With this process, which would follow the Neighborhood Traffic Management Corridor Plan process identified in Section 3.40.10 **CORRIDOR PLANNING**, a proposal for addressing the needs of the area, both community and neighborhood, will be developed. Such solutions could then be presented to the City for review.

3.60 AUTO TRAFFIC AND CIRCULATION POLICIES

3.60.10 EXISTING COMPREHENSIVE PLAN POLICIES (AUTO TRAFFIC AND CIRCULATION)

§§10.2.1. CIRCUMFERENTIAL ROUTING WITH CONTROLLED ACCESS AND ADEQUATE SETBACKS SHALL BE DEVELOPED TO FACILITATE THE MOVEMENT OF THROUGH TRAFFIC.

§§10.2.2. ACCESS CONTROL PLANS SHALL BE DEVELOPED FOR MAJOR STREETS ON WHICH DIRECT ACCESS FROM ABUTTING PROPERTIES IMPAIRS THE SAFE OPERATION OF THE STREET.

§§10.2.3 THE CITY SHALL MAINTAIN THE CARRYING CAPACITY AND VIABILITY OF MAJOR ARTERIALS AND OTHER MAJOR STREETS BY DEVELOPING, ADOPTING AND IMPLEMENTING ACCESS CONTROL STANDARDS THAT RESTRICT OR REDUCE CURB CUTS AND OTHER DIRECT ACCESS POINTS, REQUIRE ADEQUATE RIGHTS-OF-WAY AND SETBACK LINES AS PART OF THE DEVELOPMENT PROCESS AND DISCOURAGE ON-STREET PARKING ON MAJOR STREETS.

§§10.2.4. LOCAL STREETS SHALL BE DESIGNED AND BUILT TO DISCOURAGE THROUGH TRAFFIC.

§§10.2.5. ADEQUATE STREET WIDTHS AND ROUTES SHALL BE PROVIDED FOR EMERGENCY AND SERVICE VEHICLES WHILE MAINTAINING ACCESSIBILITY TO ABUTTING PROPERTIES.

§§10.2.6. ALL DEVELOPMENT WITHIN THE URBAN GROWTH BOUNDARY SHALL CONFORM TO, AND PARTICIPATE IN THE IMPLEMENTATION OF, THE ADOPTED CITY OF CORVALLIS TRANSPORTATION FACILITY PLAN.

3.60.20 PROPOSED ADDITIONAL COMPREHENSIVE PLAN TRANSPORTATION POLICIES (AUTO TRAFFIC AND CIRCULATION)

- a. Streets shall be classified as Arterial Highway, Arterial Street, Collector Street, Neighborhood Collector, or Local Street. These classifications shall reflect their use. New development may designate two levels of local street, Local Connector and Local. Each development project shall be reviewed for its logical progression and connection from local streets to neighborhood collector or collector streets to arterials for site access. Each development project shall provide improvements necessary to make logical connections. Emphasis should be placed on creation of a grid or modified grid system that encourages dispersion of local traffic through a number of streets and minimizes the use of cul-de-sacs.
- b. Adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection Level-of-Service (LOS) standards and to avoid traffic diversion to local streets. The Level-of-Service standards shall be: LOS D or better during morning and evening peak hours of operation for all streets intersecting with arterial or collector streets, and LOS C for all other times of day. Where Level-of-Service standards are not being met, the City shall develop a plan for meeting the LOS standards that evaluates transportation demand management and system management opportunities for delaying or reducing the need for street widening. The plan should attempt to avoid the degradation of travel modes other than the single-occupant vehicle.
- c. Private driveway access shall be limited on all existing and future arterial streets to reduce interference, improve safety and preserve traffic capacity. New residential driveways shall not directly access arterial streets where alternate access can be developed. At the time of development or redevelopment, opportunities to restrict or combine access points along arterials should be pursued.

3.60.30 AUTO TRAFFIC AND CIRCULATION/NEIGHBORHOODS

- a. New local streets, neighborhood collectors, collector streets, and arterial streets shall be located and designed to manage traffic volume and speed to minimize negative impacts on abutting land uses, including the possible use of traffic calming measures.

- b. In existing neighborhoods, changes in traffic control, such as the use of diverters and traffic circles for local streets, shall be considered through use of a Neighborhood Traffic Management Corridor Plan. The area affected by the change in traffic control shall be determined by traffic engineering studies.

3.60.40 IMPLEMENTING ACTIONS - AUTO TRAFFIC AND CIRCULATION

The Corvallis Land Development Code implements many of the Auto Traffic and Circulation policies. The primary elements not currently addressed in the LDC are:

- New Functional Classifications;
- Precise standards for access control;
- Level of service standards;
- Specific actions for addressing neighborhood traffic issues.

a. Functional Classifications

The proposed functional classification for Corvallis streets is shown in Figure A-1. The classifications are based on documentation over the past 30 years, federal funding designations, actual use of streets, need for circulation and access in the city, and public input indicating a desire to plan a system that will minimize negative effects of auto traffic. Street facilities should be designated based upon their use. Traffic volumes and adjacent land uses in the vicinity of collector and arterial streets can give a fairly clear picture of why a particular street receives a particular designation. Section 3.30.20 provides a summary of typical traffic volumes associated with the different street classifications, although they are not intended to indicate precise minimums or maximums.

The logical spacing of a grid arterial and collector street system allows traffic to access all areas of the city without diverting excessive traffic through local streets. Local street intrusion is greatest on streets where such spacing has not been achieved. Local streets within the grid can follow any pattern which does not promote through traffic.

Corridor plans for the alignment of arterial streets need to be developed to guide future land development and redevelopment to assure adequate right-of-way is preserved. Corridor studies will be needed to define specific alignments for Kings Boulevard north of Walnut Boulevard, Highland Drive north of Walnut Boulevard, Lewisburg Road/Granger Avenue at the UGB, Lester Avenue and/or Crescent Valley Drive from Kings Boulevard to ORE 99W, 53rd Street south of US20/ORE34 to the UGB, an east-west collector north of Plymouth Drive/Nash Road and connecting to Brooklane Drive between US 20/ORE 34 and the UGB, an east-west corridor north of the airport connecting ORE 99W to 53rd Street. Such studies will require significant coordination with Benton County and should be prioritized to address those areas expected to develop first.

Chapter 4.0 of the Land Development Code identifies minimum right-of-way and roadway widths for current classifications of streets. The Code should be amended to replace these classifications

and standards with those detailed in Section 3.30.10 b.) And Table 3-5. Additional right-of-way may be needed for turn lanes and transit stops at some intersections.

b. Access Control

Comprehensive Plan policies identify the need for additional standards regarding access control²⁸. Standards should include:

- Spacing of arterial streets - one mile intervals in a grid pattern, where possible;
- Driveway spacing - driveways should be avoided on arterial highways consistent with the Oregon Highway Plan. When used they should be 100 to 150 feet apart on arterial streets.

Access control is a sensitive subject when individual property owners are affected. Future planning of development should incorporate property access to adjacent collectors and local streets or consolidate multiple accesses with adequate stacking areas on the adjacent street. Corner commercial sites at the junction of arterials should consolidate driveways away from the intersection a minimum 300 feet to allow adequate turn-pocket lengths.

Arterial routes need access control whether they are new, old or planned routes. Corridors such as 53rd Street should have minimal access points, thereby reducing the number of signalized intersections and improving traffic operating characteristics. New driveways on arterials should not be permitted where alternate access is available, and existing driveways should be consolidated where possible. New arterials, such as roadways in the north Corvallis area, will require coordination between the City and County to assure that right-of-way is reserved through the development review process and access control is in place at the time of initial development. Flexibility is needed to respond to specific future development proposals as they arise, but it is essential that the overall intent of access control on arterials is met to assure good circulation and minimize neighborhood impacts of diverted traffic.

c. Level of Service - Development Proposals

To implement the level of service policies, language requiring review of development proposals for conformance with the level of service standards has been incorporated into the Land Development Code. Traffic studies are required of developments as determined by the City Engineer. The study requirements must reflect the magnitude of the project; larger projects should assess all nearby key intersections, small projects should not require significant effort. If a traffic study identifies level of service conditions less than the minimum standard, resulting from either existing traffic plus traffic associated with the proposed development or cumulative conditions, improvements or other

²⁸ Transportation Planning Rule section 660-12-045(2) calls for access control design standards.

efforts for mitigating the problem and strategies for their funding, construction or implementation shall to be prepared and considered concurrent with the development proposal.

New development must be reviewed in a cumulative context that defines how streets will be used by surrounding development. Project design should orient access to residential developments away from collector and local roadways that are at or near the traffic volume thresholds identified where possible. Generally, local streets can serve 2,000 vehicles per day and collectors 5,000 vehicles per day. These thresholds were established at levels intended as guides in new street network development and planning. In developed areas with little opportunity for new roadway construction, these levels may be exceeded. As newly developed areas require new arterial and collector streets, transportation facilities for residential development should be evaluated to ensure:

- Provision of adequate arterial access;
- Provision of adequate collector service; and
- Design of local streets discouraging through traffic.

Local streets should be kept to less than a quarter mile in length, cul-de-sacs cannot exceed 600 feet²⁹. Local streets should be curvilinear where possible. While grades for local streets can reach 15 percent³⁰, this grade should not occur on local streets longer than 500 feet and other streets that provide access to through traffic.

As part of the traffic review of any residential development application, the connection of local streets to the circulation network should be reviewed. If a cul-de-sac or other low use local street is proposed, the review should consist of evaluating whether the project traffic would add traffic near or above the thresholds for local connector and local streets. If the project is on a through street, the evaluation should additionally assess the potential for any future connections which might subject the project local street to traffic volumes near the thresholds for local connector and local streets.

No new residential driveways should access directly onto an existing or proposed arterial roadway. Access should be from local or collector streets before accessing the arterial.

d. Neighborhood Traffic Issues

For existing neighborhoods, the best traffic control measures are properly functioning arterial facilities which draw traffic from local streets. Other options, such as street closures or installing multiple stop signs, are generally ineffective from a system standpoint, since they typically result in out-of-direction travel, increased emissions, increased noise, and increased diversion of traffic onto other local streets. A carefully developed plan for placement of stop signs within an area can

²⁹ *Land Development Code*, City of Corvallis, Section 304.12.02.b.2.c, December 1990, page III-30.

³⁰ *Ibid*, Section 304.12.02.b.2.g, page III-30.

have a positive effect on traffic flow within a neighborhood. Traffic calming measures such as traffic circles, speed humps, channelization, narrowing street widths, additional on-street parking, and enforcement can sometimes reduce speeds but can also have safety implications. Such measures should be used only after careful evaluation of their likely effects on the proposed route and surrounding streets. This process is described in section 3.40.10 Corridor Planning.

Many times street networks are developed over time without a design hierarchy, resulting in local streets looking the same as collectors or arterials. To differentiate among these different street types, it may be necessary to change the physical appearance of the street. Again, elements can include using small traffic circles, chokers, entry statements, and designating parking areas to differentiate local streets from collectors. These solutions are generally well received by the residents, who believe their street will carry less traffic or traffic at slower speeds; consideration must be given to the overall needs of the neighborhood and community before applying these techniques. The way in which neighborhood traffic control strategies are implemented can be as important to their eventual success or failure as the substance of the strategies themselves. Implementation requires careful planning and documentation, public notice, evaluation, community involvement, and possibly refinement of the strategies. Such a process calls for the same attention to detail and the same thorough consideration as the initial planning effort³¹.

3.70 AUTO PARKING POLICIES

3.70.10 EXISTING COMPREHENSIVE PLAN POLICIES

- §§10.3.1. THE CITY SHALL MANAGE ON-STREET PARKING TO PERMIT THE SAFE AND EFFICIENT OPERATION OF THE TRANSPORTATION SYSTEM.
- §§10.3.2. ON-STREET PARKING SHALL BE DISCOURAGED WHERE IT IS FOUND TO BE INAPPROPRIATE.
- §§10.3.3. ON-STREET PARKING OUTSIDE THE CENTRAL BUSINESS DISTRICT SHALL BE MINIMIZED.
- §§10.3.4. THE CITY SHALL ADOPT AND IMPLEMENT MEASURES THAT DISCOURAGE NONRESIDENTIAL VEHICULAR PARKING ON RESIDENTIAL STREETS AND IN OTHER ADVERSELY AFFECTED AREAS.
- §§10.3.5. ALL TRAFFIC GENERATORS SHALL PROVIDE ADEQUATE PARKING.

³¹

Homburger, Deakin, Bosselmann, Smith, Beukers, *Residential Street Design and Traffic Control*, Institute of Transportation Engineers, 1989, page 119.

§§10.3.6. MULTIPLE-LEVEL PARKING FACILITIES NEAR MAJOR TRAFFIC GENERATORS SHOULD BE ENCOURAGED WHERE PRACTICAL.

§§10.3.7. THE CITY SHALL CONTINUE TO PROMOTE THE USE OF OTHER MODES OF TRANSPORTATION AS AN ALTERNATIVE TO THE AUTOMOBILE, ESPECIALLY IN AREAS WHERE THERE IS A SHORTAGE OF PARKING FACILITIES.

3.70.20 RECOMMENDED ADDITIONAL TRANSPORTATION POLICIES (PARKING)

- a. New industrial and commercial development shall provide preferential car-pool and van-pool parking near primary building entrances.

3.70.30 IMPLEMENTING ACTIONS - AUTO PARKING POLICIES

The existing Comprehensive Plan Policies are currently implemented through several methods. Several residential parking districts have been established near the University to reduce public parking problems associated with OSU. In addition, development proposals are reviewed to ensure that adequate parking, as determined in the Land Development Code, is provided with the new development.

The proposed new auto parking policy language has been developed to meet the requirements of OAR 660-12-045(4)(c) of the Transportation Planning Rule. The requirement that new commercial and industrial development provide preferential parking for car- and van-pools has been incorporated into the Land Development Code. The exact number of these spaces for a particular development needs to be determined, but a suggestion is that there always be one more such reserved space than the number of registered carpools. The concept is that preferential parking location will encourage more people to pool because they must walk past this space each day on the way to and from work. In addition, parking policies will be further evaluated during the Transportation Alternatives Analysis, particularly during development of the preferred Transportation Demand Management alternative.

CHAPTER 4.0 BICYCLE

4.10 INTRODUCTION

Bicycles have been recognized as an important transportation vehicle in Corvallis for many years. In the 1970s, the use of bikes and concern about bicycle safety took great strides throughout Oregon. In 1971, House Bill 1700 became Oregon law³², requiring a minimum of 1 percent of yearly highway funds to be spent on bikeways and footpaths. That same year a Corvallis Citizens Bicycle Advisory Commission was formed. The Citizens Bicycle Advisory Commission is made up of six members, nominated by the Mayor and confirmed by the City Council, and functions to advise the City Council on all matters relating to bicycle use, operation, routing, and safety within the City limits.

Some of the first major improvements in bicycle facilities, accomplished in the early 1970s, were the construction of 2.4 miles of separated multi-use path along the Willamette and Marys Rivers and signing of approximately 18 miles of low-volume streets as "Bike Routes". Later in the 1970s, it became apparent that low-volume, indirect streets signed as "Bike Routes" did not meet the needs of bicyclists for safety and directness of route. A system of clearly marked bike lanes on routes heavily used by bicyclists was needed. In the remainder of the 1970s, and throughout the 1980s, Corvallis constructed a system of on-street bike lanes on major streets and separated paths for recreational and commuter bicyclists. During this time, Corvallis also amended its Comprehensive Plan to promote the bicycle as a usable transportation alternative.

Oregon State Transportation Planning Rule 12 has recognized the benefits afforded by bicycle use and requires cities to implement a bicycle plan that reduces reliance on the automobile. Corvallis has amended its Land Development Code, adding provisions to help make the bicycle a transportation alternative, as a first step toward meeting these requirements.

4.20 VISION

The bicycling vision for Corvallis is to safely, conveniently and pleurably cycle from the home to all destinations within Corvallis. Arterial and collector streets should be bicycle-friendly, with well-designed bike lanes providing for safe, efficient movement of bicycles. A well-designed system of separated paths and trails will also provide for safe, recreational bicycle riding, linking together parks and scenic ways within Corvallis. Adequate bicycle parking will be provided at all major destinations. Corvallis will achieve a high standard of livability and recognition by substantial use of bicycles and reduced reliance on the automobile.

The purpose of this plan is to identify current and future needs for bicycle facilities in Corvallis that promote this vision of the bicycle as a transportation vehicle and to plan for the construction of those facilities.

³² ORS 366.514

This plan is needed for the following reasons:

- To fully address the transportation needs of bicyclists
- To continue to implement the Corvallis Comprehensive Plan
- To meet requirements of State Transportation Planning Rule 12
- To facilitate increased bicycle use as a component of the City's transportation network
- To address bicycle facility safety issues

4.30 EXISTING CONDITIONS

The practice of heavy reliance on the automobile for transportation, has led to problems such as air pollution, congestion and delay, parking problems, and consumption of nonrenewable energy resources. The bicycle is an important transportation vehicle with the potential to provide significant benefits to the community through its use. Some benefits of reduced reliance upon the automobile are:

- Reduced air pollution
- Reduced traffic congestion
- Reduced need for additional roads, travel lanes and automobile parking
- Reduced consumption of petroleum resources

The City of Corvallis last completed a comprehensive update of its Transportation Plan in 1983. The 1983 Transportation Plan, which contained some provision for bicycles, was never formally adopted. In June 1990, the City of Corvallis adopted a Trails Master Plan, which included some provisions for bicycles. The focus of the Trails Master Plan was to provide multi-use trails to link the City, park lands, and other recreational public properties. The Trails Master Plan addressed important issues relating to a trails network and bikes but did not address other important bike issues related to the bicycle as a transportation vehicle.

Corvallis has the largest percentage (8 percent) in Oregon of commuters who bike to work. The 1995 City of Corvallis Citizen's Attitude Survey revealed that 61.8 percent of city residents used Corvallis' bike lanes over the course of the year, and 89.6 percent considered them "good" or "excellent".³³ Bicycle use has steadily increased in Corvallis. Population growth has been a factor in this increase; however, a more significant factor has been the provision of safe and direct bicycle routes. The continued provision of good bicycle facilities will result in further increases in the use of bicycles for transportation. Corvallis currently enjoys a well-developed bikeway system with bike

³³ City of Corvallis 1995 Citizen's Attitude Survey, City of Corvallis, 1995

lanes on many of the arterial and collector streets within Corvallis; yet, there are important arterial and collector streets that do not have bike lane provisions and there is a need to address safety and capacity on parts of the existing system.

4.30.10 TYPES OF BICYCLE TRAVEL

Bicycle facilities should be planned and designed for a wide range of bicyclists. Bicyclists differ widely in their abilities and in their preferences regarding a riding environment. Some bicyclists place high importance on directness of route and have the ability to ride safely and confidently in heavy traffic on arterials. Other bicyclists place more importance on the quality of the actual trip and are willing to go out of their way to ride on less traveled residential streets or multi-use paths. It is not prudent to plan or design bicycle facilities primarily or exclusively around the needs of bicyclists at either end of this spectrum.

Bicycling falls into five general categories:

- Commuting/utility
- Recreational
- Touring
- Racing
- Off-road riding

Of these, the first two are of primary importance to Corvallis, since they represent nearly all the bicycle use within the city.

Commuting/utility riders are those who regularly travel to and from a specific destination to purchase or transport goods and services or for work or school. Those bicyclists making destination-oriented trips desire to travel the most direct route with the least amount of delay, just as automobile drivers do. This results in the desire and need to travel the same routes that have been constructed to provide automobiles with the most direct and efficient routes. These routes are primarily the arterial and collector streets. Traffic and safety concerns on some arterials can discourage less experienced riders from certain routes. Although sometimes less direct, separated paths are important components of the commuter system where there is access control. West Philomath Boulevard and Walnut Boulevard are examples of this.

Recreational cyclists are those riding for the pleasure of the ride and the scenic beauty that may be found. These riders are more concerned with routes that provide a high degree of serenity and scenic beauty. They may or may not have a destination in mind or care about the directness of the route they take. Off-road mountain bicycling has become a very popular recreational activity.

Although recreational bicycling is important, it is the commuting/utility use that offers the greatest potential for reducing reliance on the automobile and providing relief from the problems associated with increasing use of the automobile.

4.30.20 BIKEWAY FACILITIES

There are four different types of bikeway facilities; they are:

- Shared roadway
- Shoulder bikeway
- Bike lane
- Multi-use path

A **shared roadway** facility is a bikeway where motorists and cyclists occupy the same roadway area and is best used where there is minimal motor-vehicle travel. These should be located on local streets only.

Shoulder bikeways are wide shoulders that are adequate to accommodate bicycles but are not marked specifically as bike lanes. These are common in rural areas where automobile and bicycle traffic volumes are low and interaction between automobiles and bicycles is minimal, making expenditures for pavement legends and signing for bicycles less justifiable.

Bike lanes are one-way travel lanes for bicycles marked with eight inch wide white lines stencils indicating preferential use by bicycles. No parking is allowed in bike lanes except in emergencies.

Multi-use paths are entirely separated from the roadway and are used by pedestrians, roller bladers, joggers, and cyclists. They are often constructed for situations too hazardous for shared auto/bicycle travel or for their scenic and recreational value. Multi-use paths function best where motor vehicle crossings can be eliminated or minimized.

Corvallis has a well-developed city-wide bikeway system consisting primarily of bike lanes, multi-use paths, and shared roadways (see Figure A-3 Bikeway System Routes in Appendix A). The on-street bikeways provide opportunities to use bicycles as a means of transportation within the City, and to link the urban core to the trails network system. In an effort to implement and maintain the existing bikeway system, City policy requires on-street bikeway facilities to be considered with all major street improvements.

There are currently 49 miles of on-street bike lanes in Corvallis, over 95 percent of which are located on arterial or collector streets. Corvallis maintains all of its paved streets with regular cleaning and overlays or reconstructs pavements as conditions require. As a result, all on-street bike lanes are in fair to excellent condition. Bike lanes in Corvallis, with few exceptions, have been well designed and function safely. Corvallis has recently added on-street bicycle connections to south and east Corvallis through the completion of the State projects, Phase I Corvallis Bypass and widening of South 3rd Street. Eight miles of separated multi-use paths currently serve Corvallis. These include Campus Way multi-use path, Walnut Boulevard/53rd Street multi-use path, Philomath Boulevard multi-use path, and the Riverfront multi-use path.

The Campus Way multi-use path runs from 35th Street to 53rd Street. This multi-use path passes through Oregon State University farm lands and is unique in that the historic Irish Bend Covered Bridge provides the crossing over Oak Creek. The bridge was salvaged, moved, and reconstructed in its original form during the summer of 1990.

The Walnut Boulevard/53rd Street multi-use path serves both recreation and transportation needs as it links southwest and northwest Corvallis. This path provides access to Walnut, Sunset, and Starker Arts Parks, as well as access to the Oregon State University horse stables and facilities located west of Walnut Boulevard.

Philomath Boulevard multi-use path is a scenic multi-use path connecting Philomath and Corvallis and provides for both transportation and recreation.

The Riverfront multi-use path travels the west bank of the Willamette River from "B" Street to Tyler Avenue and also provides for scenic recreation and transportation.

These separated multi-use paths are generally well maintained and in good condition. Except for a few locations of poor sight distance along the Philomath Boulevard and Riverfront multi-use paths, these separated multi-use paths are well designed and function safely. These paths are used moderately heavily by pedestrians and bicyclists. The paths range from 8 to 10 ft in width and will need widening in the future to accommodate heavier multi-use and to meet design standards discussed in this document.

A map of the current bikeway system in Corvallis is shown on Figure A-3 (see Appendix A), Corvallis Area Bikeways, 1992.

4.30.30 BIKEWAY TRENDS

In the past, the philosophy of bicycle transportation was to provide paths separated from automobile traffic. Experience soon showed that many bicyclists were commuters and preferred the more direct routes over arterial and collector streets unless direct separated multi-use paths existed. It also became clear that separated bicycle paths were significantly more expensive than on-street bike lanes.

Today the cycling trend is to "share the road." This philosophy promotes the integration of motorists and cyclists by improving existing roadway systems to accommodate bicycles. Bicyclists share the roadway along with general motor vehicle traffic. The emphasis for bicycle transportation is now on bike lanes for safety, directness of route, least delay, and economy. Automobile drivers must be reminded that they need to share the road. On street bike lanes communicate to motorist and bicyclist alike where the appropriate place to travel is. Traffic and safety concerns on some arterials can discourage less experienced riders from certain routes. Although sometimes less direct, separated paths are important components of the commuter system, especially along highways where there is access management.

4.30.40 CURRENT BIKEWAY NEEDS

Although the Corvallis system of bikeways is excellent, specific projects have been identified as needed improvements. The projects shown in Table 4-1 and described below have been prioritized by the Bicycle Advisory Commission according to the following criteria:

SCALE SYSTEMS:	
Tier Priority Scale:	<p>Connect existing bikeways, within the city and county, where use would be high</p> <p>Provide bike lanes on arterial and collector streets where they do not currently exist</p> <p>Provide connections to other modes of transportation such as bus, rail and air</p> <p>Provide direct routes, to minimize travel distances between residential areas and places of work, shopping, business, schools, and recreation</p> <p>Provide routes reasonably free from hazards, particularly from types or levels of automobile traffic that interfere with or discourage bicycle travel</p> <p>Provide routes with high aesthetic, scenic, and recreational value to help connect the community to its park lands</p>
Safety, Enhancement, Link Scale:	<p>Safety improvements are critical.</p> <p>System Enhancements are required.</p> <p>Linking bikeways improves conditions.</p>
Numerical Priority Scale:	<p>Subjective order of importance.</p>

Table 4-1: BICYCLE PROJECTS PRIORITY LISTING

Project	Tier Priority	Priority	Safety Enhancement Link
14/15 Streets, Jefferson to Monroe Avenues	A	1	S
Kings Boulevard, Monroe to Buchanan Avenues	A	2	SL
3rd Street, Downtown Bikelanes	A	3	SL
4th Street , Downtown Bikelanes	A	4	SL
Harrison Boulevard, Kings Boulevard to 29th Street	A	5	SL
Harrison Boulevard, 29th to 35th Streets	A	5	SL
Harrison Boulevard, 35th to 53rd Streets	A	5	SL
35th Street, Highway. 20/34 to Harrison Boulevard	A	6	SEL
Circle Boulevard Pedestrian Crossing	A	7	SEL
Railroad Crossings Improvements	A	8	S
26th/Brooklane Drive Highway. Crossing	A	9	SE
West Hills Road, Western Boulevard to 53rd Street	A	10	SE
Bike Parking - Covered Downtown	A	11	E
Bike Parking- Monroe Covered	A	11	E
Bike Parking - Downtown upgrade	A	11	E
Bike Parking - Other Commercial	A	11	E
Site Obstruction Under 3rd Street	A	12	S
Circle Boulevard ROW, Witham Hill Drive to Harrison Boulevard	A	13	EL
Circle Boulevard, Harrison Boulevard to Campus Way	A	13	EL
Buchanan Avenue to Circle Boulevard Path	A	14	EL
Riverfront Path Widening	A	15	SE
14th Street, Monroe Avenue to Harrison Boulevard	B	16	EL
Porter Park Path	B	17	EL
Grant Avenue, Highland Boulevard to 9th Street	B	18	L
Garfield Avenue, Highland Boulevard to 9th Street	B	19	L
Downtown Transit Mall	B	20	E
Madison Avenue, 6th to 14th Streets	B	21	E
Crystal Lake Drive, Alexander to Park Avenues	B	22	E
Alexander Avenue, Crystal Lake Drive to 3rd Street	B	23	EL
Park Avenue, Crystal Lake Drive to 3rd Street	B	24	EL
Riverfront to Van Buren Bridge Connection	C	25	L
Path, Crystal Lake Drive to Willamette Park	C	26	E
Path, Chapman Street to Willamette Park	C	27	E
Witham Hill Drive, Canary Street to Walnut Drive	C	28	E
Path, Goodnight Avenue to Avery Avenue	C	29	SE
Riverfront Path Extension, North	C	30	E
Walnut Boulevard Extension	C	31	E
Path, Circle Boulevard to Conifer Drive	C	32	EL

a. Bicycle Facility Project Descriptions

1) 14th/15th Street: Monroe to Jefferson Way

This section is currently 34 feet wide. two options for providing bike lanes are: 1) eliminate parking and restripe for two 11-ft travel lanes and two 6-ft bike lanes at an estimated cost of \$10,000; or 2) widen 6 ft and restripe for two 10-ft travel lanes, two 6-ft bike lanes and 1 - 8-ft parking lane at an estimated cost of \$60,000. In either case, storm drains on the east side would need to be reconstructed to provide a smoother ride across them.

2) Kings Boulevard: Monroe Avenue to Buchanan Avenue

A corridor study was completed in June, 1995 that developed alternatives and cost estimates for providing bicycle facilities along this arterial. The City Council adopted this study with minor modifications to the recommended alternative.

3) 3rd Street

4) 4th Street

Bike lanes on 3rd and 4th Streets would provide a direct north-south arterial route to and through downtown Corvallis-a critical element in a successful bicycle network. Although this is a high priority need, there are difficulties with its completion. Widening of streets to provide bike lanes is not possible in virtually all locations due to existing development. Removal of parking to provide bike lanes could cause difficulties for downtown merchants, since limited parking is already viewed as a problem in the area. Alternatives to parking removal are to designate one of the lanes for shared use with bikes or to improve auto speed control from Western to Harrison. The possibility of dropping one traffic lane may also be a reasonable alternative with the ultimate completion of the northern section of the Corvallis Bypass; however, ODOT will have to make the final determination. Use of 2nd and/or 5th Street for this north-south segment, may also prove reasonable. A thorough traffic study is necessary to determine the best possible option.

5) Harrison Boulevard

a) Harrison Boulevard: Kings to 29th

Current width is 42 feet with two travel lanes, two-way traffic, and parking on both sides. To provide for bike lanes, parking on the north side must be removed along the entire length. Restripe for either two 10-ft travel lanes, one 10-ft left-turn bay and two 6-ft bike lanes; or, one 8-ft parking lane, two 11-ft travel lanes and two 6-ft bike lanes. Estimated cost is \$20,000.

b) Harrison Boulevard: 29th to 35th

Current width is 25 feet. To provide bike lanes through this section, Harrison Boulevard could be widened 10 ft within existing right-of-way on the south side. Additional width for left-turn bays at

29th and 35th could be obtained by limited widening near the intersections on the north side. The widening on the south side would remove the planting strip and ten trees. The mature trees on the north side of the street would remain and Harrison Boulevard would retain some of its beauty and setting. A strategy for addressing the many needs of the Harrison Boulevard corridor will be developed through an Existing Route Corridor Study to be initiated in FY 1995-96. A more extensive discussion of the entire Harrison corridor from 29th to 36th Streets may be found in Chapter 10.

The widened street would provide two 10-ft travel, two 5-ft bike lanes and left-turn bays at 29th and 35th. Before undertaking this or any street reconstruction project along this section, an arborist should be consulted to insure against major root damage to the mature trees on the north side. **This project is not recommended unless there is local neighborhood and community support.** The estimated cost for the bike lanes only is \$140,000.

The above two sections of Harrison present a number of problems. Harrison Boulevard is the only centrally-located east-west arterial in Corvallis. Residential development and the mature trees along this route may limit expansion of this street in either its bicycle or automobile function.

c) Harrison Boulevard: 35th to 53rd

Current right-of-way is 60 feet and pavement width is 22 feet. To provide bike lanes, requires relocation of ditches and fences and addition of 6 feet of pavement on each side within the existing right-of-way. Most of this segment is a County road, and this project would need to be a shared effort between the Corvallis and Benton County. This project includes the **Circle Boulevard Multipurpose Commuter Route**. ISTEA Enhancement funding is proposed in the current four year State Transportation Improvement Program. Estimated cost is \$495,000.

6) 35th Street: Highway 20/34 to Harrison Boulevard

Providing bike lanes on this section will require widening 35th Street. The addition of bike lanes would best be accomplished in conjunction with 35th Street reconstruction and widening. Installing bike lanes without street reconstruction would be a temporary measure and entirely redone when the street is ultimately widened. The estimated cost for installing bike lanes before street reconstruction is \$1.1 million. Funds of this magnitude would be better utilized as part of the funding for street reconstruction and widening.

7) Circle Boulevard Pedestrian crossing

Installation of a pedestrian refuge island between 9th Street and Highland Boulevard to allow easier crossing of Circle Boulevard in its most heavily traveled segment.

8) Bicycle/Pedestrian Railroad Crossing Improvements

Eleven crossings have been evaluated and found deficient for aesthetics, safety, and effectiveness. The majority are in the downtown or university areas. These include:

SE Avery at SE Allen	SW Western at SW 6th street
SW Western at SW 7th Street	SW 15th Street at SW Washington
SW Jefferson at SW 6th Street	NW Monroe at NW 6th Street
NW Van Buren at NW 6thStreet	NW Harrison at 6th Street
NE Conifer Boulevard at Highway 99	
NE Conifer Boulevard at Cheldelin Middle School	
NW Buchanan Avenue between 5th and 9th Streets	

The preferred solution among City staff is installation of rubberized crossings. The railroad operator is responsible for improvements within two feet of each rail, but rubberized crossings would likely require outside funding.

9) 26th Street Brooklane Drive Highway Crossing

Presently, bicycle and pedestrian crossings of US20/ORE34 in this location is difficult and dangerous due to traffic speed and roadway alignment. Realignment of 26th/Brooklane would be a first step to a solution. Further study should determine if a separated bike/ped crossing facility is warranted.

10) West Hills Road: 53rd to Western

Right-of-way currently exists to provide bike lanes. Ditches and fences need to be relocated and the road needs to be widened 12 ft to accommodate two 6-ft bike lanes. Estimated cost is \$400,000. Although this segment is within the City, it is currently maintained by Benton County, and the project should be done as a joint effort. A corridor study identifying the precise multi-modal needs of this corridor is being initiated in FY 1995-96.

11) Yearly Program to Upgrade Bicycle Parking in Corvallis to the new Land Development Code standards

Strong community support has been shown for upgrading bicycle parking, including provision of covered parking, on Monroe Avenue, in downtown Corvallis, and at other commercial locations.

12) Removal of sight obstruction on the multi-use path under the 3rd Street Bridge near Marys River

An interim fix for this problem was completed in the summer of 1994. The ultimate solution will be accomplished during the ODOT work to rehabilitate the Bridge scheduled for Federal Fiscal Year 1998.

**13) Path - Witham Hill Drive to Harrison Boulevard
Harrison Boulevard to Campus Way**

The route following the Circle Boulevard right-of-way would provide a pedestrian/bicycle connection from the intersection of Witham Hill Drive and Circle Boulevard to Harrison Boulevard to the south. The route would connect to the enhanced bike facilities on Harrison, which are included in this project in a current ISTEA funding request.

South of Harrison Boulevard, a separated multi-use path would provide direct access to the University through a connection to the Campus Way multi-use path. The University and adjacent neighborhood have raised concerns that such a path may be intended as a precursor to a roadway and that the path may be disruptive to existing agricultural activities. A process has been initiated to resolve such concerns.

14) Separated path following the Southern Pacific Railroad from Buchanan to Circle

This path is estimated to cost \$407,000. ISTEA Enhancement Funding has been offered for this project (80 percent). The project is in design in Spring, 1996.

15) Riverfront multi-use path widening

This segment is currently too narrow to carry the high volume of shared usage on the path. Sections of this path are only 6 feet wide; the path should ideally be 12 feet wide. Widening of this path should be a part of riverfront development. Path widening alone is estimated at \$205,000. The project is included in the FY1996-01 Capital Improvement Program with an 80 percent funding offer through the ISTEA program.

16) 14th Street, Monroe Avenue to Harrison Boulevard

The completion of bike lanes on 14th/15th from Jefferson to Monroe will result in a missing link for bicycle travel on 14th between Monroe and Harrison. Although this segment is not a collector, bike traffic destined for OSU will benefit from completion of bike lanes along this section of 14th.

17) A separated path from Garfield Avenue to 17th Street along east border of Porter Park

This list includes those improvements needed to facilitate bicycle travel in developed areas required in section 660-12-020(2)(d) of the State Transportation Planning Rule 12.

18) Grant Avenue: Highland to 9th Street

This work will complete the bike lanes on Grant Avenue that currently run from Highland to Witham Hill. The current street width is 40 feet. Parking should be eliminated on the north side of the street. For 250 feet near the intersection with 9th Street, parking should be eliminated on both sides. This will allow restriping to provide for one 8-ft parking lane on the south side, two 10-ft travel lanes and

two 6-ft bike lanes for most of the street. For the 250 feet near the intersection with 9th Street, there would be two 10-ft travel lanes, one 10-ft left turn lane and two 5-ft bike lanes. Estimated cost is \$2,500.

19) Garfield Avenue: Highland to 9th

To complete the bike lanes on Garfield Avenue that currently run from Highland to 29th, parking could be eliminated on the north side of the street, although this may prove unpalatable to the neighborhood. Since parking is already eliminated on both sides near the intersection with 9th Street, this would allow restriping to provide for one 8-ft parking lane on the south side, two 10.7-ft travel lanes and two 6-ft bike lanes. Near the intersection with 9th Street, there would be two 10-ft travel lanes, one 10-ft left turn lane and two 6-ft bike lanes. Estimated cost is \$4,500. A final solution for meeting this need will come from a public process involving the neighborhood.

20) Downtown Pedestrian/Bicycle/Transit Mall (5th Street between Madison and Jefferson Avenues)

This facility would serve as an intermodal center for downtown Corvallis and the surrounding area. It would link bicycle routes to the downtown area with the pedestrian way formed by Madison Avenue and facilitate access to transit services. Cost is approximately \$105,000. An ISTE grant has been accepted by the City Council, and the project is in a preliminary design phase.

21) Madison Avenue: 6th Street to 14th Street

Madison Avenue is an important link in the bikeway system. It links Downtown Corvallis to the University, West Corvallis, Benton County Fair Grounds and Philomath via Campus Way, Campus Way multi-use path and Benton County bike ways along 53rd Street and on Reservoir Road. Madison Avenue is heavily used by bicyclists and pedestrians, especially along the south side of Central Park.

Madison Avenue's opposing one-way street configurations, changes in width, diagonal parking, and discontinuity at the arts plaza create special difficulties and some hazards for bicyclists and pedestrians. As a result, bicyclists are not truly accommodated and legally should walk their bikes along the south side of Central Park.

Sidewalk multi-use paths are not normally recommended, but for this corridor, a sidewalk multi-use path would fit best within the many constraints. The use of a sidewalk multi-use path here will require that special attention be given to provide adequate traffic control, sight distance and signage at driveways and intersections. In addition, the following is recommended:

Widen the sidewalk on the north side of Madison and Campus Way to 12 feet from 6th to 8th Streets and 9th to 14th Streets. From 8th to 9th Streets, the sidewalk will only be able to be widened to 10 feet without destroying trees in the park strip.

Bicyclists will still want to use the street for the east-bound direction since the one-way sections flow east from 14th to 150 ft east of 8th Street. An east-bound bike lane should be striped between 9th and 150 ft east of 8th (west side of the arts plaza) after the sidewalk widening described above is completed. At the west side of the arts plaza two options are possible. Option 1 is to turn the east-bound bike lane to the left and connect it with the 12-ft-wide sidewalk described above. Option 2 is to change the direction of travel on Madison between 6th and 7th from one-way west to one-way east. The parking would be moved to the north side of Madison. The east-bound bike lane would then continue in a straight alignment across the arts plaza and back on Madison to 6th Street. Option 2 would bisect the arts plaza with the bike lane and signage would be needed to require bicycles to yield to pedestrians.

The widened sidewalk and the east-bound bike lane (with option 1 or 2) are recommended to be completed together. A cost estimate for these improvements has not been developed.

22) Crystal Lake Drive: Alexander to Park

This section is currently 20 feet wide. Widening for bike lanes requires 10 feet of right-of-way, and 28 parcels would be affected. Ditches would be relocated and the pavement would be widened 12 feet at an estimated cost of \$440,000. This cost does not include curbs, gutter, or on-street parking. A corridor study to identify the precise multi-modal needs in the Crystal Lake Drive corridor is being initiated in FY 1995-96.

23) Alexander Avenue: Crystal Lake to Highway 99W

The current width is 34 feet with sidewalks on each side. To provide bike lanes, parking would have to be eliminated or the street widened. Parking could be eliminated on one side only, and the street widened 6 feet within current right-of-way to provide two 10-ft travel lanes, one 8-ft parking lane and two 6-ft bike lanes. The cost of widening 8 feet is estimated to be \$170,000. This street currently functions well as a shared roadway. It is recommended that this section remain as a shared roadway until traffic volumes warrant bike lanes.

24) Park Avenue: Crystal Lake to Highway 99W

The current width is 34 feet with sidewalks on each side. To provide bike lanes, parking would have to be eliminated or the street widened. Current right-of-way is 40 feet, and street widening would require new right-of-way. An alternate to Park would be Goodnight Avenue, where the width is 34 feet, and the right-of-way is 70 feet. Widening for bike lanes without the need for new right-of-way is estimated at \$270,000. Park Avenue currently functions well as a shared roadway. It is recommended that this section remain a shared roadway until traffic volumes warrant bike lanes.

25) Connect Riverfront multi-use path to Van Buren Street Bridge

The Van Buren Street bridge is scheduled for future replacement. The bridge replacement will include adequate connections to sidewalks and to the Riverfront multi-use path as required by State transportation directives.

26) Separated path that follows the Willamette River from Crystal Lake Drive near Vera Avenue to Willamette Park

This path is estimated to cost \$950,000 and would require right-of-way acquisition.

27) A separated path from Chapman Place to the confluence of the Marys and Willamette rivers, continuing south along the Willamette river, and tying in with the multi-use path along the Willamette that would lead to Willamette Park.

This path is estimated to cost \$390,000 and would require right-of-way acquisition.

28) Witham Hill: near Canary Street to Walnut Boulevard

The current width is 28 feet. Widening this section would require a retaining wall on the east side of Witham Hill. Widening 8 feet would provide two 12-ft travel lanes and two 6-ft bike lanes. 12-ft travel lanes are recommended to provide additional width due to the drop-off on the east side. The retaining wall would be supported by piles. The estimated cost is \$580,000.

29) Path, Goodnight to Avery Avenues /Goodnight to Airport Road

North/south bike traffic from the area of south Corvallis, west of South 3rd. has only the bike lanes on South 3rd for connection to the rest of the community. These lanes may be intimidating to inexperienced riders due to heavy traffic volumes. A path from Goodnight north to Avery along the east side of the railroad tracks and from Goodnight south to Airport Avenue would provide an alternate route for both bikes and pedestrians.

30) Riverfront Path Extension, North

This improvement would provide a multi-use path along the Willamette River between Tyler and 2nd Street at approximately Rennie Place.

31) Walnut Boulevard: Extension from near Belvue to Circle

Street construction over this section would include 6-ft bike lanes. The estimated portion of Walnut extension attributed to bike lanes is \$230,000.

32) Path, Circle Boulevard to Conifer Boulevard

This addition to the system would consist of a multi-use path following the east side of the railroad tracks connecting Circle Boulevard and Conifer Boulevard. Currently bike traffic can use Conser Street to complete the same route. The future extension of Walnut Blvd may make the use of Conser more difficult for bicycles.

33) An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard

In the street network downtown between Van Buren Avenue and Western Boulevard currently and 2nd and 5th Streets has no identified East/West bikeways. Due to stop sign control, traffic speed in the area is slow, but these streets have diagonal auto parking on both sides, which can create hazards for cyclists. Opportunities for creation of at least one eastbound and one westbound bicycle route in this area should be pursued. Options include changing parking to parallel on one side of a street, or restriping with other street markings or signing to facilitate a safer cycling environment.

4.30.50 BICYCLE PARKING NEEDS

Bicycle use, particularly commuter use, is greatly influenced by availability of bicycle parking. Bicyclists need safe, well-lighted, dry, and convenient storage for their bicycles after arriving at their destination. Automobile drivers can imagine avoiding places where they had to park a convertible with the top down and the keys in the ignition, out in the rain and an inconvenient distance away from their destination. This is how bicyclists feel when they must park in inconvenient places, often with nothing secure to lock their bikes to, making their bikes easy prey for thieves.

Safe parking has two important requirements. First, it should be near building entrances or other well-lighted areas of high activity in plain view of people who could notice and report attempted thefts. Bike parking near building entrances provides safety, convenience, and gives a preferential treatment to bicycles. This preferential treatment has the potential to increase bike use and is recommended wherever possible.

Second, a bicyclist should be able to lock the bicycle's frame and front tire to some immovable fixture. The type of fixture or bike rack provided should not have a potential for damaging the bicycle and should accommodate the long U-bolt lockset that cannot be cut with bolt cutters.

Bicycle parking should also be covered. A parking cover provides a degree of comfort to the bicyclist (a dry place for mounting and dismounting the bike), and helps to protect the bike by limiting its exposure to the elements.

Areas within Corvallis that would most benefit from additional bicycle parking are as follows:

- Public buildings
- Timber Hill Shopping Center

- The elementary, middle, and high schools of District 509J
- Oregon State University
- Commercial developments and Shopping Centers along:
 - 9th Street
 - Kings Boulevard
 - Circle Boulevard
 - Monroe Avenue
 - South 3rd Street
 - Walnut Boulevard
- Downtown businesses
- Other large employers such as:
 - Hewlett Packard
 - Evanite
 - CH2M HILL
 - Governmental agencies
- Parks and other recreational centers
- Medical facilities, including Good Samaritan Hospital and Corvallis Clinic
- All new developments and businesses of significant size

Hewlett-Packard and Oregon State University are currently leaders in providing bicycle parking and could serve as models to others.

Several new policies aimed at increasing the locations and numbers of bicycle parking facilities are listed in the **Policies** section of this Bicycle Plan. In addition, the Land Development Code has been amended to provide bicycle parking in new developments as required by Transportation Planning Rule 12.

Currently, additional bicycle parking is needed on Monroe Avenue. The lack of ample bicycle parking has bicyclists riding short distances on the sidewalk and parking on the sidewalk in front of their destinations where they can watch their bikes and prevent them from being stolen. Bicyclists on the sidewalk create a hazard to pedestrians. Sidewalk widths are narrow on portions of the south side of the street. The City has recently developed a Monroe Avenue Bicycle Parking and Pedestrian Plan that addresses these issues in a comprehensive manner incorporating suggestions from all affected parties. Further efforts are underway to provide bicycle and pedestrian amenities in the corridor consistent with the desires of the effected parties.

This plan recommends that the City promote bicycle parking and help provide bicycle parking where appropriate. It is also recommended that the City investigate the feasibility of providing incentives to encourage work places to provide bicycle parking and shower facilities.

4.40 FUTURE CONDITIONS: FUTURE BIKEWAY FACILITY NEEDS

Future system needs are those that can be expected to help develop and promote bicycle transportation in areas within the urban growth boundary as those areas more fully develop.

As Corvallis grows in population and expands into the urban growth boundary, a system of collector and arterial streets will be needed to provide adequate transportation to these areas. To meet the future needs for bicyclists, bike lanes are proposed for all the future collector and arterial streets and state highways identified in the Auto Traffic and Circulation Plan. These routes are shown on Figure A-1, Functional Classification System (see Appendix A).

Those routes identified in the Corvallis Trails Plan for bicycles (Figure A-4 Trails Master Plan in Appendix A) are also adopted by reference here to meet future needs of bicyclists. Two particularly significant routes identified by the Parks and Recreation Department are:

- A separated path that connects the 53rd Street multi-use path with Bald Hill Park through a recently acquired 30-ft easement. This path would connect as close as possible to the Campus Way Bike, 53rd Street multi-use path connection.
- A separated path on the east side of Willamette River that will travel through Alan Berg Park and will connect with the new Van Buren Street bridge and with the possible relocation of the existing Van Buren Street bridge. The city is currently working to have the existing Van Buren Street Bridge preserved for use as a pedestrian and bicycle bridge when it is replaced with a new bridge.

Future crossings of the Willamette and Marys Rivers shall include provisions for bicycles.

The combination of future collector and arterial streets, the Corvallis Trails Plan, and the bikeways required by the newly adopted Land Development Code will meet the future needs of Corvallis Bicyclists.

As noted in the Auto Traffic and Circulation Plan under future development, highly detailed transportation and access plans that firmly fix the right-of-way locations of future arterial and collector streets for each developing sector within the urban growth boundary of the City are needed. These plans should be coordinated with and adopted by the City, State, and County. These plans should be used to require dedication of right of way with land partitions and street construction with subdivisions.

4.50 SYSTEM ISSUES

4.50.10 DESIGN STANDARDS

Design standards based on experience and engineering principles provide consistent guidelines for designing safe and efficient bicycle facilities. Corvallis uses two nationally recognized standards for most design issues:

- The American Association of State Highway and Transportation Officials, (AASHTO), "Guide for the Development of Bicycle Facilities 1991" as modified by design criteria from the Oregon Bicycle and Pedestrian Plan

- Manual On Uniform Traffic Control Devices, as supplemented by the Oregon Transportation Commission

Designs standards in the July 19, 1993, Corvallis Land Development Code are consistent with the recommendations in these documents.

a. Beneficial Design Practices

Paved driveways prevent gravel from being carried onto the bikeway, averting a significant hazard. They should be paved at least 15 feet back from the edge of the paved roadway to be effective.

Concrete shoulder barriers, 31 inches high, are superior to other separators when a multi-use path needs to be separated from a motor-vehicle travel lane. They offer significant safety and help prevent litter from building up on the multi-use path. These separators are generally used in highway/freeway situations.

Sidewalk ramps on major bridge crossings are a great help to cyclists if bridge sidewalks are of adequate width for safe bicycle use. They should be provided where the traffic lanes or shoulders on the bridge are narrow. Where bicyclists use bridge sidewalks, the sidewalk railing should be a minimum 4.5 feet high.

Right-turn-only lanes should be established to the right of through bike lanes. Where on-street parking exists with a bike lane adjacent to lefeet side of the parking lane, there is potential for motorist confusion over right-turn lane use. Typically, parking is restricted near intersections, there is only one bike lane stripe on the lefeet edge of the bike lane, and the parking strip width plus bike lane width appears as a motor vehicle right turn lane. The motorist may be confused as to where to position to make a right turn. In these situations, if an adequate turning radius is available, a minimum 4 foot through bike lane with a right turn only motor vehicle lane to the right of the through bike lane may be established. The City should pursue restriping and restricting parking at all intersection locations where a right-turn lane for autos could be established.

Stopping sight distance should always be provided. A collision hazard exists on two-way and multi-use paths where sight distance is limited. Limited sight distance can occur at curves, hills, and under crossings of bridges. Removing the sight obstruction or realigning the path to obtain adequate sight distance are the best solutions. When obtaining adequate sight distance is impossible, signs declaring "Keep Right" or "Narrow Bike Lane; Ride Single File" and a solid yellow dividing stripe should be used on both approaches to the sight obstruction.

Adequate path width for the level of use should always be provided. A collision hazard exists where a multi-use path is narrow and subject to high use by pedestrians and bicyclists. Widening the path to accommodate intense multiple use is the best solution. Where this is not possible, signs declaring "Bicyclists This Is A Multi-Use Path Reduce Speed Watch For Pedestrians", "Narrow Bike Lane, Ride Single File", or "Bikes Yield to Pedestrians" should be installed. The city should pursue restricting bicyclists from sidewalks in any area where there is high pedestrian use and where bike

lanes or paths exist. Bicyclists are currently restricted only from downtown and Monroe Avenue (between 14th Street and Arnold Way) sidewalks.

Special attention should be given to safe bicycle routing through or around construction zones.

b. Practices To Avoid

Sidewalk multi-use paths should be avoided. Sidewalks are generally unsafe because they put the cyclist in conflict with pedestrians and motorists using driveways. A cyclist on a sidewalk is generally not visible nor noticed by a motorist, so that the cyclist suddenly emerges at intersections or driveways, creating a hazardous condition. Cyclists are safer when they are allowed to function as roadway vehicle operators, rather than as pedestrians.

Right-turn-only lanes should not be placed to the left of through bike lanes. Doing so forces motor vehicles and bicycles to cross paths in the immediate vicinity of the intersection. Striping and signing that provide unforced crossings in advance of the intersection allow safer merging maneuvers.

Extruded curbs are dangerous when used to separate motor vehicles from cyclists. Either may hit the curb and lose control. The motor vehicle may jump onto the multi-use path or the bicyclist may fall into the roadway. Such curbs also make bikeways difficult to maintain and tend to collect debris. For these reasons, extruded curbs should not be used.

Two-way, on-street bike lane on one side of the road is dangerous and should never be used.

Pavement reflectors or other raised markings are a hazard to cyclists because they can deflect a wheel, causing the cyclist to steer into the motor vehicle lane. If needed for motorists, reflectors should be installed on the motorists' side of the bike lane strip and have a beveled edge.

Continuous curb and gutter installations can place the seam between the asphalt and the concrete gutter at the center of the bike lane. Designers should evaluate such concerns for installations on streets that will include bike lanes.

c. Design Criteria

Shared roadways should be used for local streets only.

Shoulder bikeways are most desirable when 6 feet wide; however, the minimum width is 4 feet. Where speeds are 45 mph or greater, and the traffic flow contains large trucks and buses, an 8-ft width is desirable. Shoulders a minimum of 5 feet wide are required from the face of a guardrail or other roadside barrier.³⁴

³⁴ AASHTO Guide For The Development Of Bicycle Facilities, August 1991

Bike lanes are most desirable when 6 feet wide; however, the minimum width is 4 feet between automobile travel lanes and 5 feet from the face of a curb or guardrail. If parking is permitted, the bike lane must be placed between the parking area and the travel lane and have a minimum width of 5 feet.³⁵ Bike lanes should always be marked with pavement stencils and an 8-inch-wide stripe.

Bike lanes must always be one-way facilities and carry bicycle traffic in the same direction as adjacent motor vehicle traffic. Bike lanes on one-way streets should be on the right side of the roadway, except in areas where a bike lane on the left will decrease the number of conflicts such as those created by heavy bus traffic or dual right-turn lanes.

Multi-use paths should be designed with a minimum of at-grade crossings with streets and driveways. Two-way multi-use paths should not be placed on or adjacent to roadways. There should be a minimum separation of 5 feet between two-way multi-use paths and roadways, or there should be a physical barrier. Ten feet is the standard width for a two-way multi-use path. Multi-use paths should be 12 feet wide in areas with high bicycle volumes or multiple use by bicyclists, pedestrians, and joggers. Multi-use paths 8 feet wide should only be used where long-term usage is expected to be low, where there is minimum pedestrian use, and with proper alignment, to insure adequate sight distance. A 2-ft minimum "shy" distance (buffer area) should be provided on each side of the multi-use path and overhead obstructions should not be lower than a minimum of 10 feet.

Bicycle/Pedestrian Bridge Structures should have a total bike-path width equal to the approach path plus 2 feet of shy distance on each side. For example, a 10-ft-wide multi-use path requires a 14-ft-wide structure.

Fences or railings along bikeways should be a minimum of 4.5 feet high to prevent a cyclist from falling over the edge of the railing or fence. Openings must not exceed 6 inches in width. Where concrete shoulder barriers are used, some type of extension on top of the barrier may be necessary to achieve the required height.

At-grade railroad crossings deserve special care. The open flange area between the rail and the roadway surface can pose a serious hazard to cyclists, since it can catch a bicycle tire, causing the rider to be thrown off the bicycle. This risk is minimized when the bikeway crossing is at 90 degrees to the railroad tracks. If there is a skew angle of less than 45 degrees, special attention must be given to the bikeway alignment to improve the angle of the approach.

Another beneficial design consideration is to use a rubberized crossing. This keeps the crossing smooth and the flange depth and width to a minimum. If asphalt is used, it must be maintained in order to prevent a ridge buildup next to the rails. Timber crossings may prove to be smoother in some circumstances, but they commonly decay rapidly.

³⁵ AASHTO Guide For The Development Of Bicycle Facilities, August 1991

Advance warning signs should be installed at all railroad crossings to warn the cyclist of the crossing. All multi-use paths and bike lanes should have pavement stencils to warn cyclists of railroad crossings.

Curb cuts for bicycle access to multi-use paths, sidewalks, and driveways should be designed so the bottom of the curb cut matches the gutter grade without an elevated lip. The bottom width of the curb cut should be the full width of the bikeway when the approaching bikeway is perpendicular to the curb and a minimum of 8 feet wide when the approaching bikeway is parallel and adjacent to the curb.

Bicycle ramps should have a maximum slope of no more than 5 percent.

Barrier posts may be used to limit vehicle traffic on a multi-use path. When used, they must be spaced wide enough for easy passage by cyclists and bicycle trailers.

Drainage grates must be bicycle safe as required by ORS 810.150. A bicycle wheel must not be able to be caught by the drainage gate. Pavement overlays must taper into drainage inlets gradually. If drainage conditions permit, drainage grates should be raised with the overlay.

d. **Signing And Striping**

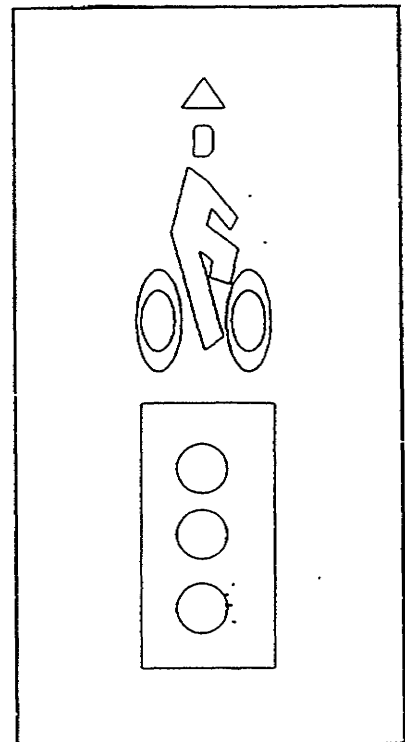
Signing and marking of bikeways must be uniform and consistent if bikeways are to command the respect of the public and provide safety to users. The adopted standard for signing and striping in Corvallis is the **Manual On Uniform Traffic Control Devices**, as supplemented by the Oregon Transportation Commission.

Traffic control devices, whether for motorists or bicyclists, must adhere to five basic requirements to function as intended. They must:

- Fulfill a need
- Command attention
- Convey a clear, simple meaning
- Command respect of road users
- Give adequate time for proper response

The following are additional guidelines for signing and striping in Corvallis.

The **Oregon supplemental traffic sign OBW16-1, keep right**, should be used on two-way multi-use paths in advance of areas with poor sight distance.



A **solid centerline stripe** should be used on two way multi-use paths through areas of poor sight distance.

Corvallis uses a unique **Bicycle Detection Loop Symbol** (shown at right), painted on the bike lane over the bicycle detection loop. This symbol is intended to help bicyclists position bikes in order for the traffic signal controller to sense their presence and activate a green light. A symbol that resembles a bicycle with a rider is used to indicate a bike lane in Corvallis.

4.50.20 STATE TRANSPORTATION PLANNING RULE 12

State Transportation Planning Rule 12 was adopted to implement Goal 12 of the State's Land Use Goals and Guidelines. Its purpose is to ensure that a well-planned multi-modal transportation system is available to everyone. The rule requires all jurisdictions to develop transportation system plans for roadways, bicycles, and pedestrians. These plans should inventory existing, committed and planned facilities and services, and identify function, type, capacity, and condition. A map of planned transportation facilities must indicate general location and facility parameters such as right-of-way width and improvement standards.

It is the objective of Corvallis through this Transportation Plan and other planning efforts to meet the requirements of State Transportation Planning Rule 12.

4.50.30 BICYCLE SAFETY

Bicycle safety is important to everyone; at one time or another, everybody will encounter bicycles as a bicycle rider, motorist, or pedestrian. Because bicycle riders have very little protection, accidents frequently result in injuries. Injuries are costly to everyone in the form of increased insurance rates or increased medical costs when injured parties are not able to pay. This section touches on several subjects where action can help prevent bicycle accidents.

a. Education

Bicycle safety education for motorists and bicyclists is perhaps the most effective way to increase bicycle safety. By following the rules of the road and being predictable, both motorists and bicyclists know what to expect from each other. Unpredictable movements often result in accidents. Education teaches the rules of the road and encourages safe riding practices such as using lights at night, wearing reflective clothing, keeping a well-maintained bike, and wearing helmets. The following is a list of possible educational tools that the City should support and help to provide.

- Publicize a 24 hour call-in phone number where bicycle safety problems can be reported.
- Promote the use of various media to discuss bicycle safety issues.

- Provide a video series that can be checked out at the library and can run from time to time on the free public television station.
- Work with the State to fund a part-time bicycle coordinator who could devote time to bicycle safety.
- Continue to support and expand the efforts of the City Police Department regarding bicycle safety.
- Work with the State bicycle coordinator to take advantage of State safety programs currently available to cities.
- Work to provide more bicycle safety education in the school system.
- With the assistance of the Citizens Advisory Commission on Bicycles, compile a bicycle handbook for community members.
- Using volunteers, develop and make presentations of a community education campaign regarding alternative modes of transportation.

b. Rules of the Road and Laws

A complete list of Oregon Revised Statutes applicable to bicycles as listed in the Oregon Vehicle Code and a complete list of City ordinances that apply to bicycles are contained in an appendix to this transportation plan.

Bicycle helmets are perhaps the most important piece of safety gear a bicyclist has to protect against injury in an accident. Head injuries are often severe and debilitating. State law currently requires motorcycle riders and bicyclists under 16 years of age to wear helmets. The City should promote the use of bicycle helmets for all bicycle riders.

c. Records

It is recommended that the City develop and maintain accident and volume-count records specific to bicycles. These records should be maintained in a computer database and utilized to identify high use areas, accident rates, accident types, and accident trends. This information will identify ways to improve bicycle safety.

d. Police Department

The Police Department currently has five bicycle-mounted police officers, one for each patrol shift. The Police Department has found that the bicycle lends itself to quiet approaches and better observation, and bicycles make it easier for citizens to access the officers on the street.

The Police Department takes an active roll in bicycle safety by teaching bicycle safety in the schools, and by participating in bicycle rodeos and in the Safety Town program. Bicycle rodeos are citizen-sponsored events that provide education mixed with fun activities to attract a variety of bicyclists. The Safety Town program, a four-week summer program, sponsored by citizens, teaches kindergarten students safety concerning automobiles, city streets, and bicycles. All these efforts are valuable and should be continued.

State accident records indicate that approximately half of the accidents involving bicycles are the bicyclist's fault, and that a majority of these are due to the bicyclist disobeying bicycle laws. Police enforcement of laws pertaining to bicyclists as well as automobile drivers will help to prevent bicycle accidents. Enforcement efforts should be continued at levels that will be noticed by the bicycling community.

e. Bicycle Visibility

Visibility of bicyclists can be enhanced by several means, including bicycle tail and head lights, wheel reflectors, flags, and reflective or bright clothing. Oregon law requires a bicycle headlight and rear reflector in conditions of low visibility.

4.50.40 TRANSPORTATION DEMAND MANAGEMENT

Both the State Transportation Planning Rule and the ISTEA identify Transportation Demand Management (TDM) as an important aspect of transportation planning. TDM is reducing vehicle load on roadways during peak hours. This can be done by increasing the use of alternative modes or by varying times for coming to or leaving work. A well-designed bicycle system can provide TDM opportunities. Employer support is an essential element of this program. TDM is further discussed in the Transportation System Planning section of this transportation plan.

To meet the requirements in the Transportation Planning Rule, Corvallis will need to develop a TDM program by May, 1997. The City is aware of funding opportunities through ODOT for TDM projects. This funding will be pursued where possible by developing programs or projects that benefit the multi-modal system in the Corvallis area.

4.50.50 OREGON STATE UNIVERSITY

As the largest single employer and most frequent destination in Corvallis, Oregon State University (OSU) presents both opportunities and problems for the local transportation system. Problems include increased peak traffic levels accessing OSU in the morning and evening; parking overflow into residential neighborhoods near the University; and the large size of the campus, which creates some obstructions or restrictions to traffic flow.

These problems also reflect some of the opportunities presented by the University for addressing traffic problems. Because of this large number of people accessing the University in the peak traffic hours, opportunities for transportation demand management are significant, and OSU has offered

to participate with the City in developing a demand management program. Currently, the University is updating its Physical Development Plan and its traffic and circulation element. Information obtained from these efforts should be helpful in developing the TDM program.

Although not scientific, a 1993 OSU survey of travel behavior by faculty and staff indicated that 70 to 80 percent of faculty and staff arrive on campus between 7 and 9 a.m. and leave between 4 and 6 p.m.. Sixty-eight percent of this group drives alone to campus. This survey is roughly consistent with figures in the 1983 **Report on Transportation, Circulation and Parking, Oregon State University**. Eighteen percent of the faculty and 30 percent of the students rode their bikes to school. Further enhancement of bicycle facilities (some of which are required by the newly updated Land Development Code) on and through the campus should help maintain or increase these percentages.

The City and OSU must continue working cooperatively to solve transportation problems. Further work on demand management opportunities, including increased support for bicycle system improvements on and through the campus must continue. OSU has been offered ISTEA funding assistance to place bike lanes on 14th/15th Streets from Jefferson to Monroe Avenues and should proceed with this project.

4.50.60 STATE PROJECTS

Oregon highways (99W, US20, US20/OR34, OR34) provide links between Corvallis and the state and nation. Within Corvallis, the state highways are also an integral part of the transportation system for Corvallis. Because the state highway system is such an integral part of the transportation system for Corvallis, it is also an integral part of the bikeway system in Corvallis.

Highway 99W is the primary access to south Corvallis. Highway 99W passes through downtown Corvallis and provides arterial service to north Corvallis. South of Alexander Avenue, there is no opportunity for safe crossing of Highway 99W.

Highway 20/34 is a major east-west arterial in Corvallis. It provides access to Oregon State University, Avery Park and the downtown, and west Corvallis.

Highway 20 is north-south arterial providing access from downtown Corvallis to north area arterials and schools. Highway 20 also provides access to Oregon Passenger Rail service in Albany.

Highway 34 links Corvallis to Peoria Road, Highway 99E and I-5.

Because the state highways within Corvallis are an integral part of the transportation system, they experience significant interaction between Corvallis circulating traffic and state regional traffic. The Corvallis transportation system and the state highway system will suffer from congestion and delay unless appropriate improvements are made to the state highway system in and around Corvallis.

a. State Highway Projects Scheduled For Construction

Every two years the Oregon Department Of Transportation develops a new plan for transportation improvements. The State plan lists improvement projects scheduled for construction or other phases of development within the next four years. Projects listed here are from the July, 1994 Statewide Transportation Improvement Program 1995-98, as adopted by the Oregon Transportation Commission. Projects listed below will benefit the Corvallis bikeway system and are likely to be constructed within the four year time frame.

- Third and Fourth Streets through downtown (Highway 99W) will have 2 inches of pavement ground out and inlaid with new asphalt.

b. Proposed State Highway Projects

The following proposed State highway improvements have a significant impact on the Corvallis transportation system. These improvements are recommended based on traffic forecasts, traffic engineering, and traffic modeling for the entire city of Corvallis. Except for the traffic signal installations, all of the projects listed below will include bike lanes.

1) Within 10 Years

- The Van Buren Street bridge over the Willamette River will be replaced with a new two-lane bridge. With the new bridge, a safe, aesthetic bicycle/pedestrian crossing of the Willamette River should be provided. This could be accomplished through provision of such facilities on the new bridge, or the existing bridge could be preserved by the State to serve as a pedestrian and bicycle bridge.
- Highway 20 will be reconstructed to four lanes with left-turn refuges and bike lanes from Newton Creek (Philomath) to 53rd Street. Access will be limited and a median barrier will prevent left turns except at major intersections. Major intersections are described in the West Corvallis Interim Transportation and Access Strategy (**Chapter 3.0 Motorized Vehicle Street Traffic and Circulation**). A separated multi-use path parallels Highway 20/34 between Philomath and Corvallis and should be maintained with any highway expansion.
- Highway 20 widening from 53rd Street to Western Boulevard.

2) Before 62,500 Population, 20 Years

- Widen Highway 99W to four lanes with left-turn refuges from the Southern Pacific Railroad over-crossing to just north of Lewisburg Road.
- Widen Highway 20 to four lanes with left-turn refuges from Circle Boulevard to Albany.

- Widen Highway 20/34 to five lanes from Western Boulevard to Highway 99W.
- Provide ramps for south-to-west and west-to-south movement between Highway 99W and Highway 20/34.
- Remove the traffic signal and provide a non-stop interchange between the south bypass and Highway 34.
- Construct two lanes of the northern leg of the bypass
- Provide traffic signal at Highway 20 and Western Boulevard.

3) Before 80,000 Population, 50 Years

- Widen northern bypass to four lanes crossing the Willamette River.
- Widen south bypass to four lanes and complete the bypass.
- Provide traffic signal at Highway 99W and Kiger Island Drive.
- Provide traffic signal at Highway 99W and Goodnight and/or Rivergreen Avenue.

4.50.70 FUNDING OPPORTUNITIES AND CONSTRAINTS

a. Existing Funding Sources

The current revenue sources for funding transportation improvements include:

City Street Fund - Established through state legislation. A large portion of this fund comes from state highway fund revenue sharing of gas tax, weight-mile truck fees and vehicle licensing fees. A small property tax levy also provides revenue. State law requires a minimum of 1 percent of revenue from the state highway fund (gas taxes, etc.) to be spent or banked each year for bikeway or pedestrian facility use. Banking cannot hold money for more than a ten-year period. For fiscal year 1992 the 1 percent minimum amounts to \$18,313 for Corvallis. Corvallis currently spends approximately \$33,000 a year on maintenance, signing, and striping of bike lanes and paths.

Surface Transportation Program - Established through the federal Intermodal Surface Transportation Efficiency Act (ISTEA), this program replaces the federal aid secondary and federal aid urban programs. It provides money for street improvements. Annual revenue-sharing guidelines are expected to provide approximately \$237,000 per year. A portion of this money will be spent on bike lanes built during street construction and widening projects.

b. Alternate Funding Sources

Choices about the extent of improvements to be undertaken will rely on limited, existing funding sources until alternate funding sources can be developed. Bicycle improvements could take advantage of the three potential alternate sources listed below.

Transportation Utility Fee - City ordinance to establish user-fee funding for street construction. A \$1.00 per month fee would yield \$100,000 per year. A drawback to this option is that nonresidents would not pay for their use of city streets.

ODOT Local Assistance Grants - Each year the state offers grants to local agencies for bikeway construction. These grants are based on a 20 percent match of funds by the local agency. For fiscal year 1993 the maximum grant amount is \$80,000 dollars. Grants should always be sought but are not a consistent source of funding.

ISTEA - Enhancement Funds - These funds will be allocated requiring a 20 percent local match. Competition for these funds will be high. Eligible project types are: pedestrian and bicycle facilities, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping or other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures or facilities, preservation of abandoned railway corridors, control and removal of outdoor advertising, archeological planning and research, and mitigation of water pollution due to highway runoff. This funding should be sought but will be an irregular source of funding due to the high competition for funds.

Two promising options are the local option gas tax and the local option vehicle registration fee. Despite some potential drawbacks, these options would spread the burden in the fairest manner to the users of the streets.

Current street assessment policy does not allow assessment for on-street bike lanes. On-street bike lanes are not defined as extra-capacity facilities and are ineligible for funding by system development charges.

4.50.80 RELATION TO MOTORIZED VEHICLE STREET TRAFFIC AND CIRCULATION PLAN

The Corvallis Motorized Vehicle Street Traffic and Circulation Plan (MVSTCP) is a vital element of the Bicycle Plan. A major focus of the MVSTCP is to alleviate congestion and delay, make neighborhoods more livable, provide safety, and accommodate emergency vehicles. As such, improvements are planned that serve both the objectives of the MVSTCP and the Bicycle Plan. These improvements come in the form of bike lanes whenever a collector or arterial is constructed or reconstructed. Specific new bicycle policies are proposed to ensure this is the case.

An important aspect of the relationship between these two elements of the Transportation Plan is the potential for bicycles to absorb some of the projected increase in trips resulting from growth. With an 8 percent modal share of commuters to work, Corvallis has the most significant bicycle usage in the state. Also, according to a 1993 survey conducted by Oregon State University, 14 percent of faculty/staff and students ride bicycles to the campus. Increasing the alternate mode shares through continued improvement of facilities for bicycles such as bikeways and covered parking will provide an almost equal decrease in auto traffic.

4.60 POLICIES

The Corvallis Comprehensive Plan³⁶ contains transportation policies addressing many community issues. This section reviews the existing policies and identifies new policies reflecting technical and policy analysis that address requirements of the State Transportation Planning Rule.³⁷ The policies provide a framework for transportation decisions in Corvallis today and in the future. As the City incorporates a Transportation Plan Update (including a bicycle plan) into the Comprehensive Plan and Land Development Code, these policies and their implementing actions will complete a comprehensive update of transportation issues and strategies.

The policies identified provide a basis for addressing transportation needs of the city and its neighborhoods while fulfilling requirements of the State Transportation Planning Rule. Policies have been prepared within the context of the Transportation Section of the Comprehensive Plan. Newly proposed policies will provide additional guidance on specific issues.

4.60.10 TRANSPORTATION SYSTEM PLANNING POLICIES

a. Existing Comprehensive Plan Policies

§§10.1.1 THE TRANSPORTATION SYSTEM SHALL BE PLANNED AND DEVELOPED IN A MANNER WHICH CONTRIBUTES TO COMMUNITY LIVABILITY, RECOGNIZES AND RESPECTS THE CHARACTERISTICS OF NATURAL FEATURES, AND MINIMIZES THE NEGATIVE EFFECTS ON ABUTTING LAND USES.

§§10.1.2. THE TRANSPORTATION SYSTEM SHALL BE MANAGED TO REDUCE EXISTING TRAFFIC CONGESTION AND FACILITATE THE SAFE, EFFICIENT MOVEMENT OF PEOPLE AND COMMODITIES WITHIN THE COMMUNITY.

³⁶ - *Comprehensive Plan*, City of Corvallis, Ordinance 90-52, Article 10, effective January 1, 1991, pages 112 to 124.

³⁷ OAR 660-12-000 through 660-12-070 (Transportation Planning)

§§10.1.3. THE CITY SHALL DEVELOP AND PROMOTE ALTERNATIVE SYSTEMS OF TRANSPORTATION WHICH WILL SAFELY, ECONOMICALLY AND CONVENIENTLY SERVE THE NEEDS OF THE RESIDENTS.

§§10.1.4. SPECIAL CONSIDERATION IN THE DESIGN OF THE TRANSPORTATION SYSTEM SHALL BE GIVEN TO THE NEEDS OF THOSE PEOPLE WHO HAVE LIMITED CHOICE IN OBTAINING PRIVATE TRANSPORTATION.

§§10.1.5. THE TRANSPORTATION SYSTEM SHALL GIVE SPECIAL CONSIDERATION TO PROVIDING ENERGY EFFICIENT TRANSPORTATION ALTERNATIVES.

§§10.1.6. THE CITY SHALL MAINTAIN A LONG RANGE TRANSPORTATION PLAN THAT WILL BE PERIODICALLY REVIEWED AND UPDATED.

§§10.1.7. THE CITY SHALL ESTABLISH A CAPITAL IMPROVEMENT PROGRAM FOR THE TRANSPORTATION SYSTEM WHICH:

- IS SUBJECT TO ANNUAL REVIEW;
- IS CONSISTENT WITH THE LAND USE POLICIES OF THE COMPREHENSIVE PLAN AND CONSIDERS OTHER FACILITY PLANS;
- DEFINES THE LOCATIONS OF RIGHTS-OF-WAY NECESSARY FOR THE CREATION OF A COMMUNITY-WIDE TRANSPORTATION SYSTEM;
- ESTABLISHES A PRIORITY FOR IMPROVEMENTS TO THE SYSTEM; AND
- PROVIDES FOR THE NEEDS OF ALL MODES OF TRANSPORTATION WITHIN THE RIGHTS-OF-WAY.
- CONSIDERS THE ECONOMIC IMPACTS UPON PROPERTIES RESULTING FROM TRANSPORTATION IMPROVEMENTS.

§§10.1.8. THE FOLLOWING HIGHWAY CORRIDORS SHALL BE CONSIDERED PRIMARY AND IMPORTANT ENTRYWAYS OR GATEWAYS INTO CORVALLIS:

HIGHWAY 99W FROM THE NORTH
HIGHWAY 99W FROM THE SOUTH
HIGHWAY 20 FROM THE NORTHEAST
HIGHWAY 34 FROM THE EAST
HIGHWAY 20-34 FROM THE WEST

§§10.1.9 SPECIAL ATTENTION SHALL BE GIVEN TO MAJOR ENTRYWAYS OR GATEWAYS INTO CORVALLIS TO ENSURE THAT THEY REFLECT AND CONTRIBUTE TO A POSITIVE AND DESIRABLE IMAGE OF THE COMMUNITY. THIS MAY INCLUDE TREE PLANTING REQUIREMENTS, THE APPLICATION OF SPECIAL BUFFER AND SETBACK CONDITIONS AT THE TIME PROPERTIES ABUTTING THE HIGHWAYS DEVELOP, ACCESS LIMITATIONS, AND OTHER EFFORTS TO ENHANCE THE APPEARANCE AND CARRYING CAPACITY OF THESE IMPORTANT CORRIDORS IN KEEPING WITH POLICIES 4.1.1, 4.1.5, AND 4.1.7.

§§10.1.10 DEVELOPMENT PROPOSALS SHALL BE REVIEWED TO ASSURE THE CONTINUITY OF SIDEWALKS, TRAILS, BICYCLE PATHS, AND PEDESTRIAN WAYS.

§§10.1.11 THE CITY SHALL COORDINATE WITH THE OREGON DEPARTMENT OF TRANSPORTATION IN IMPLEMENTING ITS HIGHWAY IMPROVEMENT PROGRAM.

b. Recommended Additional Transportation Policies (Transportation System Planning)

- 1) The transportation system shall reflect consistency with the Corvallis Comprehensive Plan, land use designations, and regional and statewide transportation planning efforts.
- 2) Uniform construction standards which accommodate all transportation modes shall be maintained for the City's transportation system.
- 3) ODOT should fund, maintain, and improve all state highway facilities (ORE 99W, ORE 34 and US 20) to meet level of service standards contained in the Oregon Highway Plan. When specific construction plans are proposed, ODOT shall prepare comprehensive roadway designs which recognize urban usage for surface transportation modes, including facilities for pedestrians, bicycles, transit, drainage, curbs and gutters.

- 4) Corvallis will invest in planning and coordinate with the state and counties to develop highly detailed transportation and access plans that firmly fix the location of future arterial and collector streets for each developing sector within the Corvallis urban growth boundary.

4.60.20 BICYCLE POLICIES

a. Existing Comprehensive Plan Policies (Bicycle Facilities)

- §§10.4.1. BIKEWAYS SHALL BE CONVENIENTLY LOCATED, BE ADEQUATELY CONSTRUCTED, HAVE MINIMAL STOPS AND OBSTRUCTIONS, AND HAVE SAFE CROSSINGS ON MAJOR STREETS.
- §§10.4.2. BIKEWAYS SHALL PROVIDE SAFE, EFFICIENT CORRIDORS WHICH ENCOURAGE BICYCLE USE. BICYCLE USE OF MAJOR STREETS SHALL BE CONSIDERED AS IMPROVEMENTS ARE MADE TO MAJOR TRANSPORTATION CORRIDORS.
- §§10.4.3. ON-STREET PARKING SHOULD BE MANAGED WHERE IT CONFLICTS WITH BICYCLE CORRIDORS.
- §§10.4.4. ACQUISITION OF LAND AND/OR EASEMENTS FOR BIKEWAYS AND TRAILS SHALL BE EVALUATED ALONG WITH THE NEED OF LAND FOR PARKS AND OPEN SPACE.
- §§10.4.5. SELECTED BIKEWAYS SHALL BE DESIGNED TO ACCOMMODATE MULTIPLE USE ACTIVITIES.
- §§10.4.6. BIKEWAYS SHALL BE DEVELOPED TO PROVIDE ACCESS TO ALL AREAS OF THE COMMUNITY.

b. Proposed Additional Transportation Policies (Bicycle Facilities)

- 1) All new collector and arterial streets shall be designed to accommodate bicycle facilities.
- 2) All new and redeveloped institutional, commercial, and multi-family development shall provide bicycle parking facilities that include covered parking.
- 3) The City shall work with local businesses to accommodate the conversion of adjacent on-street automobile parking to bicycle parking where appropriate.
- 4) When economically feasible, bicycle facilities shall be physically separated from pedestrian facilities.

- 5) Where bicycle and pedestrian facilities are combined, adequate width for the combined uses shall be provided.
- 6) Safe and convenient bicycle facilities that minimize travel distance shall be provided within and between new subdivisions, planned developments, shopping centers, industrial parks, residential areas, transit stops, and neighborhood activity centers such as schools, parks, and shopping.
- 7) The City shall provide adequate covered bicycle parking facilities at major transit stations.
- 8) The City shall work to acquire abandoned railroad rights-of-way for multi-use paths to serve bicycle, pedestrian, and equestrian uses.
- 9) The City shall work to maintain and preserve the scenic aspects of current and future separated multi-use paths.
- 10) The City shall install bicycle carrier racks on City buses and encourage the provision of bike carrier racks on intercity buses such as the Linn-Benton Loop Bus.

4.60.30 IMPLEMENTING ACTIONS

The City of Corvallis has provided bicycle and pedestrian facilities on all new collector and arterial roadways. The Trails Master Plan outlines several new pathways that will expand this system. However, strategically reviewing each development plan is the strongest means of expanding safe pedestrian and bicycle facilities.

The proposed new policies will increase bicycle use. An existing policy states that major street improvements shall **consider** incorporating bicycle facilities, whereas the new policy **requires** bicycle facilities on new arterial and collector streets. This will further encourage the use of the bicycle as an alternative to the automobile and meet the requirements of the State Transportation Planning Rule. This requirement has been incorporated into the design standards contained in the Land Development Code.

The State Transportation Planning Rule also requires that bicycle and pedestrian circulation issues be addressed at the project level. Reviews by City staff to assure conformity to the transportation plan and to enhance site design for alternative modes should be accomplished during the development review process.

Bicycle parking is a key issue in downtown Corvallis and near the University. While several new development projects have incorporated bicycle parking, the older downtown area typically does not have much space, and bicycles are tied down to any fixed object to avoid theft. Beyond providing bicycle parking racks for new development, a plan for the downtown area and Monroe Street adjacent to the University should be developed to provide safe locations to lock bicycles. This would benefit students and merchants. For new multi-family development of four units or more,

new retail, office and institutional developments, transit transfer stations and park and ride lots, bicycle parking facilities are required by the Transportation Planning Rule to be provided. Standards have been developed and incorporated into the Land Development Code. These standards should be reviewed against those proposed by the 1995 Oregon Bicycle and Pedestrian Plan and local needs.

As new arterials are developed, detailed corridor studies should be performed that identify the opportunities, costs, and neighborhood implications for off-street facilities/paths.

Current policies for street assessment and transportation funding through Systems Development Charges do not allow for funding of on-street bike lanes. The City should review these policies for consistency with community goals regarding alternative modes of transportation.

Bicycle facility performance standards (sometimes called Level-of-Service or LOS) may be helpful in review of development proposals. In the spring of 1996, the Bicycle and Pedestrian Program of the Oregon Department of Transportation is beginning a process of developing such standards. Corvallis will participate in these efforts with a goal of implementing such standards through the Land Development Code.

CHAPTER 5.0 TRANSIT

5.10 INTRODUCTION

Various forms of transit, including horse-drawn streetcars and buses, have been used in Corvallis since before the turn of the century. A fully operational, municipally-owned, fixed-route transit system was first begun in 1981. The Corvallis Transit System (CTS) had a ridership of over 153,000 during its first full year's operation (1981-82). In ten years, CTS ridership increased to a level of over 340,000 ; and it is expected to exceed 370,000 in 1995-96. Many Corvallis residents rely upon CTS as their only means of local transportation.

The Citizens Advisory Commission on Transit (CACOT) was established in September 1977 to advise the City Council on all matters regarding transit in Corvallis and all transit systems interfacing with CTS. The Commission is made up of six members appointed by the Mayor, subject to the advice and consent of Council. An ex-officio member represents the Associated Students of Oregon State University (ASOSU). A City Councilor is also appointed by the Mayor as a Council liaison to the Commission. Some of CACOT's first activities were to review a draft transit development plan, consider a federal application for transit equipment and facilities, and recommend the scope of a special tax levy dedicated to transit. Those activities were the foundation of today's Corvallis Transit System.

Since 1981, service has been expanded. Routes have been extended to serve most areas annexed since 1981. Service hours have been increased to serve the majority of weekday commuters. Two of the original 1980 buses have been replaced and the third is used only as a backup. Two additional buses and a trolley have been added to the fleet. Passenger shelters have been placed at many major points of origin. Corvallis Paratransit Service (CPS) began in 1994 in response to the Americans With Disabilities Act to serve disabled persons who are unable to use the fixed route system.

The Corvallis Transit System is recognized as one of the top systems in the State of Oregon. The most recent data from the Oregon Department of Transportation shows that Corvallis has the lowest cost per ride of any transit system in the State. CTS also has one of the highest number of riders per operating mile.

Corvallis adopted *The Corvallis Transit System Business Plan* and the *Corvallis Transit System Plan to Implement the Americans With Disabilities Act Paratransit Requirements* in 1992. These plans and their updates are incorporated into this document by reference.

5.20 VISION

The vision of the Corvallis Transit System (CTS) is to preserve the environment, provide community access to the city, promote economic vitality, and enhance neighborhood livability. This element of the plan identifies the necessary enhancements to achieve this vision. Specific objectives and other implementing actions are identified in Section 5.60 Transit Policies.

5.20.10 CORVALLIS TRANSIT SYSTEM MISSION AND GOALS

a. Mission

The mission of the Corvallis Transit System (CTS) is to:

- **Preserve the environment and enhance neighborhood livability** of Corvallis by:
 - Providing a viable transportation alternative for all citizens;
 - Reducing air pollution;
 - Reducing energy consumption;
 - Reducing automobile traffic, thereby reducing the number of accidents, including fatalities;
- **Provide community access** as a social service by providing transportation to youth and elderly, disabled, and low-income citizens;
- **Promote economic vitality** for Corvallis by:
 - Reducing the need for automobile infrastructure;
 - Reducing the need for public parking and the attendant loss of taxable property;
 - Supporting and enhancing a greater land-use density;
 - Reducing the need for private parking, resulting in more efficient use of land and resources;
 - Creating an attractive business environment where employers can: 1) rely upon an alternative mode for their employees, and 2) increase their employment pool by providing transportation to those who have no other means of travel to the employment site.

b. Goals

The Goals of CTS are:

- One million rides provided annually by 2001;
- Maintain self-sufficiency of the Transit Fund;
- Provide service within five blocks of every residence (where infrastructure permits);
- Reduce parking pressure, particularly in the University area and downtown;
- Continue as one of the top three systems in the state.

5.30 EXISTING CONDITIONS

5.30.10 OPERATIONS

a. Personnel

The Corvallis Transit System (CTS) is owned and operated by the City of Corvallis through the Corvallis Public Works Department, Transportation Division. A transit coordinator is assigned primary responsibility to manage transit services, including route development and design; marketing and public relations activities; land use reviews and developer contact; grant writing and administration; vehicle, facility, and equipment purchases and maintenance; and contract administration.

Fixed-route bus operations and maintenance are provided through a private-sector partnership. The current contract operator is Laidlaw Transit, Inc., which employs approximately 20 personnel for operating CTS. These include management and office staff, mechanics, and drivers.

The Americans with Disabilities Act (ADA) mandates that Corvallis provide paratransit service by January 26, 1997, to those unable to access the fixed route system. The Corvallis paratransit service completed full compliance in January, 1996, one full year ahead of the required implementation date. This service is described in the *Corvallis Transit System Plan to Implement the Americans with Disabilities Act Paratransit Requirements, January 1992* and its annual updates, which are incorporated into this document by reference.

Corvallis paratransit service is provided through a partnership with the Senior Citizens Council of Benton County, Inc. The Senior Council operates Dial-A-Bus, a demand-responsive service which has provided rides to seniors and disabled persons since 1974. Dial-A-Bus has a paid manager, assistant manager, dispatcher/scheduler, and three full-time drivers.

b. Vehicles and Equipment/Facilities

The Corvallis Transit System owns six heavy-duty transit coaches. Three are 1994 Gillig buses, two are 1990 Gillig buses, and one is a 1980 GMC bus. All six coaches are equipped with wheelchair tiedowns and lifts. Seating for each bus is 35-37 passengers. In addition to these coaches, the transit system owns a 1983 gas powered trolley-bus for special events and as a backup bus. The trolley is not wheelchair accessible. The vehicles are maintained and stored at the Laidlaw facility on NW 9th Street in Corvallis.

The three 1994 Gillig buses were put into service in July 1994. The two 1990 Gillig buses are in good condition and performing well. The 1980 GMC bus has over 500,000 service miles and is in critical condition. It is primarily used as a backup bus. The City has accepted an 80 percent capital assistance grant from the Federal Transit Administration (FTA) to replace the 1980 GMC bus and the 1983 trolley. The City has also applied to ODOT for an 80-percent capital grant to purchase one additional bus as part of a demonstration project to add an east/west loop in north Corvallis. The project is expected to be funded beginning in 1996-97.

All vehicles are placed on a vehicle replacement schedule, which uses the industry standard of ten years or 500,000 miles for budgeting local match requirements. Based upon estimated annual mileage, the two 1990 buses are scheduled for replacement in 1999-00 and the three 1994 buses are scheduled for replacement in 2003-04.

The City has 17 bus shelters and 103 designated bus stops throughout Corvallis. The City's FTA grant referenced in the above paragraph will provide funds to purchase and install several large-capacity shelters. Shelters are essential to transit service to provide protection from inclement weather. They also increase visibility of the system. Several shelters have been added by developers as a condition of development, i.e. Nypro, Lyons Restaurant expansion, Timberhill Place, etc.

Most of the bus stop signs are old and faded and do not meet the Americans With Disabilities Act (ADA) standards. The City has been notified that it will be offered an ODOT grant in 1995-96 for replacement of 100 bus stop signs. New signs will increase bus stop visibility. Fifty-six of the stops do not meet accessibility standards under the Americans With Disabilities Act (ADA), primarily because they do not have a hard surface. The City is not required to bring pre-existing stops up to ADA standards, but upgrading these stops would improve accessibility for all transit users. The City will seek grant funds to upgrade stops.

The City's main terminal at 5th and Jefferson is the only CTS transfer site. It is in poor condition and is not large enough to serve the existing transit needs. The City has been awarded an ISTEA Enhancement grant to improve this site by increasing the size and providing enhanced amenities.

The City will also seek a grant to provide funds to add bicycle racks to the City's buses. Corvallis has a large bicycling community, and surveys indicate bicycle racks would be utilized if available. Bicycle facilities at transit stops would also facilitate use of transit and bicycles as transportation alternatives.

Dial-A-Bus supplies the vehicles used to provide the City's paratransit service. Most, if not all, of the wheelchair accessible vehicles have been purchased through state/county Special Transportation Funds.

c. Service Levels

Successful transit operations must provide convenient, frequent on-time service. Service is provided in Corvallis on a one-hour schedule through four buses operating on eight routes (see A-5 Transit Routes in Appendix A). The return to one-hour frequency began in September 1994. Many locations have half-hour service, i.e. where the area is served by more than one route. The system operates from 6:15 a.m. to 7:15 p.m. weekdays and 9:45 a.m. to 4:45 p.m. on Saturdays. Annual miles driven in 1994-95 were approximately 217,000. Daily peak hour ridership is at near capacity on some routes. The 1990 census for Corvallis placed the modal share for transit at 1.4 percent for travel to work.

The City is currently meeting or exceeding the paratransit requirements of the ADA. The City's paratransit service operates the same days and hours that the fixed route service operates. Any expansion of fixed route service hours will result in an expansion of paratransit service hours. Additionally, any expansion of the fixed route service area would result in the same increase for the City's paratransit service

The Corvallis Transit System is part of a network of transportation services in the area. Services are coordinated among various agencies to meet community needs and avoid service duplication. Among these agencies are the following:

- **DIAL-A-BUS** provides paratransit service to Benton County's senior and disabled citizens. Seventy volunteer drivers and one full-time and one part-time paid drivers operating 12 vehicles carry over 43,000 passengers a year. As mentioned above, Dial-A-Bus also provides the Corvallis paratransit service to meet Americans with Disabilities Act (ADA) requirements, a service which began in February 1994.
- **LINN-BENTON LOOP** provides service between Corvallis, Albany, Oregon State University, and Linn-Benton Community College. The Loop is operated and maintained by the City of Albany with an annual ridership of over 50,000 passengers. Corvallis provides financial support and a transfer point with shelter and parking. CTS route structure, scheduling and other operations are also coordinated with the Loop.
- **OREGON STATE UNIVERSITY** and CTS began a group pass program in September 1989 to provide bus service to OSU faculty, staff and students. OSU paid an annual fee to CTS for provision of these transit services from September 1989 through June 1992. In return for the fee, OSU faculty, staff, and students use their OSU ID cards as passes on the buses. In 1992-93, ASOSU initiated a student fee for the student portion of the group pass program and OSU paid for faculty and

staff. The program was discontinued by OSU and ASOSU in 1993-94 and reinstated by ASOSU for students in September 1994 and by OSU for faculty/staff in January 1995. Routes and schedules are coordinated with class and work times. The central location of the campus and proximity to downtown Corvallis, facilitate transit's ability to serve OSU. Further information on this program is contained in this element's **Ridership and Financing** sections. When in place, this service diminishes parking and traffic problems on and around the OSU campus.

- CTS structures routes to serve **CORVALLIS 509J SCHOOL DISTRICT** facilities within the city limits. Officials of the agencies meet regularly to discuss plans and needs. Some students and faculty use the transit system to get to and from school. Regular CTS routes are frequently used for class field trips. CTS staff continually explore opportunities to encourage increased use of transit service by School District programs and staff. City library and transit staff are participating in a grant project to explore use of the bus system to transport students to library programs and services.
- CTS buses contribute to **SAFETY AND EMERGENCY SERVICES**. The buses can access 911 from their dispatch base and are part of an emergency evacuation plan coordinated through the Police and Fire Departments. CTS buses are also designated as "Block Homes." CTS is the only transit system in Oregon with the "Block Home" designation.
- CTS staff meet with **CORVALLIS PARKS AND RECREATION** staff and other youth program representatives to coordinate transportation for youth specifically to serve summer and school year activities. Corvallis Parks and Recreation has used the bus system to transport youth between their summer programs for several years.
- CTS provides enhanced services for **SPECIAL EVENTS** such as daVinci Days, the Benton County Fair, and the Fall Festival. The holiday trolley operates during December as a free shoppers shuttle between major shopping areas. Partial funding is received from sponsoring groups.

d. **Ridership**

The Corvallis Transit System has experienced steady increases in ridership since 1981 (see Figure 5-1). The largest increase occurred in 1989-90, the first year of the OSU pre-paid, "ride free with ID" program. Ridership grew to an all-time high of 341,598 in 1990-91. Ridership fell to 264,688 in 1993-94 when the OSU group pass program was discontinued and rebounded to 307,580 in 1994-95 when the program was reinstated. Ridership is expected to exceed 370,000 in 1995-96, a new system record. Non-OSU ridership has continued to climb, in conjunction with route expansion and service improvements. The most heavily used routes frequently have standing-room-only in the morning and afternoon.

OSU ridership has a significant impact on overall CTS ridership. On-board surveys taken in January/February of 1993, 1994, and 1995 indicate that OSU ridership as a percentage of overall ridership has been 40 percent, 19 percent, and 28 percent, respectively. The loss of the group pass program in 1993-94 most heavily impacted student ridership (see Figure 5-2). The elimination of the OSU free-ride program had differing impacts on the number of OSU parking passes sold. Table 5-1 indicates that more tickets were sold to faculty/staff and fewer to students. Observations by the City's parking enforcement personnel indicated more cars parked outside the restricted parking zones north of campus. Students chose to park free in residential neighborhoods several blocks from campus rather than purchase a parking sticker or discounted, school-year transit pass.

Table 5-1 University Parking Stickers				
	Stickers Sold		Sticker Price	
	1993-94*	1992-93	1993-94*	1992-93
OSU Faculty/Staff	2,461	2,268	\$90	\$87
OSU Students	3,661	4,192	\$65	\$62
TOTAL	6,122	6,460		

* There was no "group pass" program in 1993-94 for OSU faculty, staff, or students.

FIGURE 5-1 Yearly Ridership

CORVALLIS TRANSIT RIDERSHIP

1983/84-1995/96 Ridership

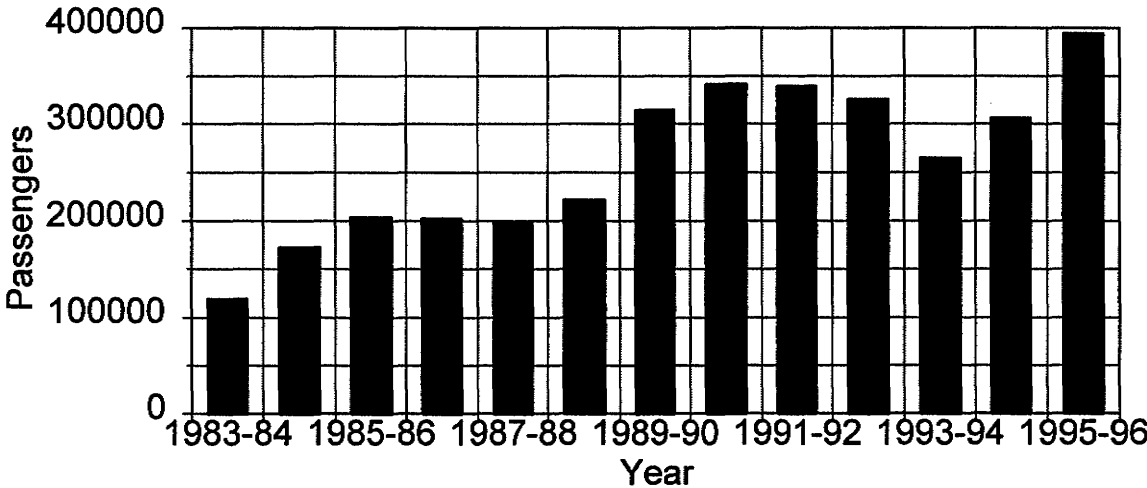
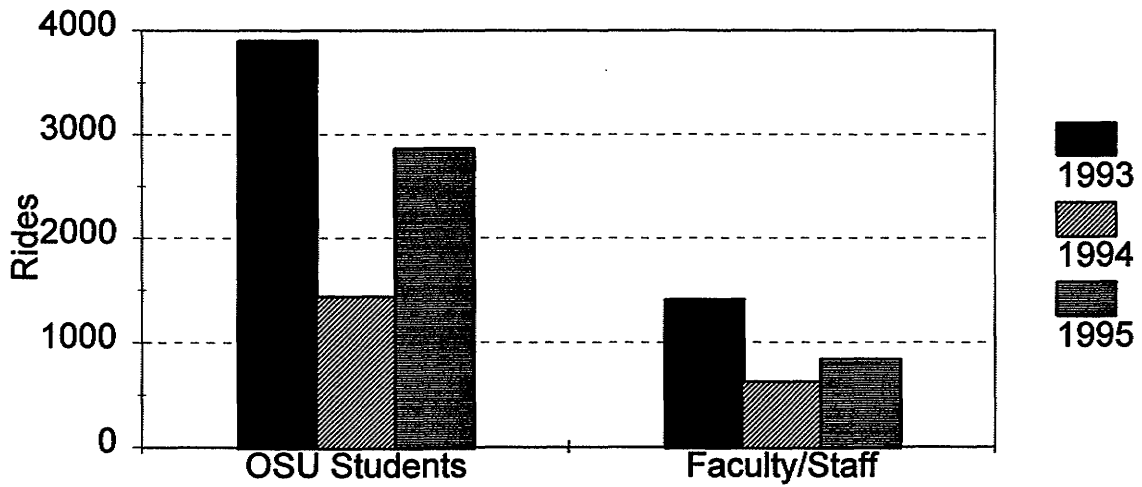


FIGURE 5-2 OSU Ridership

OSU RIDERSHIP SURVEY

Two-Week Comparison (Jan./Feb.)



5.30.20 FINANCING

The Corvallis Transit System operates with finances derived from several sources. The major revenue source has been a series of three-year operating tax levies. The most recent was approved by voters in November 1994. Additional sources are fares, a state operating grant, and the OSU/ASOSU payments for the group pass program. Historically, state and federal grants have funded 80 percent of vehicle replacement costs, with the balance coming from operating revenues. The estimated cost to provide transit service in FY 95-96 is \$570,400.

The actual expenditures and ridership equate to approximately \$1.05 per ride for operational costs during the first four months of FY 95-96. Historically, Corvallis has had the lowest cost per ride compared to all other transit providers in the state. The closer to capacity that buses are operated, the lower the cost per ride.

Table 5-2 lists anticipated CTS operating revenues for FY95-96, 68 percent of which come from local property taxes. Shown in Table 5-3 are revenues anticipated in FY 96-97 and FY 97-98 from the Federal Transit Administration for capital projects. CTS will provide 20 percent of the funding for the replacement bus and trolley, and passenger shelters.

TABLE 5-2 CORVALLIS TRANSIT SYSTEM FUNDING (BUDGETED FY 95-96)	
Operating Funds	
Funding Source	Amount
Property Tax Levy	\$431,500
Fare Revenue	\$52,000
State Transit Grant	\$60,350
OSU/ASOSU Group Pass	\$58,500
Miscellaneous	\$31,120
Total Operating Revenue	\$633,470

**TABLE 5-3
CORVALLIS TRANSIT SYSTEM FUNDING
(ANTICIPATED 96-97 AND 97-98)**

Capital Outlay	
Funding Source	Amount
Federal Transit Administration	\$397,200
Transit Fund	\$ 99,300
Total Revenue for Capital Outlay	\$496,500

5.40 FUTURE CONDITIONS

The future of the Corvallis Transit System is dependent on many factors. Among them are transportation congestion and delay, development and growth patterns, and financing of public transportation locally and at the state and federal levels.

5.40.10 TRANSPORTATION CONGESTION AND DELAY

Future transportation congestion will result almost exclusively from increased auto traffic. A computer model called MINUTP has been used to project trip generation at three population levels: at 45,000 (current); at 62,500 (projected 20 year growth), and at a buildout population of 80,000. (Details of the computer model are discussed in Chapter 2.0, Subsection 2.20.20. These projections show trip increases of 30 percent at 62,500 and an additional 35 percent at 80,000, using the assumption that automobiles will continue to carry most travelers. The trip numbers likely will not change, but the number of vehicles on the road could be reduced if alternate modes of transportation, such as transit, were used. Increased transit use will require: (1) increased number of routes, (2) increased frequency, (3) extended hours of service, (4) increased shelter facilities, (5) street construction and traffic control measures that accommodate and expedite bus service, and (6) revised land-use policies that make transit accessible and attractive. The result will be reduced transportation congestion and delay.

5.40.20 DEVELOPMENT AND GROWTH PATTERNS

The Comprehensive Plan currently identifies types of development allowed for lands within the Urban Growth Boundary when those lands are annexed to the city. With the exception of several Intensive Development Sectors (IDS), most residentially designated lands are to be developed for low-density residential purposes. In addition, and aside from these IDS areas, little provision is made for mixed uses (development of job-based land uses in close proximity or with easy access to homes). Transit use can be made more efficient and convenient for users if residential, commercial, and employment destinations are easily accessible along transit lines. Convenient commercial and employment opportunities within residential areas combined with efficient transit access throughout

the community can also reduce the use or perceived "need" for the private automobile and enhance the likelihood of transit usage as a result. The City has undertaken a project to conduct a transportation alternatives analysis. This project will focus on the land use/transportation connection. Opportunities for increasing residential density or providing industrial and commercial development along existing and proposed transit routes will be evaluated. Such an undertaking is required by the State Transportation Planning Rule and is to be completed by May 1997.

One of the assumptions within the traffic model is that transit use would continue to attract the same percentage of users as currently. As a result, this equates to a 30-65 percent increase in ridership if based on trip generation and a 37-75 percent increase if based on population. It should be noted that the population growth is spread throughout the Urban Growth Boundary. The model's assumptions should be amended to reflect a higher percentage of transit users once the transportation alternatives analysis project is completed and land use densities are increased. Extension of transit service should be based upon the likelihood of success and has a greater chance of success in areas with a high density. Transit performance measures are based upon numbers of rides per operating hour or per revenue mile and the costs associated with that service, i.e., cost per ride. Population density has a direct relationship to rides per revenue mile. Distances traveled will also affect operating costs.

5.40.30 FUNDING.

The future of transit funding will have the greatest impact on how transit develops in Corvallis. A full discussion of funding is contained in System Issues (5.50.60 Funding Opportunities or Constraints).

5.50 SYSTEM ISSUES

Corvallis and the Corvallis Transit System are elements within a larger body of governments and transportation service providers that must be coordinated to provide efficiently for their citizens. Recent efforts to identify how transportation coordination might be accomplished have come from both state and federal sources through the State Transportation Planning Rule 12 and the Intermodal Surface Transportation Efficiency Act (ISTEA). Other issues, such as opportunities for transportation demand management, the impact of major employment centers on the transportation system, regional coordination, and funding opportunities and constraints, have great bearing on this plan.

5.50.10 STATE TRANSPORTATION PLANNING RULE 12

Under this rule (OAR 660-12), transportation planning is a requirement of all governmental entities that provide transportation facilities and services, including counties and cities larger than 2,500 population, and the state itself. The **Oregon Transportation Plan (OTP)** comprises a policy element, a funding element, and individual modal elements for highway, transit, bicycles, rail, etc. County, regional, and city plans must be consistent with the state plan and with each other.

Currently, the OTP identifies private carriers such as Greyhound and the Valley Retriever as the inter-city component of a public transportation system out of Corvallis. An inter-city bus system is envisioned as the means of accessing existing and planned rail and high speed rail systems serving the Willamette Valley through Albany. Obviously, the Linn-Benton Loop can play a significant role in this area as well. The Oregon Department of Transportation is in the process of developing an Oregon Public Transportation Plan (OPTP) as a component of the OTP. The OPTP will most likely establish minimum service levels, such as service hours per capita or trips per capita. Corvallis and CTS will continue to monitor and participate in Oregon's public transportation planning efforts.

Benton County is beginning to develop a transportation plan in compliance with OAR 660-12. As these efforts proceed, Corvallis and CTS will participate in efforts to provide appropriate public transit to area residents.

The Transportation Planning Rule requires that Corvallis accomplish the following tasks in the transit element of its transportation plan: identification of transit needs, existing and planned routes; opportunities to enhance transit operations through proper land use designations along these routes; and adoption of transit-friendly land use requirements for new development or redevelopment of sites and transportation facilities. Corvallis' current efforts regarding these requirements are detailed throughout this plan. Additionally, Corvallis has been awarded a Transportation Growth Management grant through a joint ODOT/ Department of Land Conservation and Development program to develop a transit master plan. This planning effort will be integrated into an analysis of transportation alternatives, including transportation demand management, and will address land use/transit coordination. The master plan will contain specific recommendations for future service and infrastructure within the Corvallis UGB and also consider expansion beyond the UGB. The master plan is scheduled to be completed by February 1997.

Both the State Transportation Planning Rule and ISTEA identify Transportation Demand Management (TDM) as an important aspect of transportation planning. TDM is defined in the Planning Rule as: "actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity". This can be done by increasing use of alternative modes (buses, bicycles, van pools, walking, and ride-sharing), telecommuting, or flexible work schedules. TDM can be successful primarily where an efficient transit system is in operation. Increases in service frequency, convenience, enhancements such as shelters and multi-modal connections or facilities, and target service for major employers also contribute to success. In turn, the transit system benefits directly from a successful TDM program through increased ridership and visibility. As a part of the requirements in the Transportation Planning Rule, Corvallis is in the process of developing a TDM plan. The plan is required to be adopted by May 1997.

The City and CTS are also pursuing funding opportunities through ODOT and other grants for TDM projects, including the "bike racks on buses program". Programs or projects that benefit transit in the Corvallis area have been and will continue to be developed to capture these funds.

5.50.20 TRANSPORTATION ALTERNATIVES ANALYSIS

As a means of prioritizing the needs of the transportation system, a method of evaluating alternative approaches to meeting those needs is required by the Transportation Planning Rule. The rule requires the following to be evaluated as components of system alternatives by May, 1997:

- Improvements to existing facilities or services;
- New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
- Transportation system management (TSM) measures;
- Transportation demand management measures (TDM); and
- A no-build system alternative.

The alternatives are to be evaluated based on the following:

- Their ability to serve the land uses identified in the Comprehensive Plan;
- Their consistency with state and federal environmental standards;
- Their ability to minimize adverse economic, social, environmental, and energy consequences;
- Their ability to minimize conflicts and facilitate connections between modes of transportation;
- Their ability to avoid principal reliance on any one mode of transportation and to reduce principal reliance on the automobile.

Based upon this review, the community can decide on an appropriate means of addressing its transportation needs. In FY 1995-96, the City is initiating a project to complete this transportation alternatives analysis (TAA) within the required time frame. The TAA project will provide a consolidated public process for an analysis of transportation alternatives that includes analysis of TDM and TSM opportunities and the development of a Transit Master Plan. When the transit planning effort has developed a set of alternatives for transit service (service types, specific current and future routes, appropriate land use and land development code changes, etc.), these alternatives will be incorporated into the global analysis of TSM, TDM, and other modal alternatives for the Corvallis area. From this analysis, a preferred alternative for provision of transportation services and facilities in Corvallis will be developed, including a preferred transit alternative that will become the preferred alternative in the Transit Master Plan. Information and recommendations from the initial TAA work effort will be a part of the basis for the Transit Master Plan development process. Then,

information from the Transit Master Plan development process will be fed back into the TAA process for modeling, additional public process, and integration with other TDM and TSM alternatives. Finally, the preferred alternative resulting from this analysis, will include information and recommendations to be included in the Transit Master Plan.

5.50.30 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) provides authorizations for highways, highway safety, and public transportation for 1992-1997. The purpose of the Act is "to develop a National Intermodal Transportation System that is economically efficient, environmental sound, provides the foundation for the nation to compete in the global economy and will move people and goods in an energy efficient manner." Under ISTEA (pronounced "ice tea"), states are required to develop transportation plans and transportation improvement programs that identify program needs. The Oregon Transportation Plan (OTP) and State Transportation Improvement Program (STIP) are Oregon's responses to these requirements. Corvallis participates in the biennial updates of the STIP. Money for CTS capital projects and operations is allocated by the state through this process.

5.50.40 MAJOR EMPLOYMENT CENTERS

Within Corvallis are several significant employment centers. These centers can have major impacts on specific transportation facilities due to the large numbers of people accessing them via particular routes. At the same time and for the same reasons, they provide important opportunities for successful implementation of demand management and system management strategies. It is important that the City aggressively pursue efforts to coordinate with these employment centers and employers for the purpose of enhancing transportation facilities and services and reducing the traffic impacts on surrounding areas.

Oregon State University. As one of the largest employers and most frequent destination in Corvallis, Oregon State University (OSU) presents both problems and opportunities for the local transportation system. Problems include increased peak traffic levels accessing OSU in the morning and evening; parking overflow into residential neighborhoods near the University; and the large size of the campus, which creates some obstructions or restrictions to traffic flow. The internal physical infrastructure of the campus also does not facilitate transit service.

These problems also reflect some of the opportunities presented by the University for addressing traffic problems. Although not scientific, a 1993 OSU survey of travel behavior by faculty and staff indicated that 70 to 80 percent of faculty and staff arrive on campus between 7 and 9 a.m. and leave between 4 and 6 p.m. Sixty-eight percent of this group drives alone to campus. This survey is roughly consistent with figures in the 1983 **Report on Transportation, Circulation and Parking, Oregon State University**. Because of this large number of people accessing the University in the peak traffic hours, opportunities for transit are significant. Currently, the University is updating its

Physical Development Plan and its traffic and circulation element. Information obtained from these efforts should be helpful in developing the transit solutions.

As noted earlier, the group pass program for OSU students, faculty, and staff has made an impact on traffic and parking on and around the campus. This program is subject to annual review by OSU administration and the ASOSU Student Senate. Therefore, the program has no stability. The elimination of the program in 1993-94 resulted in a drop of 64 percent of the student ridership and 58 percent of the faculty/staff ridership. The loss of revenue to the CTS also resulted in a reduction of service.

The City and OSU must continue working cooperatively to solve transportation problems. Further work on transit opportunities, including continuation of the group pass program for faculty and staff and increased OSU support, must continue.

Hewlett-Packard. Hewlett-Packard (HP) is one of the largest, if not the largest, employer in Corvallis. Traffic generated by employees and contractors of HP have a significant impact on the Corvallis transportation system, as well as highways leading into Corvallis. One CTS route and the Linn-Benton Loop serve the HP site. These services are inadequate for the demand. The physical layout of the expanding campus does not currently facilitate transit service. As noted, the City will most likely receive a demonstration grant to implement an east/west loop in North Corvallis. This service will be designed to serve HP and other major employers and destinations adjacent to the new service. A group pass program, similar to the OSU program, should be pursued.

Regional Medical Center. The medical center located on the current north end of Corvallis is a major destination for both employees and people needing medical service. Employees for the entire center number near 1,000. Two routes serve the area, with approximately half-hour service frequency.

Sunset Research Park. Significant growth has occurred at this employment center in the last year. Over 50 percent of the properties have been developed or are in the process of being developed. This area is served with one transit route. The service is inadequate for most commuters.

Downtown Corvallis. Downtown Corvallis has many small employers and two major employers, the City of Corvallis and Benton County, in a concentrated area. Employee parking is generally within city-owned lots or in the periphery around the downtown and frequently imposes on adjacent residential neighborhoods. Downtown Corvallis is currently served by all transit routes. The City's only transit transfer site is located in the downtown at 5th and Jefferson Streets. Several downtown business have participated in a Downtown Corvallis Association (DCA)/transit partnership to provide their customers with free coupons to ride the bus. The City, County, and DCA have indicated an interest in developing transportation alternatives for their employees. Expansion of the customer and employee programs should be pursued.

5.50.50 REGIONAL COORDINATION

To be truly effective, a public transportation system should provide for mobility within a city, from one city to another, and from one mode to another. Such a system relies on significant cooperation among transportation service providers.

Corvallis will continue its efforts to provide coordinated public transportation service. Funding assistance for the Linn-Benton Loop is one example. A park and ride lot is also provided for the Loop at 2nd Street and Van Buren Avenue; although, most commuters prefer to park closer to the Loop stop on 4th near Harrison. The Loop service has proven valuable, providing approximately 45,000 rider per year to readily access Linn-Benton Community College and Albany, including the Amtrak station. Increased morning and afternoon service could be effective in both attracting more non-student commuters and potentially in enhancing coordination with CTS schedules. The Linn-Benton Loop's policies and operations are guided by the Linn-Benton Loop Commission. The Commission is made up of staff and appointed/elected officials from each of the contributing public agencies (currently that includes the cities of Albany and Corvallis, Linn-Benton Community College and Benton County). The Loop Commission is discussing a program which will allow a customer to purchase one ticket and transfer among the three systems (the Loop, Albany Transit and CTS). Regional maps are also being discussed.

Besides the Linn-Benton Loop, additional inter-city "transit" service is provided by two private passenger carriers, Greyhound Bus Lines and the Valley Retriever. These providers operate out of the Greyhound bus terminal at 4th Street and Jackson Avenue. A primary drawback within this system is the lack of direct connections to either the Portland International Airport or the Eugene Airport. Improvement in these services or other transportation alternatives is needed.

Recent increases in employment opportunity within Corvallis (Hewlett-Packard, Sunset Research Park development, Accu-Fab, etc.) have raised questions about the numbers of persons commuting from Philomath and Linn County communities such as Albany and Lebanon. Inter-city commuters would benefit from enhanced transit service and improved park-and-ride facilities. The Oregon Department of Transportation is beginning a corridor study along Highways 20 and 34, and informative statistics or a more detailed study regarding these questions may be possible through this effort.

The City receives periodic requests for service to Crescent Valley and Philomath. In early 1993, Corvallis staff held informal meetings with City of Philomath staff regarding possible service to Philomath through an ODOT demonstration project. Benton County received a 1993-94 ODOT grant to study present and future transportation needs within the Philomath urban growth boundary. The study, conducted by the University of Oregon Community Planning Workshop, was completed in June, 1994. The study identifies the need for transit/special transportation and alternatives for providing the service. CTS has been identified as a potential provider of service to Philomath. The Corvallis Comprehensive Plan includes policies regarding service to Philomath. CTS will continue to actively pursue such opportunities.

The City has entered into an intergovernmental agreement with Benton County to administer the County's Special Transportation Fund, including staffing the Special Transportation Advisory Commission. City staff also participate on the Benton County Special Transportation Steering Committee for the specific purpose of coordinating special transportation services in Corvallis and Benton County and exploration of coordinating service to Albany.

5.50.60 FUNDING OPPORTUNITIES OR CONSTRAINTS

As noted in Future Conditions, funding will determine transit's future. Funding issues on the local, state and federal level will impact the Corvallis Transit System. Changes on all levels are occurring and will continue to occur.

As mentioned previously, current operational funding for CTS comes primarily (68 percent) from a special property-tax serial levy. Additional funding has come from a federally-funded state transit grant (\$60,350), OSU/ASOSU group pass program fees (approximately \$80,000 in FY 92-93, decreasing to \$30,000 for FY 93-94, increasing to \$69,000 in FY 94-95, and budgeted at \$58,500 in FY 95-96) and fare revenues (approximately \$55,000). This current funding scenario is a significant constraint on the transit system.

Local. The majority of transit's funding comes from local sources--transit levy, OSU group pass program, and fares. The serial levy is subject to voter approval and falls under the Measure 5 property tax cap. The transit levy has traditionally been supported by a wide margin. At the last transit levy election, held on November 8, 1994, the levy passed by almost a 3-to-1 margin. The next election will most likely occur in November 1997. Any increase in the transit levy must be balanced with the community's tolerance for increased property taxes and desire for maintaining or enhancing transit services. The OSU/ASOSU fees fluctuate, as evidenced by the decline in FY 93-94. Fare revenue will increase as ridership increases but will not produce revenues necessary to expand the system. Fares have intentionally been held to the current level because of the recognition that many of transit's customers are low income and have no other means of transportation and to be competitive with the automobile. Expansion of the group pass program and additional partnerships may produce additional local revenue.

The City's paratransit service (CPS) is provided by Dial-A-Bus, which is primarily funded through the State's Special Transportation Fund (STF). The STF was originally created by the legislature in 1985 and is funded by a tax on cigarettes (currently two cents). The fund is to be used for senior and disabled transportation. A portion of the funds is distributed on a per capita basis to transit or transportation districts or to counties, if no district exists. Benton County's formula funds are distributed to various agencies, which provide senior and disabled transportation, including Dial-A-Bus (DAB). Transit/transportation districts typically utilize their Special Transportation Funds to provide their mandated ADA paratransit service. DAB is the City's ADA provider. Corvallis assists DAB in completing their application for STF funding and supports their requests. In addition, the City provides funds to DAB to assist in subsidizing paratransit service--\$15,000 in 1995-96.

State. The City has received an operating grant from the Oregon Department of Transportation (ODOT) since the beginning of the system. The grant for several years was funded partially with State General Fund dollars. State General Funds were withdrawn from public transportation in 1992. Since 1992 the City's operating grant has been totally funded by federal transit monies (Section 18 program for rural and small city programs serving the general public). ODOT's Public Transit Section has the responsibility of distributing the state's Section 18 allocation. The Public Transit Section froze the operating grants in 1989-90 (Corvallis was frozen at \$60,350) and has not allowed any new transit providers to receive an operating grant since that time. The Linn-Benton Loop also receives an annual state operating grant through the Section 18 program (\$32,200). Twenty six transit providers are eligible for Section 18 operating grant funding in 1995-96, including large transit providers, i.e., Tri-Met and Rogue Valley Transit (Medford/Ashland), for serving rural areas within their boundaries. Funds not allocated through operating grants are used for a state-wide discretionary grant program. The City has received funding for capital purchases through this discretionary program. The state has indicated that it may review the allocation process for Section 18 monies beginning in 1996-97. The impact on Corvallis is unknown at this time.

Changes in the state transit funding scenario could occur as a result of actions by the Oregon State Legislature. The State Legislature was presented with a transportation financing package in 1993 and 1995. The packages were developed by a partnership of many organizations, including the League of Oregon Cities, Associated Oregon Counties, the Oregon Transit Association, and ODOT. It would have funded all types of transportation and included specific, dedicated funding for public transportation. No progress was made in 1993. In 1995 the package was introduced but did not make it out of committee. A new strategy is being developed for the 1997 legislative session. The Governor has increased his activity involving transportation issues.

One element of the 1993 transportation package was an amendment to statutory language covering the "in-lieu-of taxes" charge for state operations. This option operates like a payroll tax on the State as an employer and reimburses transit providers for transit services received by state agencies, since the state does not pay taxes. Transit and transportation districts, such as Tri-Met, Lane Transit, Rogue Valley, and Basin Transit (Klamath Falls), currently receive this funding from state agencies operating within their jurisdictions to pay for transit services they receive. Corvallis was requesting equity with the other transit providers and supported the amendment that would expand this opportunity to include all fixed route transit providers such as CTS. The "in lieu of taxes" could provide an amount up to the current transit operating levy funded by local property taxes (estimated at \$431,500 for FY 95-96). This element was not included in the 1995 legislative package because of a desire of the transportation coalition to consolidate and reduce the size of the package. The "in-lieu-of" amendment was introduced in 1995 in a separate bill by State Representative Barbara Ross. The amendment was not passed out of committee to the House floor for consideration. Corvallis should continue to pursue "in lieu of" funding during the 1997 Legislative session.

State gas tax revenues may be used for transit-related improvements within road rights-of-way, such as transit pullouts. Corvallis must also join with other transit providers to assure that the Special Transportation Fund is preserved as the state looks at shifting resources.

Federal. As noted, the City's ODOT operating grant has been fully funded with federal transit dollars for several years. These dollars have come through the Federal Transit Administration's Section 18 (renamed Section 5311), Rural and Small City, Program. Federal support of public transportation was reduced in 1996; the Rural and Small City program was cut 17 percent. As noted above in the "State" discussion, it is unknown at this time how the State will distribute these funds in the future.

Capital funding for replacement buses or additional buses has come from 80 percent state grants of federal Section 18 money, flexed ISTEA funds, or direct federal grant, which require a 20 percent local match. Federal ISTEA funds allocated to local jurisdictions under the flexible ISTEA Surface Transportation Program (STP) may also be used for transit capital purchases for vehicles or facilities.

One change in the funding scenario will occur when the Corvallis/Philomath area reaches a population of 50,000 and a population density of 1,000 people per square mile. This likely will occur as a result of the next census (year 2000). At this population and density threshold, Corvallis and the surrounding area (most likely the area within the Corvallis and Philomath urban growth boundaries) will be declared an "urbanized area" (UA) by the U. S. Census Bureau. This threshold moves the City from Section 18 funding to Section 9 (urban areas between 50,000 and 199,000 population) funding under ISTEA's transit program. The impact of this change on transit funding cannot be estimated at this time. For two years Congress has proposed amendments to transit funding which would eliminate federal funding for **operations** and restrict funding to capital projects. The 1996 Section 9 program was also cut 17 percent; but operating funds were cut by 25 percent and are expected to be eliminated by the year 2000. Therefore, although a Section 9 grant may result in a higher annual allocation of funds than the current Section 18 operating grant, those might be restricted to capital purchases. Corvallis has been able to meet its capital needs through the state managed Section 18 program and the federal Section 3 program. The Section 9 funding would be available to provide transit services within the entire urbanized area, which would most likely be the area within the Corvallis and Philomath urban growth boundaries (estimated at 32.3 square miles). The Corvallis Transit System operates within the Corvallis city limits, an area of 13.5 square miles. Operating costs in rural areas, with lower densities and covering longer distances are higher than those operated in more compact areas. Substantial administrative and planning burdens also accompany Section 9 funding the urban designation, respectively. In summary, coming under Section 9 could simultaneously greatly increase operating expenses while federal operating funds are eliminated.

CTS's future depends upon the ability of the City to increase funding from current sources and to identify and pursue new sources. Opportunities for increased funding from all levels must be sought whenever available and changes supported where warranted.

5.60 TRANSIT POLICIES

In the **Corvallis Comprehensive Plan**, the City has recognized the need to provide reliable transit service to its citizens. The State of Oregon, in the State Transportation Planning Rule, has also recognized the need for cities to provide transit services. This section details those Comprehensive Plan policies and State requirements and proposes new policies to address community needs and the State requirements.

5.60.10 EXISTING POLICIES

- §§10.1.2. THE TRANSPORTATION SYSTEM SHALL BE DESIGNED TO REDUCE EXISTING TRAFFIC CONGESTION AND FACILITATE THE SAFE, EFFICIENT MOVEMENT OF PEOPLE AND COMMODITIES WITHIN THE COMMUNITY.
- §§10.1.3. THE CITY SHALL DEVELOP AND PROMOTE ALTERNATIVE SYSTEMS OF TRANSPORTATION WHICH WILL SAFELY, ECONOMICALLY AND CONVENIENTLY SERVE THE NEEDS OF THE RESIDENTS.
- §§10.1.4. SPECIAL CONSIDERATION IN THE DESIGN OF THE TRANSPORTATION SYSTEM SHALL BE GIVEN TO THE NEEDS OF THOSE PEOPLE WHO HAVE LIMITED CHOICE IN OBTAINING PRIVATE TRANSPORTATION.
- §§10.1.5. THE TRANSPORTATION SYSTEM SHALL GIVE SPECIAL CONSIDERATION TO PROVIDING ENERGY EFFICIENT TRANSPORTATION ALTERNATIVES.
- §§10.6.1. AN IMPROVED PUBLIC TRANSPORTATION SYSTEM WITHIN THE PLANNING AREA SHOULD BE ESTABLISHED TO IMPROVE THE LIVABILITY OF THE COMMUNITY, TO REDUCE POLLUTION AND TRAFFIC, AND TO REDUCE ENERGY CONSUMPTION.
- §§10.6.2. THE CITY OF CORVALLIS SHALL COOPERATE WITH NEIGHBORING JURISDICTIONS TO PROVIDE A REGIONAL TRANSPORTATION SYSTEM WHICH FACILITATES CONVENIENT, ENERGY EFFICIENT TRAVEL. THIS SHALL ADDRESS THE NEEDS OF PERSONS WHO, FOR WHATEVER REASON, DO NOT USE PRIVATE AUTOMOBILES.

§§10.6.3. THE CITY OF CORVALLIS SHOULD PARTICIPATE IN A TRIAL OPERATION OF A PHILOMATH-CORVALLIS TRANSIT SYSTEM BEFORE MAKING LONG TERM COMMITMENTS TO THIS REGIONAL SERVICE.

The vision statement in this plan reflects these ideas--promoting livability, preserving the environment, providing community access, economic vitality, meeting the needs of Corvallis' citizens, and energy efficiency. With regard to transit services, people with special needs for transportation beyond the private automobile deserve special consideration. Policies 10.6.1 and 10.6.2 also direct the City to provide public transit in cooperation with other jurisdictions. The resulting system is intended to provide for all of a citizen's transportation needs to some degree, whether for local or inter-city travel.

The Energy Section of the Comprehensive Plan also addresses some of these ideas.

§§11.1.5 THE CITY SHALL ENCOURAGE LAND USE PATTERNS AND DEVELOPMENT THAT PROMOTE CLUSTERING AND MULTIPLE STORIES, THAT TAKE ADVANTAGE OF ENERGY EFFICIENT DESIGNS, AND HAVE READY ACCESS TO TRANSIT AND OTHER ENERGY-EFFICIENT MODES OF TRANSPORTATION. A LOCATION WHERE THIS IS DESIRABLE IS IN THE CENTRAL CITY.

§§11.1.6 THE CITY SHALL ACTIVELY PROMOTE THE USE OF ENERGY-EFFICIENT MODES OF TRANSPORTATION.

§§11.1.7 THE CITY SHALL ENCOURAGE THE DEVELOPMENT OF HIGH DENSITY USES THAT ARE NOT DEPENDENT ON AUTOMOBILE TRANSPORTATION.

These policies take the discussion of transit further by addressing land use and the need to provide for development which supports transit through increased density and appropriate land use patterns.

5.60.20 PROPOSED POLICIES

The primary requirements of the Transportation Planning Rule regarding transit concern identification of current and future needs, provision of service to the transportation disadvantaged, and adoption of land use regulations which are supportive of transit service. The previously identified **Corvallis Transit System Business Plan** and the **Corvallis Transit System Plan to Implement the Americans With Disabilities Act Paratransit Requirements** and their updates have been adopted through extensive public processes and help to identify needs for the community as a whole, including persons who are transportation disadvantaged. The revised **Land Development Code**, which includes new transit-supportive land use regulations, was adopted by the

City Council on July 19, 1993. Proposed Comprehensive Plan Policies empowering the move in this direction follow.

- a. Arterial and Collector street designs shall include evaluation for transit facilities such as bus stops, pullouts, shelters, optimum road design, and on-street parking restrictions as appropriate to facilitate transit service.
- b. New or redeveloped residential, retail, office, and other commercial, civic, recreation, and other institutional facilities at or near existing or planned transit stops shall provide preferential access to transit facilities.
- c. Park-and-ride lots on the periphery of Corvallis shall be investigated by the City as an alternative solution to parking and congestion problems.
- d. The city should seek appropriate opportunities for increasing residential density and providing industrial and commercial development along existing and proposed transit routes.

5.60.30 IMPLEMENTING ACTIONS

To achieve the transit vision and comply with existing and proposed policies, the following service, infrastructure, planning, funding, and other activities need to be implemented and/or continued:

a. Service Objectives

The services that need to be implemented to achieve the vision for transit in Corvallis are as follows:

Prioritized Service Enhancements

- 1) Establish an east/west loop in north Corvallis (assumes approval of ODOT Community Transportation Program grant in 1996-97).
- 2) Establish 30-minute service in southeast and southwest Corvallis.
- 3) Extend Saturday service hours by one or two hours or the increment that would give the best value for the investment.
- 4) Extend weekday service hours by one hour or the increment that would give the best value for the investment and/or add peak service routes to increase frequency in high demand areas (based on performance standards).
- 5) Establish additional weekday/Saturday service.
- 6) Establish additional services, including Sunday service.

- 7) Consider provision of regional service to areas willing to contribute a proportional share of the funding needed to provide such service.

The City must remain flexible and open to revising transit service priorities to respond to changes in demands and available funding sources. Frequency is the key to increasing ridership. Convenient service translates into flexibility for travelers, an advantage usually attributed to the private auto.

b. Infrastructure Objectives.

Service enhancements must be supported and balanced with infrastructure enhancements as follows:

Infrastructure Enhancements

- Immediate replacement of the City's one 13-year-old bus and 11-year-old trolley (FTA Section 3 grant accepted by City Council November 20, 1995);
- Replacement of all transit vehicles according to replacement schedule, which is based upon industry standards;
- Add buses to meet increased service needs and available operating funds, i.e., service enhancements 1, 2, and 4 (ODOT CTP grant tentatively approved for one bus in 1996-97 for east/west loop) ;
- Construct passenger shelters in areas used most intensively by patrons, such as medical centers, shopping areas, multi-family housing complexes, major employers, and other activity centers. Shelters make the system accessible, attractive and convenient. (FTA Section 3 grant will add several large-capacity shelters in 1996-97.)
- Replace/add bus stop signs to increase efficiency of system by increasing visibility, providing route information, and encouraging passenger consolidation, thereby reducing frequent bus stops within short distances. (CTP grant anticipated in 1995-96 to replace 100 bus stop signs.)
- Add bicycle racks on buses. Corvallis has a large bicycling contingent, many of whom have indicated they would utilize racks on buses. The City will seek funding for a "bikes on buses" program from several potential sources.
- Upgrade bus stops to improve accessibility. The City will seek grant funds from several potential sources for this activity.
- Add bus bays as service demands increase;

- Construct all future collector, arterial, and other streets identified for transit use to accommodate buses with turn lanes, pullouts, or other improvements as needed;
- Construct a larger downtown terminal serving all transit providers, as well as alternative modes, including a secure bicycle parking facility (an ISTEA Enhancement grant has been approved to accomplish this activity, which is included in the City's Capital Improvement Program [CIP]);
- Construct and/or develop park-and-ride facilities in appropriate areas.

c. Planning Activities.

On-going planning/development activities, as well as other planning activities, are needed to reach transit's goals.

1) On-going. Increase transit planning activities in the overall land use, planning process:

- Review all developments, including CIP projects, to ensure transit-friendliness. Staff shall review, during development review and Capital Improvement Program project design, street improvement designs for access to the transit system. As new street projects and developments occur, opportunities for provision of transit facilities along existing or proposed transit routes shall be maximized.
- Include in the City's planning documents, such as the Land Development Code and the Comprehensive Plan, provisions requiring easements and/or other transit facilities where appropriate;
- Include transit-personnel participation in all transportation activities.

2) Other planning activities.

- Transit Master Plan. The City has been awarded an ODOT/DLCD Transportation Growth Management grant to develop a transit master plan. The plan will include recommended routes, infrastructure, land use amendments, evaluation of park-and-ride opportunities, etc. The project is to be completed by February 1997. This project will be coordinated with the City's transportation alternatives analysis project and the finalization of a Transportation Demand Management Plan for Corvallis.
- Transportation Alternatives Analysis. This effort will be coordinated with the transit master planning effort and will evaluate multi-modal transportation alternatives, transportation demand management, and transportation system management opportunities for Corvallis. This effort will be completed by May 1997.

Several other local and state transportation planning projects are currently underway. Participation in the following are imperative to assure transit issues are adequately addressed:

- Oregon Public Transportation Plan. CTS staff has participated in meetings regarding ODOT's development of the OPTP. The Plan will become part of the Oregon Transportation Plan upon its adoption by the Oregon Transportation Commission. The Plan will guide the State's future public transportation and transportation decisions, including funding. The Plan is expected to include an inventory of vehicles, equipment, and facilities; establish performance standards for various size transit systems; identify funding needs; and recommend possible funding alternatives.
- Benton County Transportation Plan. Transit staff has participated and will continue to participate in the development of this plan to assure inclusion of transit needs now and in the future.
- ODOT Corridor Study. ODOT has undertaken a study of various transportation corridors throughout Oregon. One such study is being conducted in our area. The study area includes Highway 20 between Corvallis and Albany and Highway 34 between Lebanon/Sweet Home and Newport. The study is expected to be completed by the summer of 1996.
- State Transportation Improvement Program (STIP). The next update of the STIP is scheduled to begin in the spring of 1996. Transit projects must be included in the STIP to receive federal or state funding. The next STIP process will attempt to establish criteria for evaluating different types of transportation projects to determine the best use of the resources within the restrictions placed on the use of the funds. The state's goal is to achieve the vision of the Oregon Transportation Plan, a multi-modal system which has reduced reliance on the single occupancy vehicle.

d. Funding Activities.

Establish financing needed to accomplish the above. Efforts should be made to broaden the base for transit support:

- Federal funds are available through the Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA allows flexible funding of capital investments for all transportation modes.
- The Oregon State Legislature should be lobbied to consider bills which could result in increased funding for transit.

- The City should establish an equitable method of financing transit facilities necessitated by growth and development.
- New service areas (public and private) may be able to assist in providing transit funding.
- Continue to pursue multi-year funding with major employers.

e. Other Activities

The following are also essential to the achievement of transit's vision. They are on-going activities which must be pursued concurrently with the above.

- **Continue Special Events.** Special events, such as daVinci Days, Benton County Fair, Fall Festival, and holiday trolley promote CTS. They increase the visibility of transit and provide an opportunity to form partnerships with private and public agencies.
- **Commitment to Regional Service.** CTS will continue to coordinate and connect its service with other public and private transit operators, such as the Linn-Benton Loop, the Valley Retriever, Greyhound, Betty's To and Fro, and the Benton County Special Transportation Program. To accomplish this, the City will involve other government agencies and others as needed.
- **Commitment to Multi-modal System.** Explore opportunities to improve the interface with other transportation modes (bikes, pedestrians, automobiles)
- **Continue Evaluation.** Continue a program of evaluation .
 - 1) Key indicators of effectiveness, efficiency, and need will be developed and continually monitored. Guidelines may be included in the Oregon Public Transportation Plan. CTS currently utilizes its rides per hour and cost per ride to evaluate the success of service enhancements. Implementation of any improvement would be based upon:
 - Effectiveness in adding ridership and/or reducing traffic;
 - Availability of buses for the new service;
 - Potential for increasing usage of existing services;
 - Maintaining the system's standing as one of the most efficient systems in the state;
 - Coordination with other services and providers.
 - 2) Review transit documents such as the business plan biennially.

CHAPTER 6.0 PEDESTRIANS

6.10 INTRODUCTION

Corvallis recognizes the value of pedestrian facilities in a successful transportation system. In Corvallis, this is accomplished through a system of public sidewalks, some dating to the early 1900s; maintenance of walkways along improved streets and between neighborhoods; and well-planned trails. Pedestrian signal facilities are installed with new traffic signals at intersections. The quality of this system is made apparent by the 1990 census data showing Corvallis with the fourth highest percentage (13%) of people walking to work among Oregon cities, behind Monmouth, Lincoln City, and Ashland.

Policies supporting safe and convenient pedestrian facilities have been a part of the Comprehensive Plan since its adoption in 1980. The Land Development Code implements these policies through **Section 4.0.40 - Pedestrian Requirements** (included as Appendix A of this section of the Transportation Plan) and others. The **Trails Master Plan**, adopted by the City Council as an element of the Comprehensive Plan on November 19, 1990, identifies existing and needed pedestrian and multi-use trails within Corvallis and is incorporated with this Transportation Plan by reference.

6.20 VISION

The vision for the pedestrian network in Corvallis is to provide safe, convenient access to all parts of the city by foot. The pedestrian network should enable people to get to locations of business, work, or play by a reasonably direct route or to take less direct but more scenic routes if that is their desire.

Achieving this vision will result in reduced reliance on the automobile, ensure neighborhood livability, and preserve the environment by providing open space and reducing air pollution. Encouraging development of a pedestrian-friendly, attractive community will also promote economic vitality.

6.30 EXISTING CONDITIONS

Corvallis' existing pedestrian system comprises 258 miles of sidewalks, with a present dollar value of approximately \$34 million, and six miles of developed pedestrian trails. Pedestrians frequently share use of off-street bike paths also. Figure A-4 Trails Master Plan in Appendix A identifies the locations of existing as well as future trails in Corvallis and surrounding areas. Standards for pedestrian and multi-use trails are discussed in detail in the adopted **Trails Master Plan**. The 1990 census showed Corvallis to have the fourth highest rate of commuters who walk to work in Oregon.

Many areas in Corvallis are highly attractive to pedestrians. Many of these areas have a mix of uses that allows pedestrians to accomplish several tasks within a short enough distance that walking is

the best means of travel. The downtown area is an example, as well as Monroe Avenue between downtown and 26th Street. Areas where the grid pattern of streets reduces the need for out of direction travel can also make pedestrian travel more attractive and convenient.

6.30.10 TYPES OF PEDESTRIAN TRAVEL

Walking is the mode of transportation available to the greatest majority of people. People walk for many reasons- some because it is the only means they have to get around and some because it is their preferred means of travel- and each of these statements is true for almost everyone at specific times of each day. Even when driving to work, shop, school, or play, one must generally walk from the car to the final destination and back. When at work, people frequently walk to accomplish errands during the day. People who use transit must walk to and from the bus stop. From these facts, it is clear that whether a person commutes or shops by foot, walks sidewalks or trails in the community for pleasure or exercise, or merely walks to and from a car or bus while accomplishing daily tasks, an efficient and convenient system of pedestrian facilities is an important element of the transportation system. Standards for this system should address the needs of a wide range of people, from young children to the elderly and from the healthiest individual to citizens with disabilities that make use of other travel modes difficult or impossible.

6.30.20 PEDESTRIAN FACILITIES

Pedestrian Facilities include walkways, traffic signals, crosswalks, and other amenities such as illumination, shelter, and benches. A **walkway** is a transportation facility built for use by pedestrians and persons in wheelchairs. Walkways include sidewalks, multi-use paths, and shoulders.

Sidewalks are located along roadways, separated with a curb or planting strip and have a hard, smooth surface. Sidewalks in some areas are sometimes used by bicyclists, but bicycles are banned from sidewalks along Monroe Avenue near OSU and in the downtown sector of Corvallis. Sidewalks are located on virtually all arterial and collector streets under city jurisdiction. Land Development Code, Section 4.0.40, contains standards requiring pedestrian facilities with new development and sidewalks on city streets as indicated in Table 6-1. Many streets within the city limits that lack sidewalks are county or private roads developed under standards different from those in the current Corvallis Land Development Code.

Park strips are an important element of the pedestrian environment in cities. Such areas should be landscaped with low maintenance plantings and street trees. The extra separation from motor vehicle traffic decreases road noise, prevents water from the roadway being splashed on pedestrians and provides an enhanced sense of security for walkers. Park strips also provide an enhanced environment for wheelchair users, allowing a constant cross-slope to be maintained. The greater slope required at curb cuts for driveways can be accomplished in the area of the park strip. Park strips also provide an area for sign posts, mailboxes, fire hydrants, and other objects that could reduce sidewalk clearance.

TABLE 6-1 Land Development Code Sidewalk Standards				
FACILITY	FEATURE	WIDTH (ft)	NUMBER	FEATURE WIDTH (ft)
Local	Park Strip	6	2	12
	Sidewalks	5	2	10
	Total Width			22
Cul-de-Sac	Park Strip	6	---	6
	Sidewalks	4	---	4
	Total Width			10
2 and 3 Lane Collector	Park Strip	12	2	24
	Sidewalks	5	2	10
	Total Width			34
2-5 Lane Arterials	Park Strip	12	2	24
	Sidewalks	5	2	10
	Total Width			34

Multi-use paths are entirely separated from the roadway, and are typically used by pedestrians, cyclists, skaters, and joggers. It is not realistic to plan and design a path for the exclusive use of pedestrians, as other users will be attracted to the facility. Paths may be paved or unpaved; They are often constructed for situations too hazardous for shared auto/bicycle travel or for their scenic and recreational value. Multi-use paths function best where motor vehicle crossings can be eliminated or minimized. Multi-use paths should be designed with a minimum of at-grade crossings with streets and driveways. Two-way multi-use paths should not be placed on or adjacent to roadways. There should be a minimum separation of 5 feet between two-way multi-use paths and roadways, or there should be a physical barrier. Ten feet is the standard width for a two-way multi-use path. Multi-use paths should be 12 feet wide in areas with high bicycle volumes or multiple use by bicyclists, pedestrians, and joggers. Bike lanes 8 feet wide should only be used where long-term usage is expected to be low, where there is minimum pedestrian use, and with proper alignment, to insure adequate sight distance. A two foot minimum "shy" distance (buffer area) should be provided on each side of the multi-use path and overhead obstructions should not be lower than a minimum of 10 feet. Further discussion of trail design is contained in **Section V. Design and Construction Standards** of the Corvallis Trails Master Plan.

Shoulders are typically the graveled surface adjacent to a paved roadway. Such facilities are adequate for rural facilities, but offer no protection for pedestrians in areas of higher traffic volumes typical in cities.

Crosswalks are defined by Oregon law as the prolongation of a curb, sidewalk, or shoulder across and intersection, whether marked or not. Outside an intersection, a crosswalk is created with

markings on the road. If a pedestrian is in a crosswalk (marked or not), all drivers on that half of the road are required to yield the right of way. At other locations, crossing is allowed, but pedestrians must yield to motor vehicles.

Marked crosswalks can give pedestrians a false sense of security. Marked crosswalks must be located where there is good visibility. "Zebra" markings or textured crossings can enhance visibility to drivers if problem locations arise.

Raised crosswalks or intersections, especially when combined with texturing or other markings can increase visibility. Properly designed, they may also function as "speed humps" and help to reduce traffic speeds

To aid crossing, several other improvements can be helpful. **Pedestrian islands and refuges** allow people to cross fewer lanes at a time at wide intersections. **Curb extensions** can have a similar effect and also may cause drivers to slow as they pass through intersections so equipped.

Pedestrian-activated signals may also be warranted at some locations where the volume of foot traffic is high enough. Sight distance must be adequate for motorists to see the light in time to stop, and warning signs should be installed on the approaching roadway.

Shelter can be an important incentive for increasing pedestrian travel. Shelter can include such things as transit shelters and awnings on buildings. At transit stops and other locations where pedestrians must wait, shelter makes the wait more comfortable. People are more likely to ride the bus if they do not have to wait in the rain. Awnings on storefronts and other buildings also provide shelter and can be a visual amenity as well.

Benches can be placed out of the pedestrian traffic stream with a slight widening of the sidewalk. Opportunities for rest or enjoyment of the scenery can be a strong inducements for walkers.

Design of pedestrian facilities should be consistent throughout the system. To accomplish this consistency for all public facilities, the City has adopted the **Design Criteria Manual for Public Improvements (July 1991)**. This manual should be reviewed regularly for consistency with accepted standards and community desires and updated as needed.

6.30.30 CURRENT PEDESTRIAN NEEDS

There are impediments to pedestrian travel in Corvallis. Many streets within the city limits that lack sidewalks are county or private roads developed under standards different from those in the current Corvallis Land Development Code. Many of these roadways will be upgraded to City standards as development along them occurs. Others will require creative financing efforts for installation of appropriate facilities.

Other impediments include areas where the roadway is very wide or very busy, making crossing difficult. Streets such as Circle Boulevard between 9th Street and Highland Boulevard, 3rd Street

south of Alexander Avenue, and 9th Street between Garfield Avenue and Circle Boulevard are examples. Strategically placed pedestrian-activated signals and/or pedestrian refuge islands may be appropriate remedies in some locations. Multiple auto accesses to parking lots and businesses in such high use areas can cause conflicts for pedestrians, and the large parking lot expanses can also discourage walking.

Discontinuous sidewalks also exist, even in some locations developed to City standards. These are generally not along collector or arterial streets, but in subdivisions where all lots have not been developed. Sidewalks are installed following house construction to avoid damage from heavy construction equipment and the resulting need for replacement.

Other impediments to walking include areas, primarily in subdivisions built in the 1960s and 1970s, where out-of-direction travel is required to get to neighborhood activity centers and shopping centers where little concern was given to pedestrian-friendly design concepts. The Land Development Code provides for walkways connecting cul-de-sacs to other streets or bisecting particularly long blocks, but the process for identifying where they are required is discretionary.

Lack of park strips along some streets can also discourage walking. Park strips provide separation from automobiles that is particularly important along arterials such as 9th Street and Circle Boulevard. Since park strips allow driveway cuts to occur between the roadway and the sidewalk, maintaining a consistent grade and surface for the sidewalk, leaving park strips out of any development can be problematic for elderly or handicapped persons.

Although not a facility need, **land use** can play an important role in the pedestrian system. As indicated above, areas of mixed-use can be very attractive to pedestrians. Existing such areas were generally developed before World War II when the automobile played less of a role in society. These areas frequently have a gridded street network, buildings oriented so that pedestrian access from streets is convenient, and smaller parking areas. Except in areas already nearly fully developed, Corvallis has no zoning designations that allow a mixture of uses, and has no code provisions requiring buildings to be oriented to the street for ease of pedestrian access. Pedestrian facilities and connections are required to be installed, but frequently they must traverse extensive automobile parking areas. An important need is to develop a mixed-use zoning designation that can be applied to undeveloped areas in the City and within the UGB.

6.40 FUTURE CONDITIONS

With the July, 1993 adoption of the Land Development Code, which implements pedestrian requirements of the State Transportation Planning Rule, the pedestrian network in Corvallis should show continued improvement. As development occurs, safe, convenient pedestrian facilities providing connectedness between developments and activity centers throughout the city are required by the code. Examples include sidewalks on arterial, collector, and local streets, and in other locations where direct, convenient access can be provided. Implementation of the trails plan through construction of trails along drainage way dedications and other identified trail corridors (see Figure

A-4) will also contribute to this system. Reconstruction of substandard arterial and collector streets also requires installation of pedestrian facilities.

An issue that has raised some concern in the community is the timing of sidewalk installation in new developments. The Land Development Code ties their installation to parcel development, generally the issuance of a building permit. This has led to locations where sidewalks are discontinuous, creating problems and sometimes hazards for pedestrians. This issue can be addressed in a number of ways.

First, Corvallis Municipal Code, Section 2.04 - Sidewalk Maintenance, Repair, and Liability requires the City Manager to report to City Council no less than once each year "concerning sidewalks construction, repair, and alteration required within the City for the public convenience and safety." Enforcement, however, is through formation of Local Improvement Districts, with a potential for Bancroft Bonding to spread costs over time. This may no longer be the reasonable means of enforcement, given Measure 5 constraints. Some other mechanism of enforcement may be needed for this section of the Municipal Code to be used successfully to ensure continuity of sidewalks in built areas.

A second method of addressing this issue relates to developing areas. Sidewalks could be considered a part of the public improvements that are required to be installed or secured for acceptance of a final plat. If secured, final installation of all sidewalks could be tied to a time line (two to five years) or completion of a percentage of the subdivision.

The City should consider solidifying its processes for ensuring pedestrian facility installation in a timely manner in new development and in built areas.

As modifications to transportation facilities are made, especially auto and transit facilities, impacts on and the opportunities for coordination with the pedestrian system should receive high scrutiny. Intersection widening beyond four lanes should be evaluated for opportunities to install refuge islands or curb extensions to reduce the distance pedestrians must travel and allow them to judge conflicts separately. Transit pull-outs and/or shelters should also be constructed at appropriate locations when roadway improvements are made.

6.50 SYSTEM ISSUES

6.50.10 STATE TRANSPORTATION PLANNING RULE

The State Transportation Planning Rule, requiring safe, convenient pedestrian facilities within and between new developments, has been implemented to a large extent through the recent adoption of the Land Development Code (July 19, 1993) and through the adopted Trails Master Plan. In addition to these efforts, the City needs to identify opportunities in developed areas to provide more direct, convenient and safer pedestrian access within and between residential areas and neighborhood

activity centers (i.e., parks, schools, shopping, transit stops)³⁸. Further amendments to the Land Development Code could provide for mixed-use development opportunities and require greater emphasis on building orientation as a means of encouraging walking as a mode of transportation.

6.50.20 MAINTENANCE³⁹

Sidewalk repair and maintenance in Corvallis are the responsibility of adjacent property owners. In 1983, Corvallis developed a 20-year revolving program directed at the replacement, repair, and construction of sidewalks throughout the City. Each year, the program designates a section of Corvallis that will receive improvements and repairs. Prior to Measure 5, Local Improvement Districts were created in these areas to help property owners spread the costs of repair over time. The current city program has authorized over \$375,000 of public funds in five years toward administering sidewalk replacement and repairs for pedestrian safety. Accessibility for handicapped persons is a key component of ongoing projects, with handicap ramps installed at intersections.

6.50.30 FUNDING

Funding for pedestrian facilities may come from many sources. Generally, development pays for sidewalks within and adjacent to a development site. ISTEPA and Corvallis Street Fund revenue (assessments, local property and state gas tax) may also be spent on pedestrian facilities within street rights-of-way. Appendix K of the Trails Master Plan evaluates several ways to fund the identified trail improvements. The Parks Systems Development Charge Improvement Fee is one of the currently available sources for trail improvements.

Because sidewalks are usually constructed in conjunction with auto circulation improvements (either during development or when upgrading a substandard street) pedestrian facility improvements identified for completion through this transportation plan will be discussed in **CHAPTER 10.0 Transportation Improvement Plan**.

6.60 PEDESTRIAN PLAN POLICIES

Plans and policies to deal with bicycles and pedestrians are a key element of the transportation system for Corvallis. The Corvallis Comprehensive Plan and the Land Development Code contain policies that meet most of the requirements of the Transportation Planning Rule.

6.60.10 EXISTING COMPREHENSIVE PLAN POLICIES

§§10.5.1. THE CITY SHALL REQUIRE SAFE, CONVENIENT, AND DIRECT PEDESTRIAN WAYS WITHIN ALL AREAS OF THE COMMUNITY.

³⁸ Inventory and improvement strategies will be adopted prior to deadlines set by Transportation Planning Rule 12.

³⁹ Sidewalk maintenance differs from that of other transportation facilities, as it is the responsibility of the adjacent property owner. Generally, maintenance is covered in Appendix C - Maintenance.

§§10.5.2. THE COMMUNITY SHALL GIVE SPECIAL CONSIDERATION TO PROVIDING ACCESS FOR HANDICAPPED PEOPLE.

§10.5.3 PEDESTRIAN ACCESS SHALL BE ADDRESSED IN THE REVIEW OF PROPOSED CUL-DE-SAC DEVELOPMENTS. IN SOME CASES IT IS APPROPRIATE TO REQUIRE PEDESTRIAN RIGHTS-OF-WAY INTERCONNECTING THE ENDS OF SUCH STREETS.

Additional effort is required to ensure that pedestrian travel is safe and convenient. The following policies have been developed to provide support for Land Development Code standards for new development.

6.60.20 PROPOSED ADDITIONAL TRANSPORTATION POLICIES

- a. New development and redevelopment projects shall encourage rather than discourage pedestrian access by providing convenient, useful, and direct pedestrian facilities.
- b. All arterial and collector streets shall have sidewalks constructed at the time of initial street improvement to encourage pedestrian use.
- c. Safe and convenient pedestrian facilities that minimize travel distance shall be provided by new development within and between new subdivisions, planned developments, shopping centers, industrial parks, residential areas, transit stops and neighborhood activity centers such as schools, parks and shopping.
- d. Where minimizing travel distance has the potential for increasing pedestrian use, direct and dedicated pedestrian paths shall be provided by new development.
- e. The Oregon Department of Transportation shall construct sidewalks at the time of highway improvements as an integral part of the improvement and pay the sidewalk improvement costs with ODOT project funds.
- f. Maintenance policy decisions shall consider and encourage pedestrian facility use.
- g. Flexibility in pedestrian facility standards may be allowed for retrofitting of local streets in substandard locations when the deviation from standards can be shown to better pedestrian accessibility.
- h. The City shall encourage timely installation of pedestrian facilities to ensure continuity and reduce hazards to pedestrians throughout the community.
- i. New commercial development shall be oriented toward adjacent existing and planned sidewalk facilities to encourage pedestrian activity.

6.60.30 IMPLEMENTING ACTIONS

The Transportation Planning Rule (TPR) requires pedestrian facilities in community planning. Corvallis' Land Development Code currently provides for pedestrian facilities, thereby meeting the requirements of the rule in newly developing areas. The rule requires that bicycle and pedestrian circulation issues be addressed at project level to assure conformity to the transportation plan and to enhance site design for alternative modes of transportation. This will be accomplished in Corvallis at the time of development review and through transportation reports for projects of appropriate size.

The TPR also requires jurisdictions to inventory existing facilities to identify locations where it is desirable to have a more direct, convenient, and safer connection between residential areas and neighborhood activity centers. Corvallis has had a requirement to provide such connections (such as walkways from the end of cul-de-sacs to adjacent roads) in its Land Development Code since 1981. Further inventory to meet this requirement will need to be accomplished by the deadline established for adoption of Transportation System Plans in the TPR.

Corvallis has underway several planning projects (the West Corvallis Growth Management and Open Space Planning Project and the South Corvallis Refinement Plan Project) that are expected to develop concepts for mixed-use zoning (specifically, Pedestrian Oriented Neighborhoods in the West Corvallis effort) and appropriate standards. Recommendations for implementation of the Pedestrian Oriented Neighborhoods will include design elements intended to enhance the pedestrian environment. Following completion of these projects, their recommendations should be considered for adoption into the Land Development Code.

The Trails Master Plan also identifies many improvements to pedestrian facilities which will be implemented into the future. The implementation of the plan is a long-term project to be completed as the City of Corvallis grows within its Urban Growth Boundary. This will involve a number of entities with varying responsibilities:

1. City of Corvallis Parks and Recreation and Benton County Parks Departments are to be primarily responsible for future planning, funding and development of the trails system and facilities; also for providing input into the land development process.
2. Benton County Development and City of Corvallis Community Development Departments and their respective planning commissions are to be primarily responsible for ensuring that the goals of this plan are implemented through the land development process.
3. City of Corvallis Engineering Division and Benton County Public Works Department are responsible for providing facilities for bicycle travel.
4. Volunteers will be sought to supplement City/County staff efforts. The Trails Committee will be a crucial catalyst for implementing the Trails Master Plan.

The Corvallis and Philomath Greenbelt Land Trust (GALT) is a private, non-profit, tax-exempt organization which can acquire open space lands with scenic, historical, agricultural or recreational values through gifts or purchases. Future acquisitions by this organization may have potential for future trail linkages

APPENDIX 6-A
(From the Corvallis Land Development Code)

Section 4.0.40 - PEDESTRIAN REQUIREMENTS

- a. Sidewalks shall be required along both sides of all arterial, collector, and local streets, as follows:
 - 1. Sidewalks shall be a minimum of 5 ft wide on local through streets and a minimum of 4 ft wide on cul-de-sacs. The sidewalks shall be separated from curbs by a tree planting area that provides at least 6 ft of separation between sidewalk and curb.
 - 2. Sidewalks along arterial and collector streets shall be separated from curbs with a planted area. The planted area shall be a minimum of 12 ft wide and landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of 6 ft wide.
 - 3. The timing of the installation of sidewalks shall be as follows:
 - (a) Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements.
 - (b) Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below and in all cases within three years of the filing of the final subdivision plat.
 - (c) Where sidewalks on local streets abut common areas, drainageways, or other publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.
- b. Safe and convenient pedestrian facilities that strive to minimize travel distance to the greatest extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, transit stops, and neighborhood activity centers such as schools and parks, as follows:
 - 1. For the purposes of this section, "safe and convenient" means pedestrian facilities that: are reasonably free from hazards which would interfere with or discourage pedestrian travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians considering destination and length of trip.
 - 2. To meet the intent of "b" above, pedestrian rights-of-way connecting cul-de-sacs or passing through unusually long or oddly shaped blocks shall be a minimum of 15 ft

wide. When these connections are less than 220 ft long (measuring both the on-site and the off-site portions of the path) and they directly serve 10 or fewer on-site dwellings, the paved improvement shall be no less than 5 ft wide. Connections that are either longer than 220 ft or serving more than 10 on-site dwellings shall have wider paving widths as specified in Section 4.0.50.c.

3. Internal pedestrian circulation shall be encouraged in new developments by clustering buildings, constructing convenient pedestrian ways, and/or constructing skywalks where appropriate. Pedestrian walkways shall be provided in accordance with the following standards:
 - (a) The on-site pedestrian circulation system shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to minimize out-of-direction pedestrian travel.
 - (b) Walkways shall be provided to connect the on-site pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.
 - (c) Walkways shall be as direct as possible and avoid unnecessary meandering.
 - (d) Walkway/driveway crossings shall be minimized, and internal parking lot circulation design shall maintain ease of access for pedestrians from abutting streets, pedestrian facilities, and transit stops.
 - (e) With the exception of walkway/driveway crossings, walkways shall be separated from vehicle parking or maneuvering areas by grade, different paving material, or landscaping. They shall be constructed in accordance with the sidewalk standards adopted by the City Engineer. (This provision does not require a separated walkway system to collect drivers and passengers from cars that have parked on site unless an unusual parking lot hazard exists).
- c. Where a development site is traversed by or adjacent to a future trail linkage identified within either the Corvallis Transportation Plan or the Trails Master Plan, improvement of the trail linkage shall occur concurrent with development. Dedication of the trail to the City shall be provided in accordance with Section 4.0.110.d.
- d. To provide for orderly development of an effective pedestrian network, pedestrian facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).

- e. To ensure improved access between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or Director may require off-site pedestrian facility improvements concurrent with development.

CHAPTER 7.0 AIR

7.10 INTRODUCTION

The Corvallis Municipal Airport is located approximately five miles south of the City's business center near Highway 99W. The City initiated land acquisition for the airport in 1941, with the purchase of 491 acres prior to World War II. When the war broke out, the U. S. Army assumed responsibility for construction of what became the Corvallis Army Air Base. Following the war, the air base was returned to the City's control with two restrictions - the base must remain in public use, and the Federal government has the right to mine any fissionable material that may be present on the site. Air-carrier service was provided at the airport between 1947 and 1973, and Pacific Air Commuter Service started service between Corvallis and Portland on July 18, 1994. Pacific Air terminated service on April 15, 1995, due to under capitalization.

The Corvallis Municipal Airport Master Plan (updated in 1991) is the primary source of information for this element of the Corvallis Transportation Plan and is adopted by reference. This document identifies Benton County as the service area for the Corvallis Municipal Airport.

Corvallis Municipal Airport is a General Aviation Airport and handles all types of aviation except Civil Aeronautics Board-certified air carrier services (fixed-route air transportation).

7.20 VISION

The vision for the Corvallis Municipal Airport is to provide a facility that meets the needs of individual and corporate users and that will be adequate for commuter-scale air carrier service.

7.30 EXISTING CONDITIONS

7.30.10 OPERATIONS

The Corvallis Municipal Airport is managed by the Public Works Department. Maintenance is provided by private contracts. The Airport Fund is an enterprise fund, meaning that airport operations, maintenance, and capital improvements (except when state grants are available for local match on FAA projects) are totally funded from airport revenue. Audited resources for FY 1993-94 were \$658,330, and expenditures were \$484,337.

There were 82 fixed-wing aircraft and 11 helicopters based at the Corvallis Municipal Airport in 1993. This number is expected to grow at a rate of 1.8 percent per year. An estimated 52,000 operations (a take-off or a landing) took place in 1993. This activity is expected to increase by 2.8 percent per year.

7.30.20 FACILITIES

The Corvallis Municipal Airport has two sets of runways (each direction is a separately numbered runway) numbered 9-27 and 17-35. Runway 9-27 is 3,769 feet long by 150 feet wide. Runway 17-35 is 5,900 feet long by 150 feet wide. Visual and Navigational aids to pilots and other runway design issues are further detailed in the Corvallis Airport Master Plan. Parallel taxiways facilitate aircraft movement to and from the runways and provide adequate access to each runway.

Currently, there are 46 paved tiedowns, 91 T-hangar spaces, and a minimum of 20 other indoor aircraft storage spaces. One new private T-hangar building was completed in the fall of 1993, and two were completed during the Spring of 1995. One new T-hangar building is under construction and will be available during the Spring of 1996. Two full-service fixed-base operators provide commercial general-aviation services such as air charter, air taxi, flight instruction, aircraft maintenance, and fueling services.

City water and sewer services are provided to the Airport/Industrial Park facility. Telephone service is provided by US West Communications; natural gas is provided by Northwest Natural Gas; and electrical service is provided by Pacific Power and Light. Corvallis Transit System does not provide service to the airport, as it is outside the city limits.

7.40 FUTURE CONDITIONS

Forecasts of airport use and needs are discussed in depth in Chapter 3 of the Corvallis Municipal Airport Master Plan. In summary, aviation activity at the Corvallis Municipal Airport is expected to grow at approximately the same rate as the general economy. Regional/commuter uses and business uses of aircraft in the general economy are expected to grow faster than the larger, established airlines or personal use.

The number of aircraft based at the Corvallis Airport is expected to grow from the current 88 to 110 by the year 2010. Aircraft operations are expected to grow from 52,000 to 81,800 during the same period. This growth presents no **capacity** problems. State and Federal FAA grants were received by the City to complete the runway extension from 5,065 feet to 5,900 feet during FY 1994-95 and FY 1995-96. The new 5,900 foot runway will accommodate on an unconstrained basis all corporate-type aircraft using or expected to use the facility during the planning period.

Additional needs identified in the Master Plan include:

Beyond FY 1995-96

Gates on Hangar Access Road
Land Acquisition - Runway 17/35 RPZ⁴⁰
Navigation Easement

⁴⁰ Runway Protection Zone

Runway 27 RPZ
Taxiway A-1 Construction
Construct Helipads (4)
Runway 9/27 Rehabilitation
Replace MIRL⁴¹ - Runway 9/27
North Cyclone Fencing (security fencing) 7 gates
Vehicular Parking Area
Fencing west, south and east perimeter (security)
Aircraft Rescue and Fire Fighting Facility

7.50 SYSTEM ISSUES

7.50.10 LAND USE

Land use issues surrounding airport facilities are addressed in Chapter 7 of the Corvallis Municipal Airport Master Plan. Generally, these issues have to do with the compatibility of uses related to noise generated by airport activities. No residentially zoned property is located beneath any of the runway approach surfaces. No noise-sensitive uses fall within the 55-decibel day and night noise contour. Occasional complaints are received concerning aircraft noise, but no pattern has emerged to indicate the need for a specific response. Land uses in the vicinity of the airport are primarily agricultural or industrial.

Land use at the airport site is controlled by the Benton County Development Code. The Airport Overlay Zone protects the "imaginary surfaces" (air-space) surrounding the airport from encroachment by tall structures. The City has completed an Airport Industrial Park Development Plan, which identifies the types of development to be sought for city-owned property at the airport industrial site. Some of the proposed uses are not allowed under current county zoning guidelines. The City has assumed zoning administration for permitted uses for the airport and surrounding city-owned property.

7.50.20 FUNDING

As previously indicated, the Airport Fund is an enterprise fund. Airport operations and maintenance are funded out of revenues generated by the airport and its Industrial Park. The larger funding need, however, is capital improvement. The Federal Aeronautics Administration (FAA) will provide a 90 percent grant for approved capital improvements identified in the Airport Master Plan. These include safety and airport amenities, but do not include aircraft housing or auto parking facilities. Local matching funds are required for the remaining 10 percent. Possible funding sources include:

- Operating Income
- Lease Income

⁴¹ Medium Intensity Runway Lights

- Revenue Bonds
- General Obligation Bonds
- State Grants (Oregon Aeronautics or Economic Development Divisions)

7.50.30 AIRPORT HIERARCHY

The Federal Aviation Administration administers guidelines and rules concerning airports based on size and use. Airports are placed in groups from A through D. Group A are General Aviation Airports with low numbers of operations primarily by single-engine aircraft. Visual Flight Rules apply. The Toledo Airport is an example.

Group B airports are also General Aviation with moderate numbers of operations, no jets and only occasional light twin-engine aircraft. Visual Flight Rules usually apply. Albany Airport is a Group B airport.

Group C airports are mostly General Aviation with moderate to high numbers of operations, including business jets, heavy twins, and transport aircraft. These airports may have precision or non-precision instrument approaches. The Corvallis Airport falls in this category.

Group D airports are Air Carrier airports with high numbers of total operations and the full range of aircraft, including business jets. Precision approach instrumentation is the norm. Eugene, Salem, and Portland International fall within this category.

7.60 AIR POLICIES

7.60.10 EXISTING COMPREHENSIVE PLAN POLICIES

§§10.8.1. THE CITY SHOULD FURTHER DEVELOP FACILITIES AND SERVICES AT THE CORVALLIS AIRPORT. THE CITY SHALL CONTINUE EFFORTS TO SECURE PERMANENT, SCHEDULED AIR-TAXI SERVICE.

§§10.8.2. THE CITY SHALL WORK TO INSURE THAT LAND USES SURROUNDING THE AIRPORT BOTH IN AND OUTSIDE OF THE CITY AND UGB ARE DEVELOPED IN A FASHION THAT MAINTAINS THE CITY'S ABILITY TO ENABLE THE AIRPORT TO FUNCTION AS AN IMPORTANT ELEMENT OF THE TRANSPORTATION SYSTEM.

§§10.8.3 EXPANSIONS OF THE URBAN GROWTH BOUNDARY AND OTHER LAND USE ACTIONS AFFECTING PROPERTY AROUND THE CORVALLIS AIRPORT SHALL FULLY PROTECT AIRPORT FUNCTIONS, VIABILITY, AND EXPANSION POTENTIAL.

These policies, combined with the development with Benton County of airport overlay land use regulations around the airport, carry out the primary requirements of the Transportation Planning Rule for protection of airport operations. Further policies are suggested to help implement the various aspects of the Airport Master Plan effort.

7.60.20 PROPOSED ADDITIONAL TRANSPORTATION POLICIES

- a. Future airport development shall be in accordance with the **Corvallis Airport Master Plan**.
- b. The **Corvallis Airport Master Plan** shall be updated every ten years.
- c. All land leases shall be in accordance with FAA regulations, and any potential sale of property in the Airport Industrial Park shall be in accordance with the **City of Corvallis Land Disposition Policy** as approved by the FAA.
- d. Development in the Airport Industrial Park shall be in accordance with the **City of Corvallis Airport Industrial Park Development Plan**.

7.60.30 IMPLEMENTING ACTIONS

The Corvallis airport Master Plan, the Corvallis Airport Land Disposition Policy and the Airport Industrial Park Development Plan shall provide direction for activities at the Airport and the adjacent industrial park.

CHAPTER 8.0 RAIL

At present, rail freight service to the Corvallis area is provided by Willamette & Pacific Railroad, Inc., a short-line carrier created in February, 1993, when Southern Pacific leased its western Willamette Valley branches to Genesee & Wyoming Incorporated, which owns W & P. From Albany, where the company is headquartered, one of W & P's two core lines runs to Corvallis, passing through the downtown area on an island in 6th Street. At 6th Street and Washington Way, this line turns westward through the campus of Oregon State University to Philomath. From there, the track enters the Coast Range and continues through Wren, Blodgett, Summit, Nashville, and Eddyville to Toledo. Daily freight service is operated each way between Corvallis and Toledo, and twice daily between Corvallis and Albany. A resident switch-engine provides five-day service to industries near Corvallis, including a developing industrial park near the Corvallis Airport.

W & P's second core route extends from Monroe, south of Corvallis, through Corvallis (on the 6th Street trackage) to Newberg with connections beyond to Portland. Service south of Corvallis is provided two to three times per week, but north of the City to Newberg it is daily and sometimes twice daily. Figure 8-1 indicates the alignment of W & P's tracks in the Corvallis area.

Most of the existing mainline railroad crossings are at-grade. In the more urbanized areas of Corvallis, these at-grade railroad crossings could constitute a pedestrian/auto safety conflict. Train blockages during peak traffic periods result in congestion and delay.

Passenger rail service to Corvallis is included in the State Rail Plan but is not currently available in Corvallis. Amtrak passenger service is available in Albany, less than ten miles away. Connections to the Amtrak passenger depot in Albany can be made via Greyhound bus service and the Linn-Benton Loop system. The State of Oregon has funded a statewide study of passenger rail service. The Plan has been adopted by the Oregon Transportation Commission. The plan proposes that Corvallis have access to current passenger rail service and future high speed passenger rail service via bus connections to Albany. Long range plans, (20 to 50 years), include an interurban electric passenger rail service through Corvallis with top speeds of 80 miles per hour.

While W & P's lease with SP precludes passenger service at this time, changes are possible in the future. W & P has indicated an interest to work with the community to link Corvallis by rail with the Eugene-Vancouver, B. C. High Speed Rail Corridor and in operating excursion trains in conjunction with OSU athletic contests.

Within the community, there has been some discussion of the use of trackage for both inter- and intra-city transit. The existing tracks pass through many of the primary origins and destinations within the region, including Philomath, Oregon State University, downtown, Corvallis Airport, Hewlett-Packard, Albany, and even Portland, Salem, and Eugene. Although there are no current plans for such service, existing track layout could provide opportunities for the movement of people among these key places within and outside the community. Particular attention should be paid to potential use of the Corvallis to Albany trackage for access to future high speed rail service in Albany. Also, land use around intersections between tracks and existing or future bus transit lines

should be reviewed for placement of higher density residential, commercial, and/or industrial nodes. The City should keep discussions open with other public agencies and private rail service providers to identify opportunities for development of the rail system in the region.

Comprehensive Plan policies address rail service in Corvallis.

8.10 RAIL PLAN POLICIES

8.10.10 EXISTING COMPREHENSIVE PLAN POLICIES

- §§10.7.1. RAIL SERVICE SHOULD BE CONSIDERED AS AN ALTERNATIVE FOR FUTURE TRANSPORTATION PLANNING.
- §§10.7.2. CORVALLIS SHALL PURSUE METHODS TO INCREASE THE SAFETY OF RAILROAD CROSSINGS.
- §§10.7.3. THE CITY SHALL WORK WITH INDUSTRY AND RAIL SERVICE PROVIDERS TO RETAIN RAIL SERVICE TO THIS COMMUNITY'S INDUSTRIAL AREAS.

Each of these addresses a particular aspect of rail service for the community. Passenger rail service is not directly addressed, and the following policy is suggested to provide incentive for appropriate agencies.

8.10.20 PROPOSED COMPREHENSIVE PLAN POLICIES

1. The City shall work with government, passenger rail service providers, and other agencies to obtain passenger rail service for Corvallis.

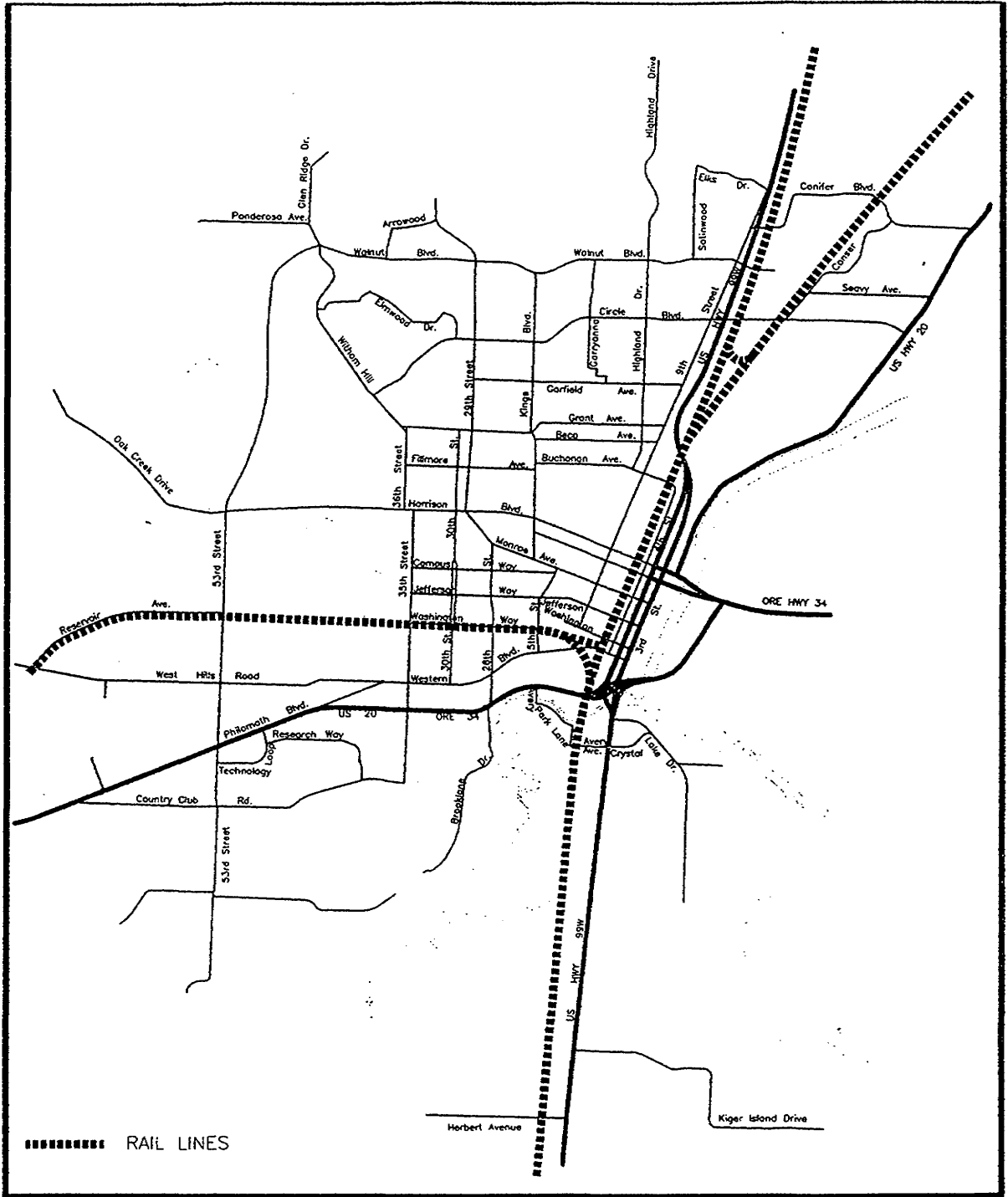
In addition, Comprehensive Plan Policy 10.7.3 is proposed to be amended as follows:

- (New) 10.7.3 The City shall work with government, industry and rail service providers to promote rail service to this community's industrial areas.



8.10.30 IMPLEMENTING ACTIONS

During the evaluation of transportation and land use alternatives, opportunities for intermodal connections and enhancements with regard to rail service will be reviewed.

FIGURE 8-1 Rail Network



RAIL LINES

 <p>CORVALLIS SMOOTH COURTESY QUALITY</p> <p>GEOGRAPHIC INFORMATION SYSTEM</p>	<p>CITY OF CORVALLIS</p> <p>COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION - MAPPING/GIS SERVICES</p>	<p>DATE 2/16/94 PRODUCED BY K. LOSSO</p>	
<p>RAIL SERVICE (1994)</p>			

CHAPTER 9.0 WATER AND PIPELINES

Corvallis is located at the confluence of the Willamette and Marys Rivers. Neither, however is particularly suited to water transportation for Corvallis in more than a recreational manner. The Comprehensive Plan policy regarding this issue states:

§§10.9.1. THE MARY'S AND WILLAMETTE RIVERS SHOULD BE
 CONSIDERED AS POTENTIAL RESOURCES IN FUTURE
 TRANSPORTATION PLANNING.

No new opportunities for this potential were identified during this planning project.

No significant Pipeline Transportation facilities exist within Corvallis.

CHAPTER 10.0 TRANSPORTATION IMPROVEMENT PLAN

The projects identified in this transportation improvement plan provide opportunities for addressing transportation problems and for achieving the vision for the overall transportation system. This vision is for a system where people, goods, and services move through the system safely, efficiently, and conveniently by a number of modes. As a result of the system of streets, multi-use paths, and sidewalks, alternate modes of transportation are accommodated and neighborhoods have high livability with little unnecessary traffic intrusion.

Currently, the transportation system in Corvallis functions effectively in most locations. Projects are proposed that will address areas of immediate need or identify alternatives for areas where problems are likely to soon materialize.

Projects are grouped according to the time frames in which they are predicted to be needed. The time frames evaluated in this improvement plan are generally noted as: 10 years, by population 62,500 (20 years), and by 80,000 population (30-50 years).

10.10 10 YEAR IMPROVEMENTS

Projects needed within the next 10 years have been grouped into city-initiated projects and state Highway projects. City-initiated projects within the 10-year time frame are grouped by priority as:

- Projects underway or continuing;**
- A priority;**
- B priority; or**
- C priority.**

To prioritize projects within the initial planning horizon, the City has an established Capital Improvements Program that identifies projects to be completed in a five-year cycle. Each year, the previous year's completed projects are dropped from the list, and a new fifth year is added. This is accomplished during the yearly budget cycle with significant public input opportunities. Actual project scope and funding will be finalized through this process as each project is brought into the five-year funding cycle. In this manner, projects can be programmed to meet community needs as they arise. The Transportation Plan is a system wide plan which is to guide decision makers in this prioritization.

Table 10-1 lists the projects funded in the FY 1995-96 Capital Improvement Program (CIP) budget or projects carried over from the previous year's CIP for completion.

Table 10-1: City Initiated Projects Underway or Continuing
Safety Sidewalk Program
Multi-use Path - Buchanan Avenue to Circle Boulevard
Airport Runway Extension and Taxiway Rehabilitation
Walnut Boulevard Corridor Study and Improvements

Table 10-2 contains City-initiated projects to be considered within the 10 year horizon grouped into priority A, B, or C, not including projects which are underway or continuing. **Projects are not ranked within each priority grouping.**

Table 10-2: 10-Year Transportation Improvement Projects							
PROJECTS	Bikes	Peds	Transit	Autos	PRIORITY	COST ESTIMATE	SEE PAGE #
Kings Boulevard					A	\$2,256,000	10-10
Monroe to Van Buren	✓						
Van Buren to Harrison	✓		✓	✓			
Harrison to Buchanan	✓			✓			
Path, Witham Hill Drive to Harrison Boulevard	✓	✓			A	\$495,000	10-13
Riverfront Multi-use path Widening	✓	✓			A	\$200,000	10-13
Downtown Intermodal Mall	✓	✓	✓		A	\$141,000	10-13
Transit Bus Stop Facilities		✓	✓		A	\$150,000	10-14
Traffic Signal - South 3rd Street and Adams Avenue	✓	✓		✓	A	\$135,500	10-14
ORE 99W/Circle Boulevard Intersection				✓	A	\$500,000	10-14

Table 10-2: 10-Year Transportation Improvement Projects

PROJECTS	Bikes	Peds	Transit	Autos	PRIORITY	COST ESTIMATE	SEE PAGE #
Harrison Corridor Strategy (NTMCP)					A	\$750,000	10-15
Harrison Turn lanes (29th, 35th, 36th)	✓		✓	✓			
Bikelanes (29th to 36th)	✓						
Miscellaneous Airport Improvements					A	\$204,000	10-18
Walnut Boulevard Extension to Circle Boulevard	✓	✓	✓	✓	A	\$1,750,000	10-19
Annual Neighborhood Traffic Management Improvements (5-yr total)	✓	✓			A	\$250,000	10-19
Annual Bicycle Parking Improvements	✓	✓			A	\$80,000	10-19
Bike Parking - Covered Downtown							
Bike Parking - Downtown upgrade							
Bike Parking- Monroe Covered							
Bike Parking - Other Commercial							
14/15 Streets, Jefferson to Monroe Avenues	✓				A	\$60,000	10-20
Brooklane Drive Improvements - Nash to Highway. 20/34	✓	✓		✓	A	\$2,610,000	10-20
Chintimini to Agate **							
Chintimini to /Highway 20/34 **							
Highway 20/34 and 26th Street Intersection							
Nash Drive Replacement to SW 53rd St. **							
26th/Brooklane Drive Highway. Crossing	✓	✓		✓	A		10-20

Table 10-2: 10-Year Transportation Improvement Projects

PROJECTS	Bikes	Peds	Transit	Autos	PRIORITY	COST ESTIMATE	SEE PAGE #
Multi-Use Path Circle Boulevard R-O-W, Harrison Boulevard to Campus Way	✓	✓			A	\$495,000	10-20
Traffic Signal - Walnut & Glenridge/Witham **	✓	✓		✓	A	\$152,000	10-20
West Hills Rd Improvements - Western Boulevard to 53rd St.**	✓	✓	✓	✓	A	\$1,900,000	10-21
3rd Street, Downtown Bikelanes	✓				A		10-21
4th Street, Downtown Bikelanes	✓				A		10-21
35th Street - West Philomath Boulevard to Orchard Avenue **	✓	✓	✓	✓	B	\$2,380,000	10-21
14th Street, Monroe Avenue to Harrison Boulevard	✓				B		10-22
West Hills Rd. - 53rd St. to Reservoir Rd.**	✓	✓	✓	✓	B	\$1,300,000	10-22
53rd Street Improvements **	✓	✓	✓	✓	B	\$5,300,000	10-22
Country Club Drive Improvements **	✓	✓	✓	✓	B	\$2,900,000	10-23
Ponderosa Avenue Improvements **	✓	✓		✓	B	\$1,250,000	10-23
Traffic Signal - 9th Street & Grant Avenue	✓	✓		✓	B	\$127,000	10-23
Grant Avenue, Highland Boulevard to 9th Street	✓				B	\$2,500	10-23
Garfield Avenue, Highland Boulevard to 9th Street	✓				B	\$4,500	10-24
Crystal Lake Drive, Alexander to Park Avenues	✓	✓	✓	✓	B	\$440,000	10-24
Alexander Avenue, Crystal Lake Drive to 3rd Street	✓	✓	✓	✓	B	\$170,000	10-24
Park or Goodnight Avenue, Crystal Lake Drive to 3rd Street	✓	✓			B	\$270,000	10-24

Table 10-2: 10-Year Transportation Improvement Projects

PROJECTS	Bikes	Peds	Transit	Autos	PRIORITY	COST ESTIMATE	SEE PAGE #
Madison Avenue, 6th to 14th Streets	✓				B		10-24
Riverfront to Van Buren Bridge Connection	✓	✓			C	\$187,350	10-26
Buchanan Avenue/9th Street Left-turn Lanes				✓	C	\$150,000	10-26
Circle Boulevard Right-Turn Lane Eastbound @ 9th				✓	C	\$280,000	10-26
Bicycle/Pedestrian RR Crossing	✓	✓			C	\$550,000	10-27
Conifer/9th/99W Intersection (Study only)					C		10-27
Path, Crystal Lake Drive to Willamette Park	✓	✓			B	\$950,000	10-28
Porter Park Path	✓	✓			C		10-28
Path, Goodnight Avenue to Avery Avenue and Goodnight to Airport Road	✓	✓			C		10-28
Path, Chapman Place to Willamette Park along the Willamette River	✓	✓			C	\$390,000	10-28
Witham Hill Drive Bike Lanes, Canary Street to Walnut Boulevard	✓	✓			C	\$580,000	10-28
Riverfront Path Extension	✓	✓			C		10-28
Walnut Boulevard: Extension from near Belvue to Circle	✓	✓			C		10-28
Path: Circle to Conifer Boulevards	✓	✓			C		10-28
East/West Bikeway downtown between Van Buren Boulevard and Western Boulevard	✓	✓			B		10-28
						\$27,664,850	

** Indicates project will most likely be initiated concurrent with new development along corridor.

TABLE 10-3 IMPROVEMENTS NEEDED TO 62,500 POPULATION	
DEVELOPMENT RELATED	
Arterials and Collectors Included in the West Corvallis Access Strategy **	\$9.1 million
Widen 53rd Street from Philomath Boulevard to Nash Avenue **	\$2.3 million
Circle Boulevard Extension - Witham Hill Drive to Harrison Boulevard **	\$2.5 million
Reservoir Road Improvements	\$2.24 million
Build a New Collector from Airport Ave. to the Extension of Rivergreen Ave. on the West Side of Highway 99W **	\$3.5 million
Goodnight Avenue Improvements **	\$0.25 million
Widen Circle Boulevard to Highway 20	\$0.95 million
Conifer Boulevard Improvements - City Limits to Highway 20	\$0.76 million
Arterials and Collectors in UGB Identified in Figure A-1 as Required by Development.	\$?.? million
TOTAL	>\$18.5 million
STATE/FEDERAL HIGHWAY IMPROVEMENTS	
Widen US 20/ORE 34 in Corvallis	\$5.0 million
Provide Ramps Between ORE 99W and US 20/ORE 34	\$1.5 million
Improve Bypass/ORE 34 Interchange	\$5.0 million
Construct 2 lanes of the northern leg of the bypass	\$13.0 million
TOTAL	\$24.50 million

** Indicates project will most likely be initiated concurrent with new development along corridor.

Some of the identified projects have quantifiable engineering features such as accident rate (safety), level of service (LOS), and average daily traffic served (ADT). Table 10-4 lists those projects and presents engineering data for comparison.

TABLE 10-4 Project Technical Comparisons					
PRIORITY	LOCATION	ACCIDENT RATE	L.O.S.* (CONGESTION)		CURRENT ADT* SERVED
			EXISTING	62,500 POP	
A	KINGS/HARRISON	0.80	D	E	20,460
A	CIRCLE/Highway 99W	0.54	D	F	29,200
A	HARRISON/29TH	0.68	E	F	18,900
	HARRISON/35TH	0.22	A/E	D/F	9,392/3,259
	HARRISON/36TH	0.26	A/C	D/D	7,021/2,464
A	T.S. 3RD/ADAMS	1.13	A/D	B/F	12,612/3,669
A	CONIFER/99W	0.68	D	F	19,790
B	T.S. WALNUT/GLENRIDGE	0.51	A/B	B/E	6,843/1,650
B	T.S. 9TH/GRANT	0.36	C/F	D/F	23,333/1,325
C	WALNUT LEFT-TURN LANES @ GARRYANNA	0.45	C/E	D/E	17,989/1,325
C	BUCHANAN/9TH	0.89	C	D	25,300
C	CIRCLE EB LEFT-TURN LANES @ 9TH STREET	0.80	C	D	29,550

NOTES:
 NA = NOT AVAILABLE

Accident Rate = Average number of accidents per year per 1,000,000 vehicles entering the intersection

*Level of Service (LOS) and Average Daily Traffic served (ADT) are shown for unsignalized intersections as Major Street/Minor Street. LOS is similar to a report card grade which rates congestion at intersections with A signifying little congestion and F signifying very heavy congestion. Projects are not prioritized within each ranking

Priority grouping in Table 10-4 requires balancing of the technical data. All of these projects are expected to reduce accident rates; however, additional study would be required to determine how directly a project addresses the reasons for the accidents and to predict how great an improvement might be achieved. The priority for street improvements in Table 10-4 was assigned by placing more emphasis on existing LOS and ADT served, or predicted major changes with growth.

10.10.10 CITY-INITIATED PROJECTS

a. Projects Underway or Continuing

Projects underway or continuing are programmed for funding in Fiscal Year 1995-96 of the Corvallis Capital Improvement Program.

1) Safety Sidewalk Program (Ongoing)

This program continues the systematic repair and replacement of hazardous public sidewalks, installs handicap ramps, and replaces substandard driveway and alley approaches throughout the community. The safety sidewalk program provides and ensures adequate and safe pedestrian facilities throughout the community.

This project funds the inventory, notification, construction, inspection, and administration of the Safety Sidewalk Program. City participation funds installation of concrete ramps at intersections, repair or replacement of public alley approaches, repairs to sidewalks abutting city-owned property, and annual sidewalk inventory, notification, and public information activities by staff. By city ordinance, property owners are responsible to maintain the public sidewalk abutting their property and are liable for injuries resulting from unsafe sidewalks.

The Safety Sidewalk Program rotates through geographical areas of the city in accordance with the Safety Sidewalk Program Administrative Policy.

The Safety Sidewalk Program limits the city's and property owners' liability for sidewalk injury claims and increases the accessibility of the city's sidewalk system to physically challenged individuals in compliance with state and federal requirements. This project responds to citizen concerns through direct contact and the Mayor's Safety Task Force and implements Chapter 2.04 of the Corvallis Municipal Code.

The project is funded through current revenue in compliance with financial policies. The customers served are primarily neighborhood residents within the areas being inventoried and, secondarily, the public at large through safe and accessible pedestrian facilities.

2) Multi-use Path - Buchanan to Circle Boulevard (ISTEA Funding)

This project provides a paved, separated, multi-use path between Buchanan and Circle Boulevard. In May of 1991, the City Council received a citizen petition seeking the construction of this facility. The project is also ranked among the top needed bicycle facilities by the Corvallis Bicycle Advisory Commission.

Northeast Corvallis neighborhoods lack non-highway linkages to the City core for pedestrians and cyclists. The facility is included in the City's Trails Master Plan and is expected to serve as both a general recreational facility and as a north-south commuter route for Corvallis residents.

A funding offer from the Federal Highway Administration was received in January 1993, through the Oregon Department of Transportation. These funds are through the Intermodal Surface Transportation Efficiency Act (ISTEA). A 20% local match will be required.

Construction of bicycle paths is consistent with the community's desire to increase the use and safety of bicycle transportation. In addition, construction of separated bicycle paths is included in the bicycle element of this Corvallis Transportation Plan as necessary to serve the needs of a wide range of bicyclists. The project is also consistent with *State Transportation Planning Rule 12*, by reducing reliance on automobiles.

3) Airport Runway Extension And Taxiway Rehabilitation (Federal Aviation Administration Funding)

This project includes lengthening of Runway 17-35, the primary north-south airport runway, by approximately 850 feet and rehabilitates taxiways serving the runways, apron, and hangar facilities.

This project responds to documented needs of existing commercial and industrial airport traffic users for an extended runway to accommodate corporate fleet aircraft. The Corvallis Airport Master Plan identifies this runway extension as an immediate need to adequately provide for current operational activity. This project also responds to needed accommodations for recent major industrial expansion in Corvallis and supports future economic development opportunities for the community.

The original taxiways have not been improved since construction of the Airport in the 1940s. Rehabilitation of the taxiways will improve pavement strength for heavier traffic and increased usage, enhance safety, and improve surface drainage.

This project is funded through an FAA Airport Improvement Project (AIP) grant, which will fund 90% of the project. The City has received grants from the State Aeronautics Board and Oregon Economic Development Department (OEDD) to provide the majority of the local match required with the FAA grant.

The runway extension is needed to safely land aircraft in all weather conditions. Rehabilitation of taxiways is necessary to maintain their integrity, provide for safe movement of aircraft, and protect the community's airport investment. These improvements are consistent with the Airport Master Plan, the Oregon Aviation Systems Plan, and the Northwest Region Aviation Systems 10-year plan.

4) Walnut Left-turn Lanes At Garryanna Drive and 13th Street (Corridor Study)

Widening of Walnut Boulevard from four lanes to five lanes would provide continuous left-turn storage at Garryanna Drive and 13th Street. There is currently no storage lane for vehicles making left turns from Walnut to Garryanna Drive and 13th Street. Left-turning vehicles must stop in the through-lane on Walnut and wait for a gap in opposing traffic to make a safe left turn. During peak hours, opposing traffic on Walnut is heavy and the wait not only impedes traffic on Walnut, but also puts the left-turning vehicle at risk of a rear-end accident. This intersection has had a high incidence

of rear-end accidents. Recent completion of the Briar Ridge Apartments has greatly increased the number of left-turning vehicles at this intersection. The surrounding neighborhoods have requested that a traffic signal also be installed at Walnut and Garryanna. A traffic study for the Walnut Boulevard corridor was initiated in FY 1995-96 to develop strategies to address safety and capacity issues for this corridor. The study was initiated to respond to citizen concerns. The report recommends center turn lanes in specific locations along the corridor, coordination of traffic signals on Walnut Boulevard, and the eventual installation of a traffic signal at either Rolling Green or Garryanna as future conditions warrant. Public review of the study concurred with the findings and recommends that traffic calming and median landscaping be incorporated into future changes to Walnut. Staff is currently working on a final report on this study for Council consideration.

b. A Priority Projects

A priority projects respond to immediate needs such as:

- Safety
- Level of service deficiencies below set policy
- Major discontinuity in a particular system
- Projects identified by and with significant support of the community

1) Kings Boulevard, Monroe Avenue To Buchanan Avenue

In studying the Kings Boulevard corridor to determine appropriate improvements for the various segments, the following recommendations have received general support. The corridor can be broken down into several segments: Monroe Avenue to Van Buren Avenue, Van Buren Avenue to Buchanan Avenue, and specific improvements at the Van Buren and Harrison intersections. The primary focus of the project is to enhance the multi-modal opportunities of the corridor.

a) Monroe to Van Buren

This project widens Kings Boulevard between Monroe and Van Buren to provide for bicycle lanes and sidewalks. The existing right-of-way is 40 feet wide for most of this segment. This section of NW Kings Boulevard is heavily used by both pedestrians and bicyclists as a main entrance to OSU. There is no designated provision for bicycle users. Projected increases in traffic will exacerbate the existing conflicts between the vehicular and bicycle/pedestrian traffic. This project would maintain existing sidewalks, stripe for two 6-ft bicycle lanes from Monroe to Jackson, and two 5-ft bicycle lanes from Jackson to Van Buren, and maintain two 10-ft auto travel lanes for the entire segment. Alternative speed and traffic control measures are also to be tried and evaluated along this segment.

This project retrofits an existing, substandard facility. Bicycle facilities are fundamental to the community's desire to increase the use and safety of this transportation mode. The project is also consistent with *State Transportation Planning Rule 12*, reducing reliance on automobiles.

This project maintains the pedestrian connection and enhances bicycle access to OSU's eastern entrance. In addition, it would encourage these modes of transportation in an area characterized by a dense population and nominal off-street parking. The City has been scheduled by ODOT Region 2 to receive Enhancement Funds for this segment.

b) Van Buren to Buchanan

This project would provide improvements to King's Boulevard between Van Buren and Buchanan Avenues. The various segments are to be improved as follows:

- | | |
|--------------------|--|
| Van Buren-Harrison | <ul style="list-style-type: none">● 3 11-ft travel auto lanes (two southbound, one northbound)● 2 6-ft bike lanes● 2 5-ft curbside sidewalks● Signalization of Van Buren intersection● Elimination of access to Van Buren from 18th Street● 6-ft of right-of-way acquisition on each side |
| Harrison-Taylor | <ul style="list-style-type: none">● 2 11-ft travel auto lanes● 2 6-ft bike lanes● 2 5-ft curbside sidewalks● Eliminate LTs for Kings except southbound at Taylor● No right-of-way acquisition between Tyler and Taylor● 6-ft right-of-way acquisition between Harrison and Tyler on East Side |
| Taylor-Buchanan | <ul style="list-style-type: none">● 2 11-ft travel auto lanes● 1 11-ft center turn lane● 2 6-ft bike lanes● 2 6-ft park strips● 2 6-ft setback sidewalks● Realignment of driveways near Buchanan● 5- to 10-ft right-of-way acquisition each side |

Kings Boulevard is a major north-south arterial serving Oregon State University and a mix of residential and retail areas. The section of Kings between NW Buchanan and NW Van Buren Avenues is the third most heavily-traveled roadway in Corvallis.

Kings Boulevard is intersected by several arterial and collector streets. Traffic volumes continue to increase, causing congestion, increased frequency of accidents, and diversion of traffic into surrounding residential neighborhoods. This situation is exacerbated by numerous commercial entrances. There are currently no bike lanes on this segment.

The proposed improvements would: encourage and provide for safe intermodal transportation, enhance access to businesses while protecting and minimizing impact to surrounding neighborhoods, and maintain emergency access to the area. The proposed improvements would provide on-street bike lanes, and would be consistent with *State Transportation Planning Rule 12* by encouraging alternate modes of transportation and improving transportation safety.

c) Harrison/Van Buren and Kings Boulevard

The rapid reduction in westbound lanes on Harrison results in excess delays at this intersection. Improvements should modify this intersection to accommodate autos, bicycles, and pedestrians. Coordination between the Van Buren/Kings and Kings/Harrison signals will be essential. Level of service can be improved from LOS D to LOS C with these improvements.

Intersection performance is summarized in Table 10-5. The initial improvement upgrades existing operating conditions and generally holds through growth to the 62,500 scenario. In the 80,000 scenario an additional southbound right-turn lane would be needed. With this change left-turn prohibitions should be put in place for northbound, southbound and westbound traffic. Implementing the turn restrictions and right-turn lane earlier should be considered at the time of design of Kings Boulevard improvements (to assess costs, ROW and funding impact).

Table 10-5 OPERATION SUMMARY Harrison/Kings	1991 p.m. Peak Hour	62,500 Scenario p.m. Peak Hour	80,000 Scenario p.m. Peak Hour
Without Street Improvements	0.93 (D)	1.08 (E)	1.20 (F)
With Two S/B and W/B Lanes	0.81(C)	0.98 (D)	0.96 (E)
Two S/B and W/B Lanes + S/B Right-turn Lane + LT Prohibitions	0.63 (C)	0.63 (C)	0.64 (C)

This intersection improvement is linked to the modification of Kings Boulevard between Buchanan and Monroe Avenues.

2) Path, Witham Hill Drive to Harrison Boulevard

This project constructs a multi-purpose trail from the intersection of Witham Hill Drive and Circle Boulevard to Harrison Boulevard. Along Harrison Boulevard, on-street bike lanes are added from 35th to 53rd Streets to link with existing bike lanes. ODOT Enhancement Funding offered through from the ISTEA program will provide 80 percent of the \$495,000 project cost and require a 20 percent local match.

Currently, on-street bicycle lanes are not provided along Harrison Blvd from 35th to 53rd Streets. Additionally, there is no direct route from West Corvallis to Circle Boulevard. This project constructs a multi-purpose asphalt trail providing a direct route from West Corvallis to Circle Blvd for bicyclists and pedestrians.

This scenic and efficient route is likely to be highly traveled and provides a beautiful view of Marys Peak. Additionally, bicycle travel along Harrison Boulevard will be much safer.

3) Riverfront Multi-use path Widening

This project would widen approximately 4,000 feet of the Riverfront Multi-use path. The existing path is from six to eight feet wide. This project would widen the path to 12 feet and construct approximately 350 feet of new path providing connections to the Van Buren Bridge and B Street. The widening and improvements will be pursued consistent with recommendations by the Riverfront Task Force for the riverfront.

The Riverfront Multi-use path is highly used by pedestrians and bicyclists. It provides a link between the Van Buren Bridge, and Highway 20 on the north side of the downtown area and south Corvallis, southwest Corvallis, Highway 99 and Highway 20/34 on the south side of the downtown area. The Riverfront Multi-use path provides a scenic route along the Willamette River for recreational use as well as a needed pedestrian and bicycle transportation link.

Currently, the width of the path is too narrow, which creates hazardous conditions for the high two-way volume of bicycle and pedestrian users. Widening this path would allow this path to function more safely. This project has made the first cut for Enhancement funding through ODOT.

4) Downtown Intermodal Mall

This project constructs a facility on 5th Street between Madison and Jefferson streets to serve as a transfer link between alternate modes of travel throughout downtown. The facility would house covered bicycle parking and provide shelters for bicyclists and pedestrians waiting to link with the Corvallis Transit System and Linn-Benton Loop. An application for this project has been submitted to ODOT for enhancement funding, and has received tentative approval.

Many bicyclists and pedestrians access the transit systems at 5th and Jefferson. This location is inadequately equipped to park bicycles and shelter passengers awaiting buses. Awaiting passengers

are seen sitting on curbs and securing bicycles to trees, posts, and at nearby businesses with limited bicycle parking. This facility would serve as the downtown focal point for accessing alternate modes of transportation.

As traffic congestion increases on city streets, awareness of the value of alternate transportation modes in our community grows. The State of Oregon is encouraging and providing grant funds to communities desiring to enhance intermodal transportation. This project would serve as a benchmark and foster increased use of alternate transportation.

5) Transit Bus Stop Facilities

This project would construct fifteen bus shelters in high use areas of the community. Bus shelters would be constructed on major streets where concentrations of bus riders occur. The shelters would be constructed to comply with the ADA.

Bus shelters allow bus passengers to wait for the bus in an area protected from the weather. This is particularly important when the frequency between bus runs ("headway") may be as long as 1 hour and 10 minutes. Bus shelters on arterials and collectors also increase the visibility of the bus system and encourage ridership. Bus shelters are especially attractive to the elderly and disabled persons who are more likely to depend on the bus system as their only means of transportation.

6) Traffic Signal - South 3rd Street And Adams Avenue

This project provides a two-phase traffic signal at South 3rd Street and Adams Avenue and interconnection with the downtown signal system. South 3rd Street is the northbound half of the Highway 99W one-way couplet through downtown Corvallis. Adams Avenue is a major link in the downtown circulation system handling traffic from 1st and 2nd Street generators including the post office. The scope of work includes installing standards, mast arms, signal heads, pedestrian heads, controller, wiring and appurtenances.

Existing traffic conditions meet or exceed the standards for traffic signal control. Installation of a traffic signal at this location would improve safety and reduce motorists delay. Input from citizens concerned with the safety and operation of this intersection has confirmed the results from the ongoing transportation system operations analysis. This project also responds to City Council requests.

The project is identified on the Street SDC project inventory, and would be funded from the Street SDC fund. The customers served by this project include downtown business patrons and the community as a whole.

7) ORE 99W/Circle Boulevard Intersection

During evening peak hour conditions, long queues of traffic form on ORE 99W and traffic backs up on Circle in the short block between ORE 99W and 9th Street. Through traffic demand on ORE

99W is significant and points toward a long-term widening of the state highway to four lanes from the railroad overcrossing to Elks Drive.

Potential Alternatives: As with ORE 99W/Conifer, this is a single intersection and local mitigation will be needed to provide acceptable operation. Extension of Walnut Boulevard to Circle Boulevard could reduce some impacts, however not sufficiently to eliminate the need for these improvements.

In the short term, providing double northbound left-turn lanes and an eastbound right turn-lane would improve capacity and reduce queue impacts. Longer term improvements would also include developing a side-by-side left-turn lane for Circle Boulevard between ORE 99W and 9th Street, similar to Walnut Boulevard. Signals on Circle Boulevard should be coordinated to reduce queue spill back. Also, driveway control should be considered. The Bi-Mart driveway onto Circle frequently disrupts traffic operation and should be closed if the site is modified or the land use changes. Access should be consolidated off 9th Street 200 to 250 feet south of Circle.

The intersection performance is summarized in Table 10-6 below. The double left-turn lane northbound and the eastbound right-turn lane significantly improve current conditions. In the future, widening of ORE 99W to four lanes will be needed to maintain acceptable levels of service. With the widening of ORE 99W, LOS D conditions can be maintained with the 80,000 scenario. Funding for the various parts of this intersection improvement would come from City or State sources, depending on the jurisdiction owning the facility.

Table 10-6 OPERATION SUMMARY ORE 99W/Circle	1991 p.m. Peak Hour	62,500 Scenario p.m. Peak Hour	80,000 Scenario p.m. Peak Hour
Without Street Improvements	0.82 (D)	0.98 (E)	1.07 (F)
With Double Left N/B & E/B Right Turn	0.69 (C)	-	-
With Double LT N/B & RT N/B & E/B + Four Lane ORE 99W	0.56 (C)	0.70 (D)	0.89 (D)

8) Harrison Corridor Strategy (NTMCP)

Traffic problems associated with this area date back to some of the earliest transportation plans for the City of Corvallis. Present conditions involve congestion at peak periods, safety problems with left-turning traffic and lack of pedestrian and bicycle facilities. Additionally, Harding School is immediately north of Harrison Boulevard requiring adequate pedestrian access for children. The critical portion of the corridor is the segment of Harrison Boulevard from 29th Street to 36th Street. While this problem has been identified in past studies, few substantial operational improvements have been undertaken. The primary reasons for lack of definitive action have included:

- Mature trees which line the street and could not be immediately replaced if removed;

- Desire to minimize impact on adjacent properties from any street improvement; and
- Desire not to attract any additional traffic into the neighborhood.

Several alternatives for addressing traffic problems associated with this area were presented in Section 3.50.110 Harrison Corridor Concerns. These alternatives had been surfaced at various times but had been discarded for one reason or another. Within the discussion of each of these alternatives in 3.50.110 is a statement in **bold type** identifying a reason for its having been discarded.

Traffic performance in the p.m. peak hour is summarized for the intersection of Harrison Boulevard and 29th Street-Arnold Way in Table 10-7. The table presents the volume-to-capacity ratio and the level of service based upon delay using the *1985 Highway Capacity Manual* methodology (shown as 0.92 (E) = V/C (LOS)). For each intersection the objective is to have the volume-to-capacity ratio at 0.89 or lower and the level of service at D or better.

Table 10-7 OPERATION SUMMARY Harrison/29th	1991 p.m. Peak Hour	62,500 Scenario p.m. Peak Hour	80,000 Scenario p.m. Peak Hour
Without Street Improvements	0.92 (E)	1.34 (F)	1.49 (F)

An additional element of any strategy for dealing with Harrison Boulevard is the need to provide through bicycle movement. Harrison bike lanes are a high priority of the Corvallis Citizens' Advisory Commission on Bicycles. Corvallis policy and state transportation planning guidelines direct the placement of bikelanes on all arterial and collector roadways.

In recognition of these difficulties, a Harrison Corridor Task Force of interested persons is being appointed to develop a solution satisfactory to the surrounding neighborhoods and the community at large. Until such a solution is developed, traffic in the area will continue to be problematic.

Finding a solution to the problems in this area is important to both the community and to the residents of the surrounding area. Harrison Boulevard will need some improvement to address capacity problems. The intersections of 29th Street/Arnold Way, 30th Street, and 35th Street are frequently backed up causing problems at the intersections, and causing people to seek other routes through the neighborhoods. Much of the traffic is seeking access to the parking lots on 30th Street and south of Orchard Avenue on the OSU campus.

A Harrison Corridor Strategy developed through the collaborative efforts of stakeholders in the community would need to address the specific concerns of the individual neighborhoods comprising the corridor as well as the interests of the community as a whole regarding Harrison Boulevard and the needs it provides for. For the task force charged with developing this strategy, it is important that these latter interests be clearly identified so that they may be adequately considered as a strategy is developed. Following is a statement of these interests as identified by city staff.

First, Harrison Boulevard is and should remain an arterial street. In the area between Western Boulevard and Circle Boulevard, Harrison Boulevard provides the only reasonable opportunity for movement through the community. This opportunity for connectivity to the rest of the community is one of the primary functions of an arterial. Because of this function, Harrison Boulevard must also be expected to effectively carry traffic volumes appropriate to an arterial street. Current volumes at 29th Street and 35th Street are 12,000 and 8,458 average daily trips (ADT) respectively. Other arterials in the community carry between 5,000 and 20,000 ADT.

Second, both the State Transportation Planning Rule (OAR660-12-045 (3) (b)(B)) and City policies (Comprehensive Plan Policy 10.4.2 and draft Transportation Plan Section 4.60.20 b. 1)) require or encourage the placement of bike lanes on all major streets (collectors and arterials). Given this direction, and the strong recommendation of the Corvallis Citizens' Advisory Commission on Bicycles for bike lanes on Harrison Boulevard for its entire length, a solution that does not provide bike lanes on Harrison Boulevard between 29th and 35th Streets will need to provide very strong supporting arguments for such a solution and a compelling case that the bicycle travel desires through this corridor can be adequately met in some other fashion.

Third, the solution for the Harrison corridor should provide for reasonable access to the OSU campus and its established parking facilities. This should be accomplished in a manner that minimizes the impacts of this "community" traffic on the adjacent residential neighborhoods as much as possible. From staff's perspective, this means providing at least two routes to OSU.

Fourth, the grid nature of the neighborhoods north of the University should be maintained to the extent possible. This allows the traffic that originates in these neighborhoods to disburse through the network as it accesses the rest of the community, minimizing the traffic impacts on particular locations in the neighborhood and corridor.

Fifth, perimeter routes around the boundary of OSU should be maintained to accommodate access to the university. Staff believes that the best way to address these concerns is to allow traffic to access the University on a system of perimeter streets. To start with this requires a recognition of the following:

- Harrison Boulevard and 35th Street south of Harrison are arterials and Arnold Way is a collector, and they should continue to function as such;
- Twenty-sixth/27th Streets, Orchard Avenue and 35th Street are the OSU boundary perimeter streets in this area. These streets provide reasonable access to the OSU campus;
- Constructing left-turn lanes at 35th and 29th Streets would provide needed capacity to maintain the arterial function of Harrison Boulevard. Maintaining capacity would reduce traffic intrusion into the surrounding neighborhoods. Constructing a signal at 35th and Harrison when warranted would maintain capacity.

- Orchard Avenue is wide enough to accommodate on-street parking and function safely as an access route to OSU parking lots. Orchard is 34 feet wide, curb to curb, which provides 7-ft wide parallel parking lanes on each side of the street and two 10-ft travel lanes. The narrow feel of Orchard with on-street parking would tend to reduce travel speed, which is beneficial to residents along Orchard Avenue. Parking should remain on Orchard.

What remains to be accomplished is identification of a neighborhood traffic management plan that is acceptable to the neighborhoods and the community. To find such a solution, a neighborhood process is being used in FY 1995-96 involving the neighborhoods on either side of Harrison Boulevard between 26th Street and 36th Street. The Mayor has appointed a focused, short-term, eight member Task Force with representatives from each of six identified neighborhood/interest groups plus two at-large representatives. Engineering and Planning Division staff and the City Councilor from Ward 4 will provide initial guidance and periodic feedback during a series of Task force, corridor, and neighborhood group meetings. With this process, which would follow the Neighborhood Traffic Management Corridor Plan process identified in Section 3.40.10 **CORRIDOR PLANNING**, a proposal for addressing the needs of the area, both community and neighborhood, will be developed.

9) Miscellaneous Airport Improvements

This project installs access control gates, acquires land for runway protection zones, and constructs two helicopter pads.

Airport management staff and Federal Aviation Administration (FAA) officials are concerned about access of unauthorized vehicles onto active runways and taxiways during late night hours. This project would install access control gates to eliminate this problem.

This project would purchase land for the runway protection zones (RP2) at the end of runways 27, 17, and 35. The purchase of this land would provide positive control of airspace within the FAA mandated safety areas.

This project would also construct two helicopter pads. Helicopter usage at the airport has increased, and these facilities would separate helicopter parking from aircraft parking on the apron.

The improvements described in this project are contained in the current Airport Master Plan, approved by the Airport Commission and the FAA. These improvements provide a greater margin of safety for unauthorized vehicle intrusions on the airport and potential construction into the airspace of the runway protection zones off of airport property. Separation of helicopter and aircraft traffic is also provided for increased safety.

10) Walnut Extension to Circle Boulevard

Construction of this project would extend Walnut Boulevard east from Belvue Street over the Southern Pacific Railroad and Conser Drive to intersect with Circle Boulevard. Two vehicular travel lanes, a left-turn lane at key locations, bicycle lanes, and a traffic signal at Circle Boulevard would be provided. An important issue in this improvement will be how the intersection with Conser will be accommodated.

Walnut Boulevard is a major east-west arterial roadway link for the northern area transportation system. Its connection to Circle Boulevard would offer convenient access to commercial and industrial development on Circle and Highway 20. Completion of the Walnut Boulevard corridor would better balance east-west traffic demands and ease congestion at the Circle Boulevard and Highway 99W intersection. This project would support the previous investments in Walnut Boulevard and utilize right-of-way that has been acquired for these improvements.

This facility would support economic development, improve traffic safety, reduce traffic on Circle Boulevard, promote fuel efficiency and environmental quality, and slow the growth of traffic volumes on parallel and intersecting streets.

11) Annual Neighborhood Traffic Management Improvements

This project would provide funding for an annual program to address neighborhood traffic management issues. Funding would provide for a variety of solutions in dealing with speeding, traffic volume, through traffic, safe pedestrian crossings and other issues. It would be used to fund improvements such as traffic circles, chokers, cul-de-sacs, speed humps, warning signals, and other more expensive traffic control devices which physically control the movement of traffic.

Records kept by the Public Works Department show an increasing demand by citizens for traffic control devices in neighborhoods. This project would provide funding to respond to growing citizen requests for neighborhood traffic control.

12) Annual Bicycle Parking Improvements

This project would provide funding for a program to install bicycle parking in fully developed locations within the city. The bicycle parking would meet the current standards in the Land Development Code for bicycle parking.

Many locations within the city do not provide adequate bicycle parking. These locations may never be subject to the current requirements of the Land Development Code for bicycle parking and therefore will continue to lack adequate bicycle parking. This program would systematically provide bicycle parking which meets the standards of the Land Development Code throughout the City in existing fully developed locations.

Providing adequate bicycle parking would encourage the use of bicycles. Increased use of bicycles would result in fewer automobiles on the streets and fewer Vehicle Miles Traveled (VMT). In the near future Corvallis will be designated as a Metropolitan Area and will have to reduce VMT. This project is consistent with the Corvallis Comprehensive Plan and will prepare Corvallis for reduction in VMT.

13) 14th/15th Street Bikelanes: Monroe to Jefferson Way

This section is currently 34 feet wide. two options for providing bike lanes are: 1) eliminate parking and restripe for two 11-ft travel lanes and two 6-ft bike lanes at an estimated cost of \$10,000; or 2) widen 6 feet and restripe for two 10-ft travel lanes, two 6-ft bike lanes and 1 - 8-ft parking lane at an estimated cost of \$60,000. In either case, storm drains on the east side would need to be reconstructed to provide a smoother ride across them.

14) Brooklane Drive Improvements - Nash Avenue to Highway 20/34

Recent development pressure in this area has elevated the need to upgrade this sub-standard collector street. The primary issue involves safety for pedestrians and bicyclists along this narrow, curved roadway. The Brooklane Drive Corridor Study, adopted by the City Council in spring of 1995, identifies the scope of improvements for this project.

15) 26th Street/Brooklane Drive Highway Crossing

Presently, bicycle and pedestrian crossings of US20/ORE34 in this location is difficult and dangerous due to traffic speed and roadway alignment. Realignment of 26th/Brooklane would be a first step to a solution. Further study should determine if a separated bike/ped crossing facility is warranted.

16) Path, Harrison Boulevard to Campus Way

South of Harrison Boulevard, a separated multi-use path would provide direct access to the University through a connection to the Campus Way multi-use path. The University and adjacent neighborhood have raised concerns that such a path may be intended as a precursor to a roadway and that the path may be disruptive to existing agricultural activities. A process has been initiated to resolve such concerns.

17) Traffic Signal - Walnut And Glenridge / Witham Hill

This project would construct a traffic-actuated signal at the intersection of Walnut Blvd with Glenridge Drive and Witham Hill Drive. Walnut Blvd is the major arterial route in the north and northwest part of the community. Traffic volumes are continually increasing as adjacent areas develop. This traffic signal would improve safety by providing adequate gaps for traffic crossing or entering Walnut Boulevard from the adjacent streets. The scope of work includes standards, mast arms, signal heads, pedestrian heads, controller, detection loops, conduit, wiring and appurtenances.

Recent traffic engineering evaluations indicate national-standard signal warrants are not currently met at this location. It is anticipated, with continuing residential development and increasing traffic volumes on Walnut, that signal warrants may be met by 1997-98. National-standard signal warrants will be reviewed in 1996-97 to determine actual need.

This project responds to citizen and City Council requests. The project is identified on the Street SDC project inventory and would be funded from the Street SDC Fund. The customers served by this project include area residents and the community as a whole that uses Walnut Boulevard as a circumferential route.

18) West Hills Road Improvements - Western Boulevard to 53rd Street

West Hills Road between Western Boulevard and 53rd Street is a substandard collector street along which significant development opportunity exists. Water and sewer service are both available to much of the property in this area. Specific improvements to this corridor- focusing on safety, and installation of bicycle and pedestrian facilities- will be identified through an Existing Route Corridor Study initiated in April, 1996.

**19) 3rd Street Downtown Bikelanes
4th Street Downtown Bikelanes**

Bike lanes on 3rd and 4th Streets would provide a direct north-south arterial route to and through downtown Corvallis- a critical element in a successful bicycle network. Although this is a high priority need, there are difficulties with its completion. Widening of streets to provide bike lanes is not possible in virtually all locations due to existing development. Removal of parking to provide bike lanes could cause difficulties for downtown merchants, since limited parking is already seen as a problem in the area. Alternatives to parking removal are to designate one of the lanes for shared use with bikes or to improve auto speed control from Western to Harrison. The possibility of dropping one traffic lane may also be a reasonable alternative with the ultimate completion of the northern section of the Corvallis Bypass; however, ODOT will have to make the final determination. Use of 2nd and/or 5th Street for this north-south segment, may also prove reasonable. A thorough traffic study is necessary to determine the best possible option.

c. B Priority Projects

B priority projects are those required in the near future for safety, efficiency, or continuity, and projects which respond to a current minor deficiency or one which will soon arise based on current data and known development or other pressures.

1) 35th Street - Philomath Boulevard to Orchard Street

This project reconstructs this section of 35th street to provide bike lanes, sidewalks, and drainage facilities. North of US Highway. 20/34, 35th Street is a north-south collector street. Access to schools south of Philomath Boulevard and Oregon State University has generated high volumes of

pedestrian and bicycle traffic. This project completes improvements to this section of 35th Street and improves access to the west entrance to OSU. The completion of this project provides six foot wide sidewalks with six foot wide park strips, six foot wide bike lanes, and two twelve foot wide travel lanes and a ten foot wide center turn lane. Widening would need to be accommodated on the west side of 35th Street.

This facility would support economic development, improve traffic safety, promote fuel efficiency and environmental quality, and slow the growth of traffic volumes on parallel and intersecting streets.

2) 14th Street, Monroe Avenue to Harrison Boulevard

The completion of bike lanes on 14th/15th from Jefferson to Monroe will result in a missing link for bicycle travel on 14th between Monroe and Harrison. Although this segment is not a collector, bike traffic destined for OSU would benefit from completion of bike lanes along this section of 14th.

3) West Hills Road - 53rd Street to Reservoir Road

West Hills Road between 53rd Street and Reservoir Road is a substandard collector street along which significant development opportunity exists. Construction would need to improve vertical alignment characteristics of the road in some areas to improve sight distance and safety. Specific improvements to this corridor- focusing on safety, and installation of bicycle and pedestrian facilities- will be identified through an Existing Route Corridor Study initiated in April, 1996.

4) 53rd Street Improvements

Projected development in the vicinity of 53rd Street and West Hills Road will require improvements and right-of-way acquisition consistent with the ultimate development of this substandard arterial as identified in the **53rd Street Corridor Study** prepared in May, 1985 for the City of Corvallis and Benton County. The magnitude of development will dictate the nature of improvements to be constructed in the 10 year time frame. This project would need to be done in concert with Benton County. Improvements and right-of-way acquisition which can be accomplished as development occurs along this corridor should be pursued. 53rd Street would operate at level of service E without improvement in the 80,000 scenario. Widening to five lanes would provide level of service D or better operation in peak hour conditions. In the conceptual plan, a \$2,500,000 to \$4,500,000 project cost was indicated. Project costs may have escalated by 20 to 30 percent since this study was conducted. The widening would start south of US 20/ORE 34 and continue to just north of Harrison Boulevard. To serve the multi-modal needs of this area these improvements should be accomplished prior to when they are needed for level of service reasons. Total cost, primarily funded through development is approximately \$6 million.

5) Country Club Drive Improvements

Continued development along Country Club Drive has elevated the need for improvement of this substandard collector to City standards. Improvements needed include widening to 2 12-ft travel lanes; 2 6-ft bike lanes; 2 12-ft planting strips; and 2 5-ft sidewalks.

6) Ponderosa Avenue Improvements

Continued development along Ponderosa Avenue has elevated the need for improvement of this substandard collector to City standards. Improvements needed include widening to 2 12-ft travel lanes; 2 6-ft bike lanes; 2 12-ft planting strips; and 2 5-ft sidewalks.

7) Traffic Signal - 9th Street And Grant Avenue

This project would construct a traffic-actuated signal to safely and efficiently control pedestrian, bicycle, and automobile movements at the intersection of 9th Street and Grant Avenue. Grant Avenue is a two-lane collector street, 40 feet in width, with an average daily traffic of 3,327 vehicles at 9th Street. Ninth Street is a five-lane arterial, 64 feet in width, with an average daily traffic of 22,500 at Grant Avenue. The nearest signalized intersections on 9th are located at Buchanan Avenue, approximately 1,600 feet to the south, and at Garfield Avenue, approximately 1,500 feet to the north. The posted speed is 35 mph on both 9th and Grant. The high traffic volume, traffic speed, and significant width of 9th Street make crossing 9th difficult and hazardous for pedestrians, bicycles and automobiles. The existing traffic signals on 9th are too far away to serve pedestrian and bicycle crossing needs near Grant. A signal at Grant is needed to break up the continuous traffic on 9th during peak hours and provide safe and efficient movement between 9th and Grant for bicycles, pedestrians and automobiles.

This intersection was evaluated in 1991 during work on the transportation plan and found to warrant installation of a traffic signal based on traffic volumes. Installation of a traffic signal at this location would improve safety for bicyclists, pedestrians, and motorists. The project is identified in the Street SDC project inventory and would be funded from the Street SDC Fund.

8) Grant Avenue: Highland to 9th Street

This work would complete the bike lanes on Grant Avenue that currently run from Highland to Witham Hill. The current street width is 40 feet. Parking should be eliminated on the north side of the street. For 250 feet near the intersection with 9th Street, parking should be eliminated on both sides. This would allow restriping to provide for one 8-ft parking lane on the south side, two 10-ft travel lanes and two 6-ft bike lanes for most of the street. For the 250 feet near the intersection with 9th Street, there would be two 10-ft travel lanes, one 10-ft left turn lane and two 5-ft bike lanes. Estimated cost is \$2,500.

9) Garfield Avenue: Highland to 9th

To complete the bike lanes on Garfield Avenue that currently run from Highland to 29th, parking could be eliminated on the north side of the street, although this may prove unpalatable to the neighborhood. Since parking is already eliminated on both sides near the intersection with 9th Street, this would allow restriping to provide for one 8-ft parking lane on the south side, two 10.7-ft travel lanes and two 6-ft bike lanes. Near the intersection with 9th Street, there would be two 10-ft travel lanes, one 10-ft left turn lane and two 6-ft bike lanes. Estimated cost is \$4,500. A final solution for meeting this need would come from a public process involving the neighborhood.

10) Crystal Lake Drive: Alexander to Park

This roadway segment will function as a neighborhood collector street as future development in south Corvallis occurs. As such, the corridor should provide for safe through movement of vehicles and bicycle and pedestrian facilities. An Existing Route Corridor Study to identify the precise multi-modal improvements in the Crystal Lake Drive corridor was initiated in April, 1996.

11) Alexander Avenue: Crystal Lake to Highway 99W

The current width is 34 feet with sidewalks on each side. To provide bike lanes, parking would have to be eliminated or the street widened. Parking could be eliminated on one side only, and the street widened 6 feet within current right-of-way to provide two 10-ft travel lanes, one 8-ft parking lane and two 6-ft bike lanes. The cost of widening 8 feet is estimated to be \$170,000. This street currently functions well as a shared roadway. It is recommended that this section remain as a shared roadway until traffic volumes warrant bike lanes.

12) Park Avenue: Crystal Lake to Highway 99W

The current width is 34 feet with sidewalks on each side. To provide bike lanes, parking would have to be eliminated or the street widened. Current right-of-way is 40 feet, and street widening would require new right-of-way. An alternate to Park would be Goodnight Avenue, where the width is 34 feet, and the right-of-way is 70 feet. Widening for bike lanes without the need for new right-of-way is estimated at \$270,000. Park Avenue currently functions well as a shared roadway. It is recommended that this section remain a shared roadway until traffic volumes warrant bike lanes.

13) Madison Avenue: 6th Street to 14th Street

Madison Avenue is an important link in the bikeway system. It links downtown Corvallis to the University, West Corvallis, Benton County Fair Grounds and Philomath via Campus Way, Campus Way multi-use path and Benton County bike ways along 53rd Street and on Reservoir Road. Madison Avenue is heavily used by bicyclists and pedestrians, especially along the south side of Central Park.

Madison Avenue's opposing one-way street configurations, changes in width, diagonal parking, and discontinuity at the arts plaza create special difficulties and some hazards for bicyclists and pedestrians. As a result, bicyclists are not truly accommodated and legally should walk their bikes along the south side of Central Park.

Sidewalk multi-use paths are not normally recommended, but for this corridor, a sidewalk multi-use path would fit best within the many constraints. The use of a sidewalk multi-use path here would require that special attention be given to provide adequate traffic control, sight distance and signage at driveways and intersections. In addition, the following is recommended:

Widen the sidewalk on the north side of Madison and Campus Way to 12 feet from 6th to 8th Streets and 9th to 14th Streets. From 8th to 9th Streets, the sidewalk would only be able to be widened to ten feet without destroying trees in the park strip.

Bicyclists will still want to use the street for the east-bound direction since the one-way sections flow east from 14th to 150 feet east of 8th Street. An east-bound bike lane should be striped between 9th and 150 feet east of 8th (west side of the arts plaza) after the sidewalk widening described above is completed. At the west side of the arts plaza two options are possible. Option 1 is to turn the east-bound bike lane to the left and connect it with the 12-ft-wide sidewalk described above. Option 2 is to change the direction of travel on Madison between 6th and 7th from one-way west to one-way east. The parking would be moved to the north side of Madison. The east-bound bike lane would then continue in a straight alignment across the arts plaza and back on Madison to 6th Street. Option 2 would bisect the arts plaza with the bike lane and signage would be needed to require bicycles to yield to pedestrians.

The widened sidewalk and the east-bound bike lane (with option 1 or 2) are recommended to be completed together. A cost estimate for these improvements has not been developed.

14) An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard

In the street network downtown between Van Buren Avenue and Western Boulevard currently and 2nd and 5th Streets has no identified East/West bikeways. Due to stop sign control, traffic speed in the area is slow, but these streets have diagonal auto parking on both sides, which can create hazards for cyclists. Opportunities for creation of at least one eastbound and one westbound bicycle route in this area should be pursued. Options include changing parking to parallel on one side of a street, or restriping with other street markings or signing to facilitate a safer cycling environment.

d. C Priority Projects

C priority projects are those which will enhance the transportation system and provide significant multi-modal opportunities at adopted service levels.

1) Connect Riverfront Multi-use Path to Van Buren Street Bridge

The Van Buren Street bridge is scheduled for future replacement. The bridge replacement would include adequate connections to sidewalks and to the Riverfront multi-use path as required by state transportation directives.

2) Buchanan/9th Intersection

This intersection experiences delays on Buchanan Avenue, particularly in the eastbound direction where no turn lanes are provided. By adding an eastbound left-turn lane and modifying signal operation this intersection can be improved from LOS D to LOS C. Some widening would be needed on the west leg of the intersection along the north curb face to improve geometric alignment of the intersection. The widening of ORE 99W and the north bypass would have long-term benefits on this intersection.

Table 10-8 Operation Summary of Buchanan/9th	1991 p.m. Peak Hour	62,500 Scenario p.m. Peak Hour	80,000 Scenario p.m. Peak Hour
Without Street Improvement	0.79 (D)	1.00 (E)	1.21 (F)
With Street Improvement	0.70 (C)	0.74 (D)	0.80 (D)

3) Circle Boulevard Right-turn Lanes

This project constructs a separate right-turn lane on Circle Boulevard at the eastbound intersection with 9th Street. A change in traffic patterns due to increased business development in this area results in regular traffic congestion at this corner. The turn lane would improve traffic flow and reduce the back-up that impacts entry into the shopping centers on either side of Circle. The project would include modification of the traffic signal actuation system, addition of a signal head, and acquisition of right-of-way.

Traffic counts and field observations confirm that traffic is frequently congested on Circle Boulevard eastbound. Citizen complaints about congestion are received from time to time. Intersection improvements would decrease congestion and provide effective traffic movements.

4) Bicycle/Pedestrian Railroad Crossing Improvements

This project would improve eleven deficient railroad crossings within the city. The majority of the crossings are located near the downtown and Oregon State University campus area. A grant application for this project was submitted to ODOT for enhancement funding, but was unsuccessful.

The railroad crossings identified for improvements are all crossings that are used by three modes of transportation (pedestrian, bicycle and vehicle). Due to their present state of disrepair, the 11 railroad crossings are extremely difficult to cross and present a safety hazard. The improvements would reconstruct the crossing surfaces to be safe, effective, and to enhance the City's intermodal transportation system. The proposed improvements would utilize prefabricated concrete or rubberized materials for the crossings. This project provides safe, practical, and aesthetically pleasing bike routes and pedestrian paths or walks.

5) ORE 99W/9th/Conifer Intersection

This project would provide funding for an engineering study to determine the best means to provide for the safe and efficient movement of pedestrians, bicycles, and automobiles through these intersections.

The intersection of Highway 99W and Conifer is currently operating at a level of service (LOS) D with long delays during evening peak hours. The left-turn stacking, from east bound on Conifer to north bound on Highway 99W, often backs up the entire length of Conifer between 9th and Highway 99W and extends south for a portion of 9th Street. These conditions will become worse with increasing population. Cheldelin Middle School students living west of these intersections must pass through these intersections to and from school. These high volume intersections pose some unique difficulties for pedestrians and bicycles, and citizens in the area have expressed concerns for improvements to be made to increase safety. Solutions proposed in the draft transportation plan have received citizen comment highlighting the need to evaluate additional alternatives. The engineering study would utilize neighborhood comments and suggestions and examine a number of possible solutions. Circulation on Walnut, 9th, Highway 99W and Conifer would be examined as a system to evaluate the best way to accommodate safe and efficient circulation. The system evaluation would include the feasibility of utilizing Highway 99W instead of 9th for through movement circulation and a traffic signal at 9th and Conifer.

Table 10-9 Operation Summary for ORE 99W/Conifer	1991 p.m. Peak Hour	62,500 Scenario p.m. Peak Hour	80,000 Scenario p.m. Peak Hour
Without Street Improvement	0.78 (D)	1.08 (F)	1.51 (F)

6) Separated path that follows the Willamette River from Crystal Lake Drive near Vera Avenue to Willamette Park

This path is estimated to cost \$950,000 and would require right-of-way acquisition.

7) A separated path from Garfield Avenue to 17th Street along east border of Porter Park

This list includes those improvements needed to facilitate bicycle travel in developed areas required in section 660-12-020(2)(d) of the State Transportation Planning Rule 12.

8) A separated path from Chapman Place to the confluence of the Marys and Willamette rivers, continuing south along the Willamette River, and tying in with the multi-use path along the Willamette that would lead to Willamette Park.

This path is estimated to cost \$390,000 and would require right-of-way acquisition.

9) Witham Hill: near Canary Street to Walnut Boulevard

The current width is 28 feet. Widening this section would require a retaining wall on the east side of Witham Hill. Widening 8 feet would provide two 12-ft travel lanes and two 6-ft bike lanes. Twelve-foot travel lanes are recommended to provide additional width due to the drop-off on the east side. The retaining wall would be supported by piles. The estimated cost is \$580,000.

10) Path, Goodnight to Avery Avenues /Goodnight to Airport Road

North/south bike traffic from the area of south Corvallis, west of South 3rd. has only the bike lanes on South 3rd for connection to the rest of the community. These lanes may be intimidating to inexperienced riders due to heavy traffic volumes. A path from Goodnight north to Avery along the east side of the railroad tracks and from Goodnight south to Airport Avenue would provide an alternate route for both bikes and pedestrians.

11) Riverfront Path Extension, North

This improvement would provide a multi-use path along the Willamette River between Tyler and 2nd Street at approximately Rennie Place.

12) Walnut Boulevard: Extension from near Belvue to Circle

Street construction over this section would include 6-ft bike lanes. The estimated portion of Walnut extension attributed to bike lanes is \$230,000.

13) Path, Circle Boulevard to Conifer Boulevard

This addition to the system would consist of a multi-use path following the east side of the railroad tracks connecting Circle Boulevard and Conifer Boulevard. Currently bike traffic can use Conser Street to complete the same route. The future extension of Walnut Blvd may make the use of Conser more difficult for bicycles.

14) An East/West bikeway in the downtown between Van Buren Avenue and Western Boulevard

In the street network downtown between Van Buren Avenue and Western Boulevard currently and 2nd and 5th Streets has no identified East/West bikeways. Due to stop sign control, traffic speed in the area is slow, but these streets have diagonal auto parking on both sides, which can create hazards for cyclists. Opportunities for creation of at least one eastbound and one westbound bicycle route in this area should be pursued. Options include changing parking to parallel on one side of a street, or restriping with other street markings or signing to facilitate a safer cycling environment.

10.10.20 STATE HIGHWAY IMPROVEMENTS

Two major projects are identified which would improve capacity and safety for arterial highways in Corvallis in the next ten years. They include:

Philomath Highway Widening. As part of the Access Oregon Highways program, US 20/ORE 34 will need to be widened to four lanes including accommodations for bikes and pedestrians. The limits of the project, as envisioned, are between Western Boulevard to the east and Newton Creek near Philomath to the west.

Van Buren Avenue Bridge Reconstruction. With completion of Phase 1 of the Corvallis Bypass, reconstruction of the one lane Van Buren Street bridge over the Willamette River can be considered. ODOT has begun developing an Environmental Impact statement for this project. The Bridge is on the local historic register. Use of the historic bridge for pedestrian and bicycle access to the east side of the Willamette River is desired. The project would provide two travel lanes and pedestrian/bike facilities. This improvement would eliminate queuing in downtown Corvallis caused by traffic merging into one lane as it leaves the city. Level of service would be improved from E to B. Queues which spill back as far as 5th Street would be eliminated and vehicle delay and emissions significantly reduced.

Widening of ORE 99W North. ORE 99W would need to be widened to four lanes from the Southern Pacific Overcrossing to just north of Lewisburg Road. This project can be divided into two sections: from the overcrossing to just north of Elks Drive, and from just north of Elks Drive to north of Lewisburg Road. The latter section can be deferred until the 62,500 (20 year) scenario. As part of this improvement some widening of the intersection of Walnut Boulevard with ORE 99W would be required to increase eastbound left-turn capacity. This project would cost approximately \$7,000,000. It has not been identified in the State Highway Plan.

10.20 IMPROVEMENTS NEEDED FOR 62,500 POPULATION (20 YEARS)

10.20.10 DEVELOPMENT RELATED IMPROVEMENTS

To provide for the multi-modal, and other development needs of the community, some roads will need to be extended and some upgraded to City arterial and collector standards. Many of these existing roads are under Benton County jurisdiction, and continued coordination regarding their improvement and development in their vicinity is of major importance. Precise timing of many of these improvements will depend upon where and when development occurs, but an initial assessment places these projects in the 62,500 population (20 year) scenario. Unless otherwise noted, collector street improvements would include 2 12-ft travel lanes, 2 6-ft bike lanes, 2 12-ft planting strips, and 2 5-ft sidewalks. Arterial improvements would be the same, with the addition of left-turn lanes at intersections with other arterials/collectors, and in noted cases, additional lanes. These arterials/collectors are shown on Figure A-1, Functional Classification System.

A Secondary Access to Skyline West. This roadway would likely align with Fair Oaks Drive and extend to Walnut Boulevard. This connection is necessary to provide secondary emergency access to Skyline West and other development as it occurs in the area.

Arterials and Collectors Included in the West Corvallis Access Strategy. These improvements are shown in Figure A-1. Portions of this network were installed with the Barley Hill subdivision. Total cost, primarily funded through development is approximately \$9.1 million.

Widen 53rd Street from Philomath Boulevard to Nash Avenue. Improvement timing will be heavily dependent on development pressures. Improvements and right-of-way acquisition which can be accomplished as development occurs along this corridor should be pursued. The multi-modal capabilities of this corridor will need to be enhanced before level of service issues would require improvement. Total cost, primarily funded through development is approximately \$2.3 million.

Reservoir Road Improvements. Realignment of the intersection of Reservoir Road with 53rd Street will be needed to accommodate the 53rd Street railroad overpass. In addition, enhancement of the street's multi-modal capacity will be required. Total cost, primarily funded through development is approximately \$2.24 million.

Build a New Collector from Airport Avenue to the Extension of Rivergreen Avenue on the West Side of Highway 99W. This improvement could have important economic development implications in this industrially-zoned area. Total cost, primarily funded through development is approximately \$3.5 million.

Goodnight Avenue Improvements. Collector-level improvements to address development. Total cost, primarily funded through development is approximately \$0.25 million.

Widen Circle Boulevard to Highway 20. Although outside the Corvallis UGB, this improvement would impact the portion of Circle under City jurisdiction. This improvement would require coordination with Benton County. Total cost, primarily funded through development is approximately \$0.95 million.

Conifer Boulevard Improvements - City Limits to Highway 20. Although outside the Corvallis UGB, this improvement would impact the portion of Conifer under City jurisdiction. This improvement would require coordination with Benton County. Total cost, primarily funded through development is approximately \$0.76 million.

10.20.20 STATE HIGHWAY IMPROVEMENTS

Traffic forecasts summarized in Chapter 3 Motorized Vehicle Street Traffic and Circulation indicate that significant improvements will be necessary to maintain acceptable levels of service with future growth. The major problem areas at a 62,500 population would be the state highways, and many of the local street problem areas would result from traffic diverting from the state highways onto city arterials. The following improvements are focused on improving the state highways to serve future demand. With these improvements, traffic performance can be maintained at level of service D or better during peak hours with future traffic growth.

Widening of US 20 North to Albany. US 20 would need to be widened to four lanes from Circle Boulevard to Albany (about 10 miles). This widening would require provision of turn lanes at key cross streets and development of access control, limiting local access to the state highway to improve operation. This project would cost approximately \$15,000,000. The widening of US 20 to Albany was identified in the Draft 1991 Oregon Highway Plan (page E19) and was identified for programming in 1998.

Widen US 20/ORE 34 in Corvallis. US 20/ORE 34 is programmatically being widened to two lanes each way with left-turn lanes as part of the Access Oregon Highways program. With the 62,500 scenario, this segment would be significantly congested without widening to five lanes from ORE 99W to Western Boulevard. As part of this work, the intersection/interchange of Western Boulevard with US 20/ORE 34 would need to be rebuilt. It is presently unsignalized. This project cost would be approximately \$5,000,000.

Provide Ramps Between ORE 99W and US 20/ORE 34. As part of the current widening program for South 3rd Street and the construction of the bypass, there was no provision for the movement of traffic from west to south. This now requires looping through downtown streets. In the 62,500 scenario, this would create congestion in the southern sector of downtown Corvallis. A direct connection will be required between the two state highways. Since the ramps must also cross Mary's River, the cost of this improvement is significant (\$1,500,000). No programming has been done for these ramps at the state level.

Improve Bypass/ORE 34 Interchange. The initial interchange between the new bypass and ORE 34 is a signalized intersection. The state has identified a plan for an interchange at this location in

the future. In reviewing the traffic operation and analyzing the future volumes, this intersection will operate at level of service F conditions with the 62,500 scenario and will need to be modified. This poor operation would result in congestion backing up into Corvallis and for traffic approaching the city from the east. One of several options could be implemented to mitigate this location, as indicated in Figures 10-1 through 10-3. The City recommends that a thorough study of these options be undertaken to ensure operation of these roadways and intersections at adopted level of service standards for state highways and local streets. While a number of options may function adequately, the City currently recommends the direct connector as providing the highest level of service with the greatest safety. No signals would be provided with the direct connector and the scheme can be staged. The benefits of this configuration are that there are no intersection capacity constraints, the direction of through traffic is directed to US 20/ORE 34 (away from downtown, with an exit to Corvallis), direct ramps are provided to serve heavy traffic volumes and Oregon State University traffic can be better directed to use the southern access roadways to campus, minimizing impact on downtown and residential streets. The direct connector is recommended for this interchange. An integral part of the need for this interchange as a 62,500 population scenario improvement is the construction of two lanes of the north leg of the bypass. Options for this interchange are also shown in Figures 10-1 through 10-3. Several provide potential operating characteristics for the bypass that ensure through traffic stays on the bypass and not on city arterials. The 62,500 scenario stage would cost approximately \$5,000,000. Table 10-10 summarizes the operation of the surface intersection, even with multiple turning lanes.

Table 10-10 p.m. Peak Hour	Estimated 1992 Conditions With Bypass	62,500 Scenario with Bypass	62,500 Scenario with Bypass & Double W/B LT
ORE 34/Bypass Intersection	0.66 (C)	1.24 (F)	1.04 (D)

Construct two lanes of the northern leg of the bypass. This improvement is proposed to improve traffic levels in downtown Corvallis by providing a north-south route around downtown Corvallis for travelers using ORE 99W and US 20. This improvement would keep traffic levels from degrading to level of service F and would allow local arterials and collectors to serve growing local traffic demand by providing an alternate route for through traffic. The cost is estimated at \$13,000,000.

10.30 IMPROVEMENTS NEEDED BY 80,000 POPULATION (30-50 YEARS)

While most of the improvements outlined above are effective for the long-term build-out of Corvallis, additional circulation and capacity improvements would be required to maintain acceptable level of service conditions. The improvements summarized below would allow Corvallis to achieve this future level of growth with acceptable traffic operating conditions and accommodation of alternate modes. Changes in land use and road plans may alter the nature of this

set of improvements, but based upon the tested 80,000 scenario, the following improvements would be recommended.

10.30.10 DEVELOPMENT RELATED IMPROVEMENTS

Many of these existing roads are under Benton County jurisdiction, and continued coordination regarding their improvement and development in their vicinity is of major importance. Precise timing of many of these improvements will depend upon where and when development occurs, but an initial assessment places these projects in the 62,500 population (20 year) scenario. Unless otherwise noted, collector street improvements would include 2 12-ft travel lanes, 2 6-ft bike lanes, 2 12-ft planting strips, and 2 5-ft sidewalks. Arterial improvements would be the same, with the addition of left-turn lanes at intersections with other arterials/collectors, and in noted cases, additional lanes. These arterials/collectors are shown on Figure A-1. The figure is conceptual in nature regarding **new roads** and their alignments. More detailed corridor studies will be needed to identify precise alignments. Right-of-way should be protected along these alignments to preserve access control.

Widening Harrison West to 53rd Street. Harrison Boulevard west of the proposed Circle Extension would operate at level of service E conditions in Year 2025. To serve traffic connecting to the Walnut/53rd corridor, this segment of Harrison may need to be widened to four lanes with additional turn lanes at Circle and 53rd. Total cost, primarily funded through development is approximately \$2.84 million.

Widen 53rd Street to four lanes from south of Philomath Boulevard to Harrison Boulevard. As development occurs, improvement to this corridor will be necessary. In 1985, Benton County and the City of Corvallis collaborated on the **53rd Street Corridor Study: Harrison Boulevard to Highway 20**. The preferred alternative from this study should be pursued when appropriate through further cooperation between the City and Benton County.

Extension of 53rd Corridor from Nash Avenue to Kiger Island Drive. Congestion near the US 20/ORE 34 interchange with ORE 99W would not be fully mitigated with the improvements identified above. South Corvallis only has one access roadway to the rest of the city via south 3rd Street. To relieve the traffic growth on the US 20/ORE 34 connection to ORE 99W, a secondary connector route needs to be developed. An initial alignment using 53rd Street to connect to ORE 99W at Kiger Island Drive was identified. This route would be used by approximately 7,000 vehicles a day. It would be a two-lane roadway with access control and bicycle/pedestrian facilities. An alignment study is needed to determine the exact alignment and detail many of the potential environmental impacts. A segment of the alignment extends outside the UGB, likely requiring an exception to Land Use Planning Goals 3 Agricultural Lands, 4 Forest Lands, 11 Public Facilities, and 14 Urbanization. DLCD would review the exceptions and will generally be concerned about limiting access to the facility to eliminate growth or development along the roadway. Total cost, primarily funded through development is approximately \$5.6 million.

Crescent Valley Area Improvements. To serve the development and multi-modal needs of the Crescent Valley area a network of new arterial/collector roadways will need to be built. These would likely include the following:

- **Extension of Kings Boulevard to Lewisburg Road:** Total cost, primarily funded through development is approximately \$6.2 million.
- **New East-west Collectors:** Total cost, primarily funded through development is approximately \$6.9 million.
- **Two New East-west Arterials:** Total cost, primarily funded through development is approximately \$5.5 million.
- **New North-south Collectors:** Total cost, primarily funded through development is approximately \$5.33 million.

Other required improvements in the area include:

- **Widening of Highland Drive:** Total cost, primarily funded through development is approximately \$5.1 million.
- **Widening of Lewisburg Road:** Total cost, primarily funded through development is approximately \$4.1 million.

Other Arterial/Collector Improvements. Additional arterial and collector streets will need to be constructed or improved throughout the community to provide for the auto, transit, bicycle, and pedestrian needs of new development. These include:

- **Extension of Crystal Lake Drive to Highway 99W at Airport Avenue:** Total cost, primarily funded through development is approximately \$3.5 million.
- **Upgrade Crystal Lake Drive to based on the Existing Route Corridor Study** initiated in April, 1996. \$2.8 million
- **Upgrade Oak Creek Drive to City Collector Standards:** Total cost, primarily funded through development is approximately \$2.1 million.
- **Construct New Collectors between Nash Avenue and Philomath:** Total cost, primarily funded through development is approximately \$5 million.

Again, it must be stated that these improvements are conceptual, and their precise nature and timing may change with development pressures or following completion of corridor studies. As an example, in the vicinity of Nash Avenue, a collector will be required to move people and goods from the area to arterials or highways.

10.30.20 STATE HIGHWAY IMPROVEMENTS

Widen the Northern Bypass Crossing of the Willamette River to Four Lanes. Traffic conditions on the bypass, in the downtown area, on 9th Street and paralleling ORE 99W would degrade to level of service E conditions without additional circulation capacity. To provide for the growing demand on the bypass and remove through traffic avoiding the bypass from Corvallis streets, the final widening of the ORE 99W bypass would be required. The widening would allow local arterials and collectors to serve growing local traffic demands. Hourly volumes over 1,000 vehicles in each direction would use this facility. This would complete the project as originally conceive in the Corvallis Bypass Report of 1978. The removal of through traffic in the downtown allows those streets to continue to serve Corvallis traffic providing a high degree of livability. The estimated cost of this widening is approximately \$13,000,000.

Widen the Southern Bypass to Four Lanes. With the provision of four lanes on the northern bypass, and for the same reasons as mentioned above for the northern bypass, the southern bypass would need to be widened to four lanes. The cost is estimated at approximately \$15,000,000.

10.40 FUNDING

Funding opportunities for the transportation modes addressed in this plan have been discussed in the various modal elements. Table 10-11 consolidates this information into existing and potential funding sources. The table makes clear that improvements to facilities for the automobile have the greatest potential for being funded, although bicycle and pedestrian facilities within road rights-of-way may be funded from gas-tax-based sources. Systems Development Charge (SDC) funds may only be used for "extra-capacity" facilities (road improvements greater than those required for local streets), which do not include bicycle and pedestrian facilities as defined by Corvallis Municipal Code Chapter 2.08.

Yearly funding levels for transportation improvements, from stable and existing sources, is projected as follows:

● Street Fund	\$200,000 - \$500,000
● Systems Development Charges	\$200,000
● Surface Transportation Program Exchange	\$220,000

Maintenance and rehabilitation of existing facilities require a major portion of the Street Fund revenues. Funds available for construction are likely to be in the \$200,000 to \$500,000 range. These figures result in available dollars of \$600,000 to \$900,000 per year. Table 10-2 consolidates projects required in the 10-year horizon, and Table 10-3 additional needs projected within 20 years. It is clear from these figures that creative financing and significant developer contributions will be necessary to provide needed facilities within the planning period (approximately \$57 million in Tables 10-2 and 10-3 if highway improvements are left to be funded by ODOT). Street improvements that result from this plan could receive partial funding through property assessments. Previous studies have shown property assessments will yield 43% of arterial and collector street improvement costs.

Table 10-11 SYSTEM IMPROVEMENTS FUND SUMMARY

Existing Funding Sources	Description	Uses (Yes/No)					
		Streets	Bikeways	Pedestrians	Transit		Airport
					Imp.	Oper.	
Street Fund	State Gas Tax, Serial Property Tax Levy. Oregon Constitution guides use.	YES	YES (in-ROW)	YES (in-ROW)	YES (in-ROW)	NO	NO
Street Systems Development Charge (Streets SDC's)	Charges collected from development based on trip ends and size and type of development.	YES	NO	NO	NO	NO	NO
Parks Systems Development Charge (Parks SDC's)	Charges collected from residential development based on number of bedrooms.	NO	YES (Trails Master Plan projects)	YES (Trails Master Plan projects)	NO	NO	NO
Surface Transportation Program-Fund Exchange (ISTEA)	Federal Highway Trust Fund and Highway-Related Taxes.	YES	YES	YES	YES	NO	NO
Transit Special Revenue Fund	Serial Property Tax Levy, State Grant, County Special Transportation Grant, OSU Payment for Service, Fares, Grants.	NO	NO	NO	YES	YES	NO
Airport Enterprise Fund	Federal Grants, Charges for Service, Property leases.	NO	NO	NO	NO	NO	YES
Property Assessments	Charges collected from development fronting an improvement or otherwise benefitting based on formation of an assessment district	YES	YES	YES	YES	NO	YES
Improvements Required of Developers	Developers of property can be required to construct improvements as a condition of property development	YES	YES	YES	YES	NO	YES
Grants	State, Federal and Individuals.	YES	YES	YES	YES	YES	YES

Table 10-11 SYSTEM IMPROVEMENTS FUND SUMMARY

Potential Funding Sources	Description	Uses (Yes/No)					
		Streets	Bikeways	Pedestrians	Transit		Airport
					Imp.	Oper.	
Local Option Vehicle Registration	County-wide vote to establish a local add-on fee for vehicle registration.	YES	YES (in-ROW)	YES (in-ROW)	Yes (in-ROW)	NO	NO
Expand Street Systems Development Charges	Add bikeways and transit pull-outs to the definition of extra-capacity facilities.	YES	YES (in-ROW)	NO	YES (in-ROW)	NO	NO
Property Tax Supported Bond Sales	One-time voter approved bond sale for specific purposes with debt service paid by new property taxes which do not fall under measure cap.	YES	YES	YES	YES	YES	YES
Serial Levy	On-going periodic bond election to fund continuous operations or improvements, with debt service paid by new property taxes. Falls under Measure 5 \$10/\$1,000 limit.	YES	YES	YES	YES	YES	YES
Transportation Utility	City ordinance to establish user-fee funding for transportation purposes. Care must be taken to establish basis of rates which do not fall under measure 5 definition of tax.	YES	YES	YES	YES	YES	YES
Local Option Fuel Tax	City Ordinance to establish local fuel tax paid by distributors and passed on to consumers at the pump.	YES	YES (in-ROW)	YES (in-ROW)	YES (in-ROW)	NO	NO
State Gas Tax	Local support for Oregon Legislature to increase statewide gas taxes and the proportionate share to local governments.	YES	YES (in-ROW)	YES (in-ROW)	NO	NO	NO
New Legislation (State, Federal)	Legislative creation of new revenue sources for transportation (payroll tax, emissions tax, etc.)	YES	YES	YES	YES	YES	YES
Local Bicycle Charges	Surcharge on purchase of new bicycle or local bicycle registration fee	NO	YES	NO	NO	NO	NO

New arterial and collector streets will generally be funded by the development that requires their extension. To assist developers with these costs, the City has established or is investigating several mechanisms. Currently developers can qualify to receive a city reimbursement from the System Development Charge (SDC) program for "extra-capacity" facility costs. In 1994, the City Council also adopted a new reimbursement program administered by the City that encompasses more improvements. Under this program, a developer would fund a required improvement, and the City recover from later development funds appropriate to that development's benefit from the improvement. This money would, for a fee, be forwarded to the developer who originally installed the improvement.

Another mechanism being investigated is the use of city funds to construct traffic safety or congestion mitigating improvements "up front", and to enter into agreements with adjacent property owners for repayment in regular payments over a specific period of time. This may be done with STP and Street Fund revenues, and the repayment will become a continuing source of revenue to these fund. This is similar to the previous concept of improvement districts in which the City's bonding authority (Bancroft Bonds) was used.

In FY 94-95, the City participated in a joint project with Benton County to develop strategies and funding mechanisms to address the problems associated with the conversion of rural transportation facilities to urban standards. Approximately 50 percent of the identified improvements in Tables 10-2 and 10-3 (disregarding highway costs) fall in this category. The project was completed in June, 1995 and recommended policies and strategies should be reviewed by both the City and Benton County for potential funding opportunities.

Funding for needed highway improvements is also problematic, as these facilities serve through as well as local traffic. Highways have not been identified for funding in the SDC program, and it is clear that other sources need to fund identified improvements within the city's transportation network. A well-developed city system will help take local traffic pressure off the state and regional facilities. It is possible that some of the strategies identified in the previously identified rural to urban conversion project could be applied to highways as well as local facilities.

10.50 ADDITIONAL PLANNING EFFORTS

By May 1997, several planning efforts are required for compliance with State Transportation Planning Rule 12. These include an evaluation of transportation and land use alternatives, delineation of future transit routes, evaluation of land use along these routes for the potential to increase transit effectiveness, and the development of a transportation demand management plan.

In addition, benchmarks toward meeting these planning goals must be developed and monitored. As a means of prioritizing the needs of the transportation system, a method of evaluating alternative approaches to meeting those needs is required by the Transportation Planning Rule. The rule requires the following to be evaluated as components of system alternatives by May, 1997:

- Improvements to existing facilities or services;

- New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
- Transportation system management measures;
- Demand management measures; and
- A no-build system alternative.

The alternatives are to be evaluated based on the following:

- Their ability to serve the land uses identified in the Comprehensive Plan;
- Their consistency with state and federal environmental standards;
- Their ability to minimize adverse economic, social, environmental, and energy consequences;
- Their ability to minimize conflicts and facilitate connections between modes of transportation;
- Their ability to avoid principal reliance on any one mode of transportation and to reduce principal reliance on the automobile.

Based upon this review, the community can decide on an appropriate means of addressing its transportation needs.

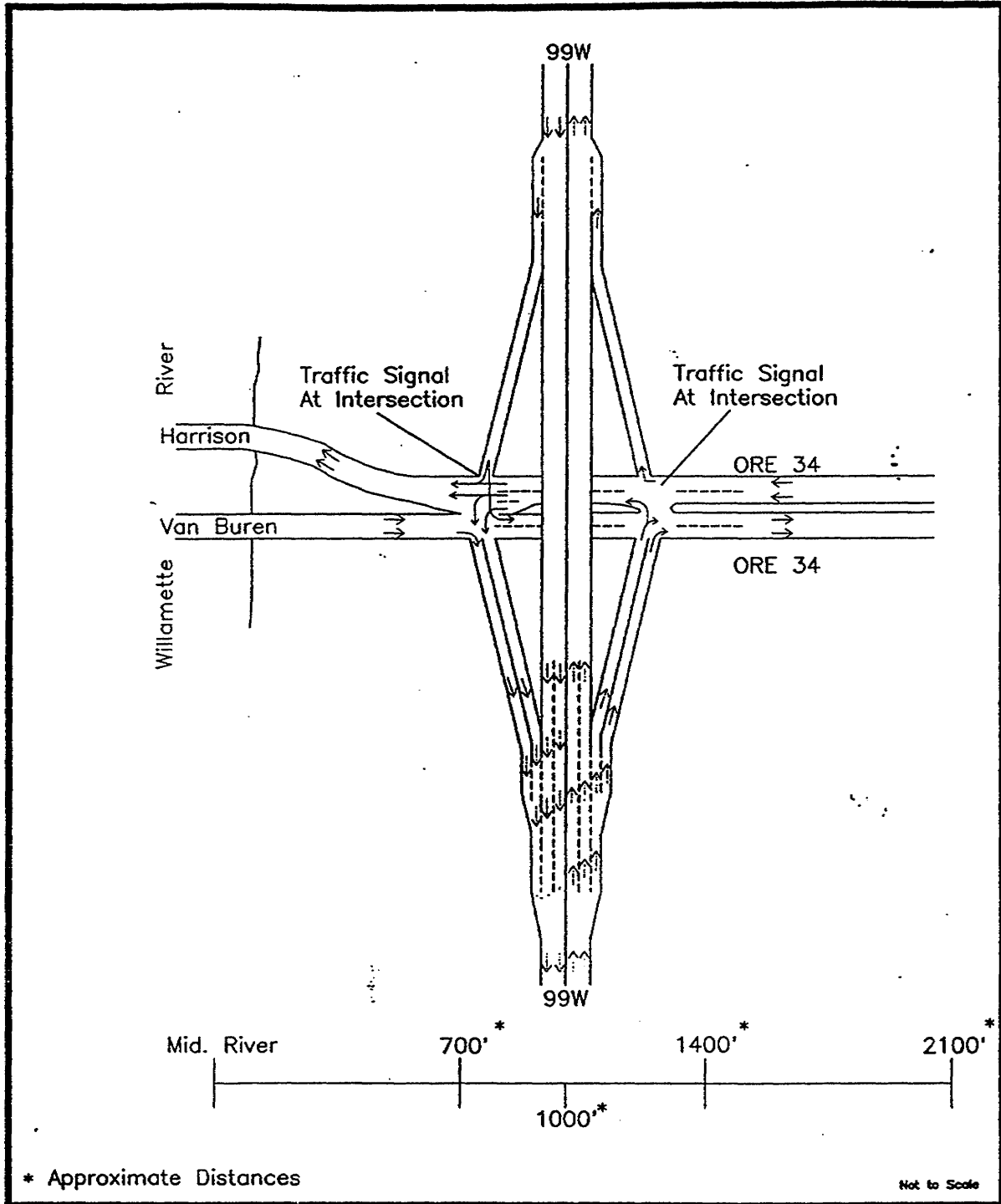
Although a model was used in the development of this plan, it was not used specifically to evaluate all of these alternatives. Recent purchase of traffic modeling software will allow the City to do such an evaluation within the required time frame. In spring of 1996, a consultant will be under contract to accomplish the analysis of transportation alternatives required under Transportation Planning Rule 12. This is a multi-faceted effort, requiring analysis of Transportation System Management (TSM) and Transportation Demand Management (TDM) techniques that might be effective in reducing reliance on the single occupant vehicle (SOV). Probably most important to this analysis is a review of how alternate modes of transportation to the SOV can best be provided and their use promoted and how land use might play a role in the effectiveness of alternate modes in attracting users. Particularly important to the transit mode is identification of future routes with an emphasis on ensuring that land use along them, whether in terms of the density of residential uses or the transit- and pedestrian-friendliness of commercial development, can help to encourage transit use.

To help in this effort, the City applied for and has received TGM Program funding assistance to complete a Transit Master Plan. The City will incorporate the Transit Master Plan work effort directly into the Transportation Alternatives analysis (TAA) project. The consultant is being asked to provide a consolidated public process for an analysis of transportation alternatives that includes analysis of TDM and TSM opportunities and the development of a Transit Master Plan. This process will be designed such that the work of a consultant selected through the TGM selection

process could be inserted into the transit planning effort. When the transit planning effort has developed a set of alternatives for transit service (service types, specific current and future routes, appropriate land use and land development code changes, etc.), these alternatives will be incorporated into the global analysis of TSM, TDM, and other modal alternatives for the Corvallis area. From this analysis, a preferred alternative for provision of transportation services and facilities in Corvallis will be developed, including a preferred transit alternative that will become the preferred alternative in the Transit Master Plan. This Corvallis Transportation Plan will be updated following completion of alternatives analysis to incorporate appropriate information.

Finally, the City will need to prepare for the time when the region is designated a Metropolitan Planning Organization (MPO). This will likely occur with the 2000 Census, when the Corvallis/Philomath area reaches a population greater than 50,000. MPOs are required to meet specific requirements for reduction in per capita vehicle miles traveled and parking spaces among others. The alternatives analysis and analysis of land use along transit routes should be helpful in these efforts. Clearly, transportation planning will continue to be a significant element in the City's overall planning effort.

FIGURE 10-1 OPTIONS: FUTURE CORVALLIS BYPASS INTERCHANGE





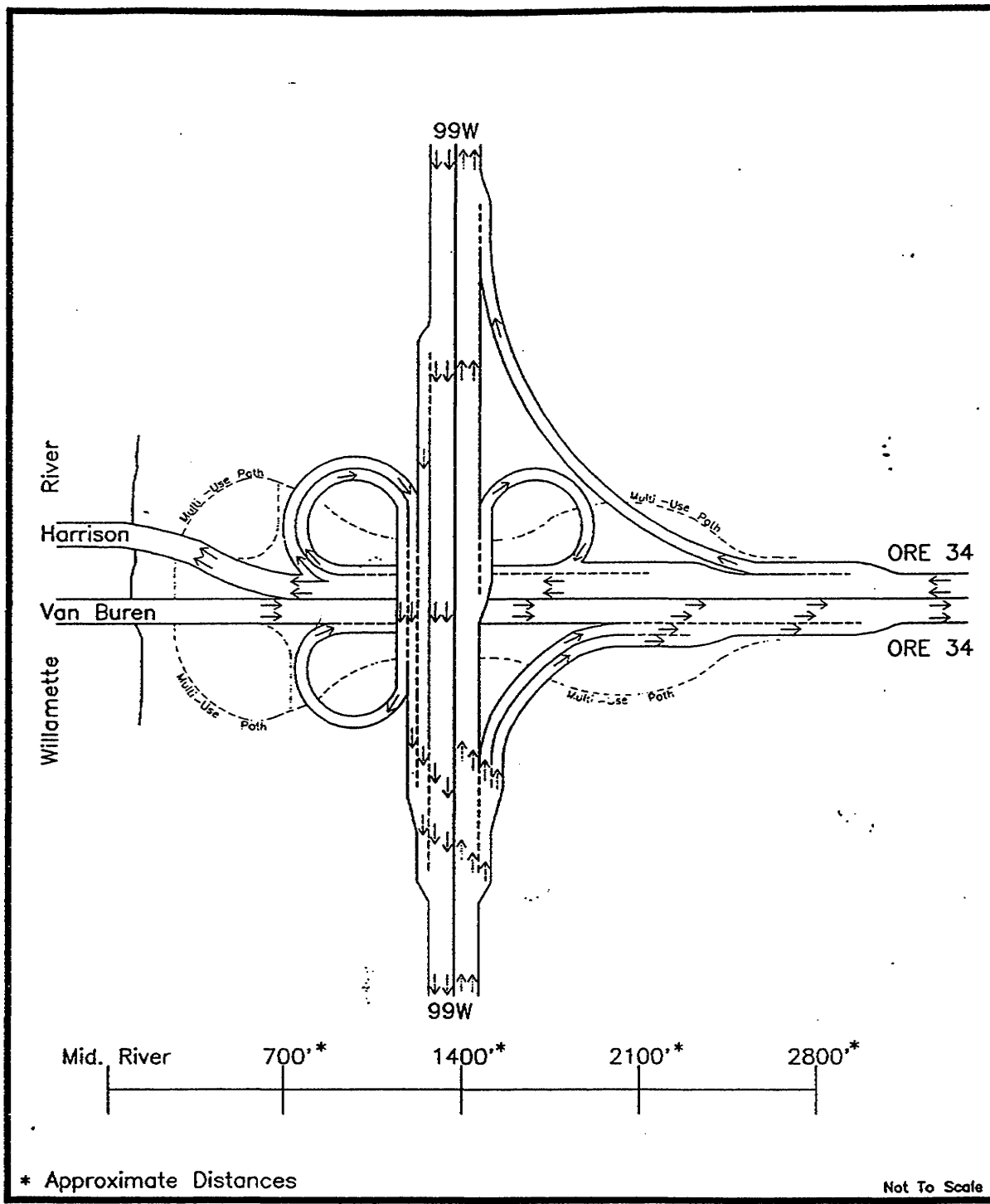
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	<p>ULTIMATE INTERCHANGE - STATE</p>		

FIGURE 10-2 OPTIONS: FUTURE CORVALLIS BYPASS INTERCHANGE





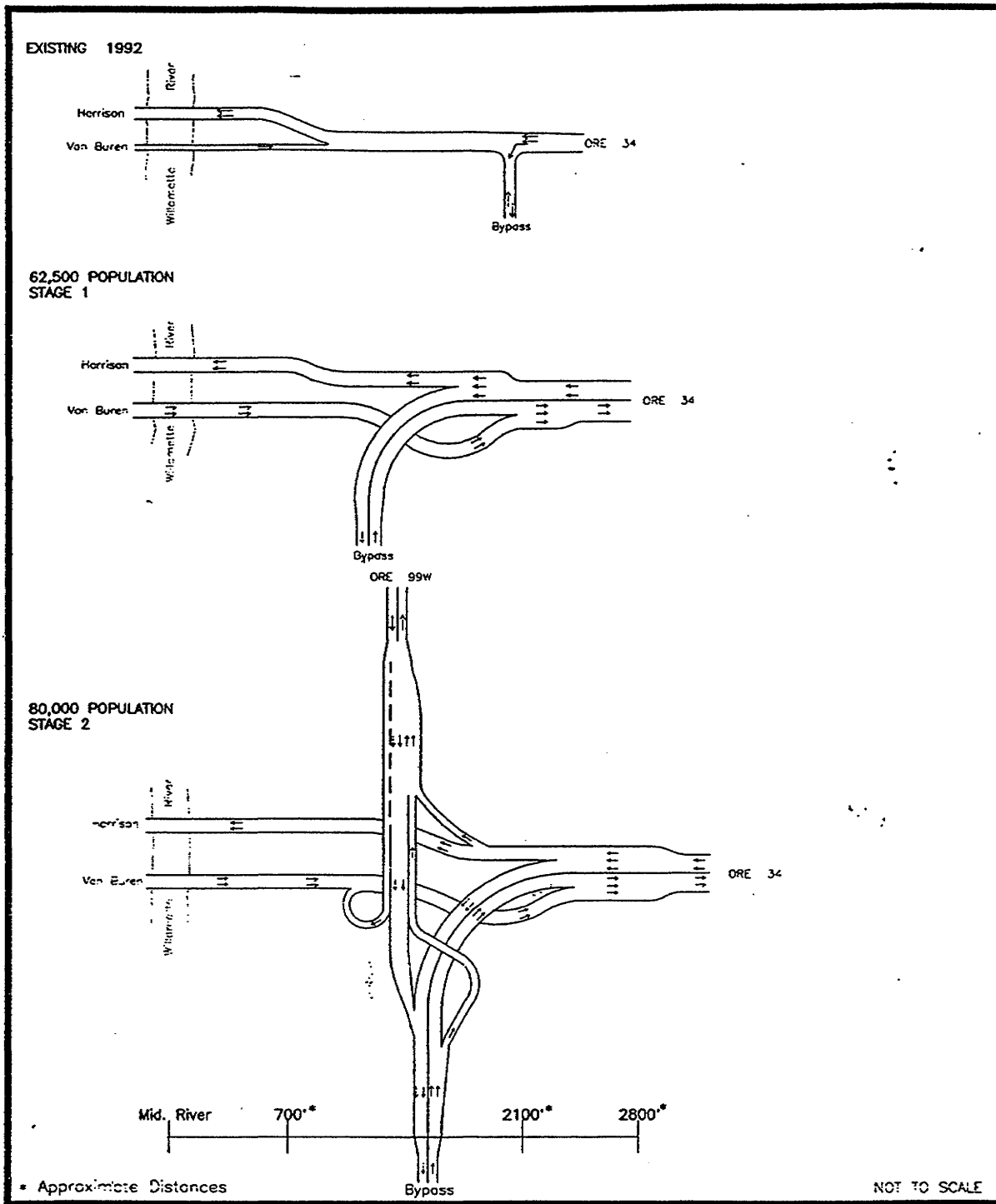
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	<p>ULTIMATE INTERCHANGE - CITY</p>		

FIGURE 10-3 OPTIONS: FUTURE CORVALLIS BYPASS INTERCHANGE





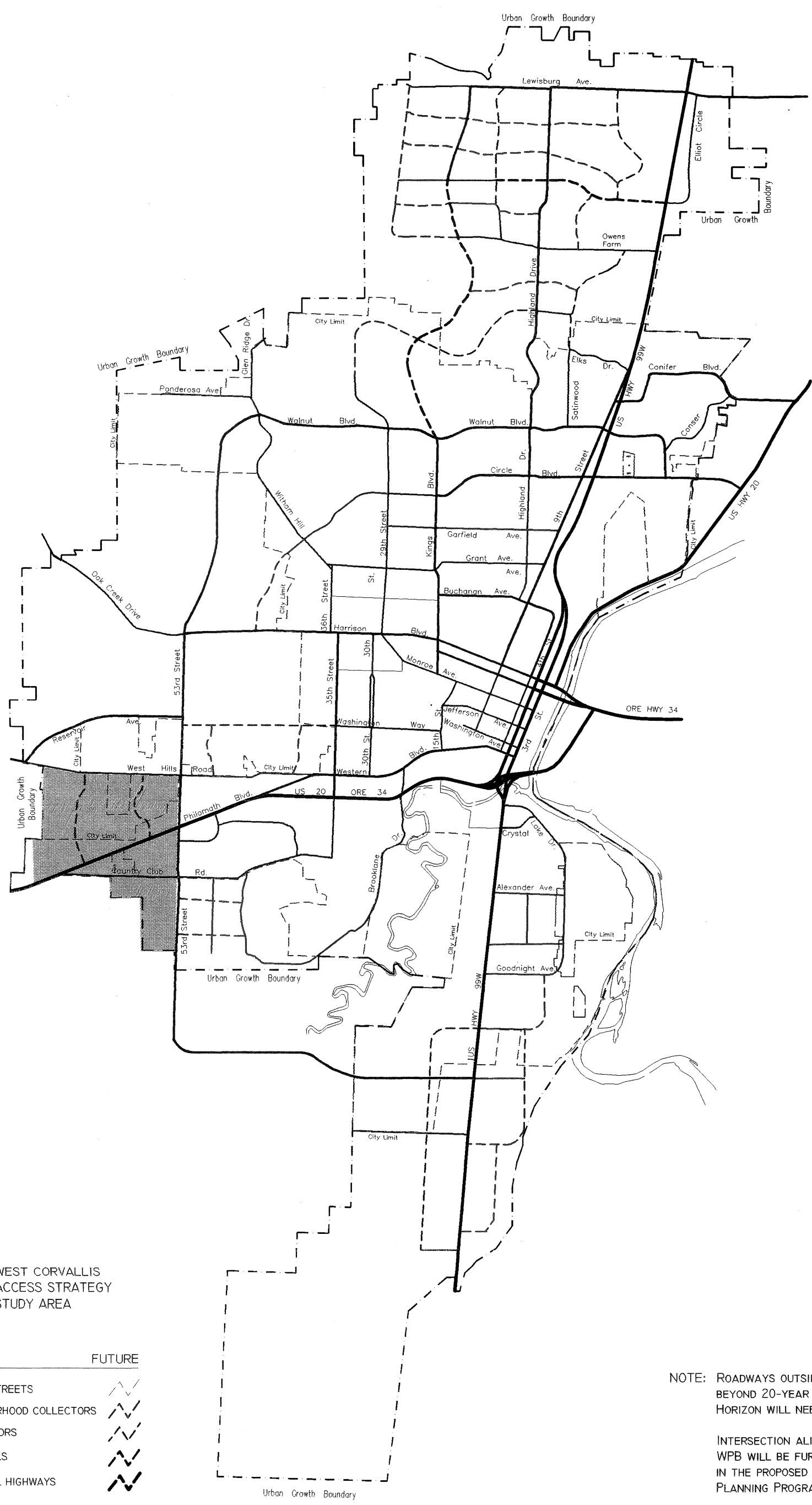
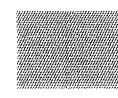










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	<p>ORE 34 / BYPASS INTERCHANGE</p>	
<p>GEOGRAPHIC INFORMATION SYSTEM</p>		

FIGURE A-1



 WEST CORVALLIS
ACCESS STRATEGY
STUDY AREA

EXISTING	FUTURE
 LOCAL STREETS	
 NEIGHBORHOOD COLLECTORS	
 COLLECTORS	
 ARTERIALS	
 ARTERIAL HIGHWAYS	

NOTE: ROADWAYS OUTSIDE UGB AND BEYOND 20-YEAR PLANNING HORIZON WILL NEED EXCEPTION.

INTERSECTION ALIGNMENTS ON WPB WILL BE FURTHER EVALUATED IN THE PROPOSED ODOT CORRIDOR PLANNING PROGRAM.



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FIGURE A-2

DATE 9-1-96

FUNCTIONAL CLASSIFICATION SYSTEM

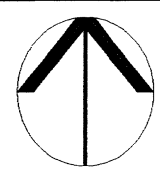
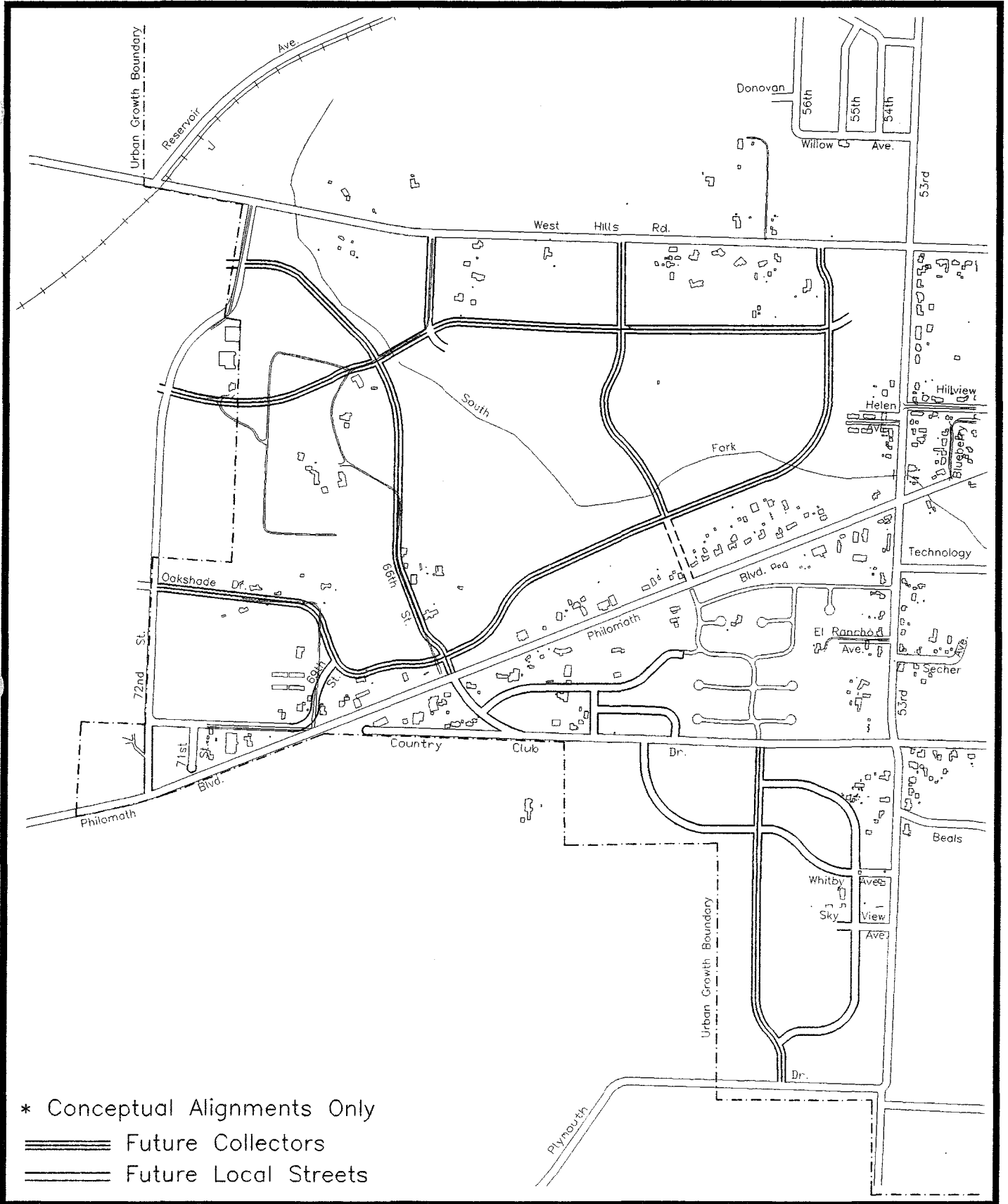


FIGURE A - 2 WEST CORVALLIS ACCESS STRATEGY



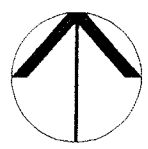
- * Conceptual Alignments Only
- ==== Future Collectors
- ==== Future Local Streets



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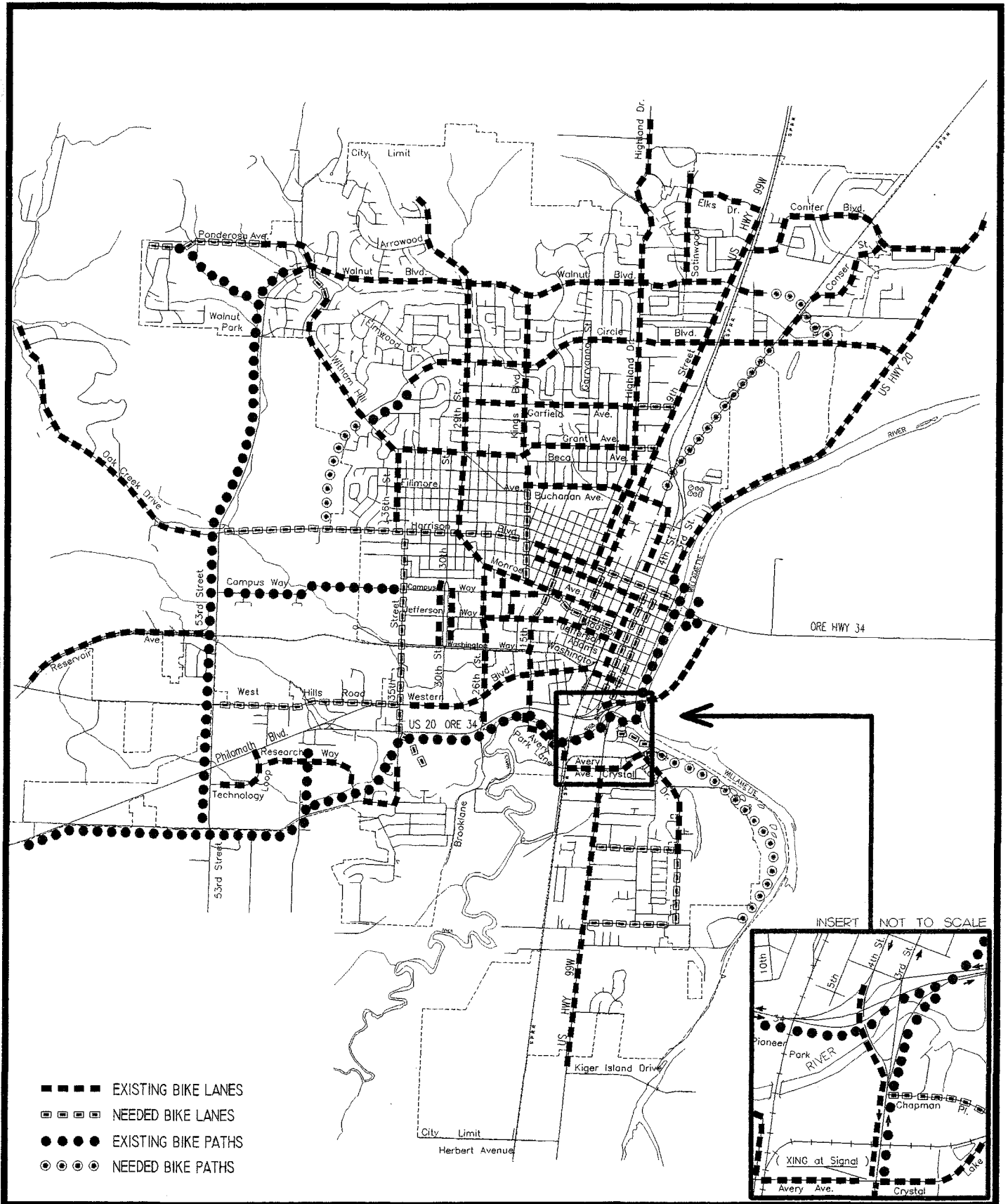
DATE 9/1/96
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 FILE WC-STRAT

NOT-TO-SCALE



TITLE

FIGURE A - 3 BIKEWAY SYSTEM ROUTES

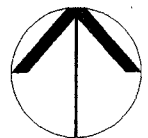


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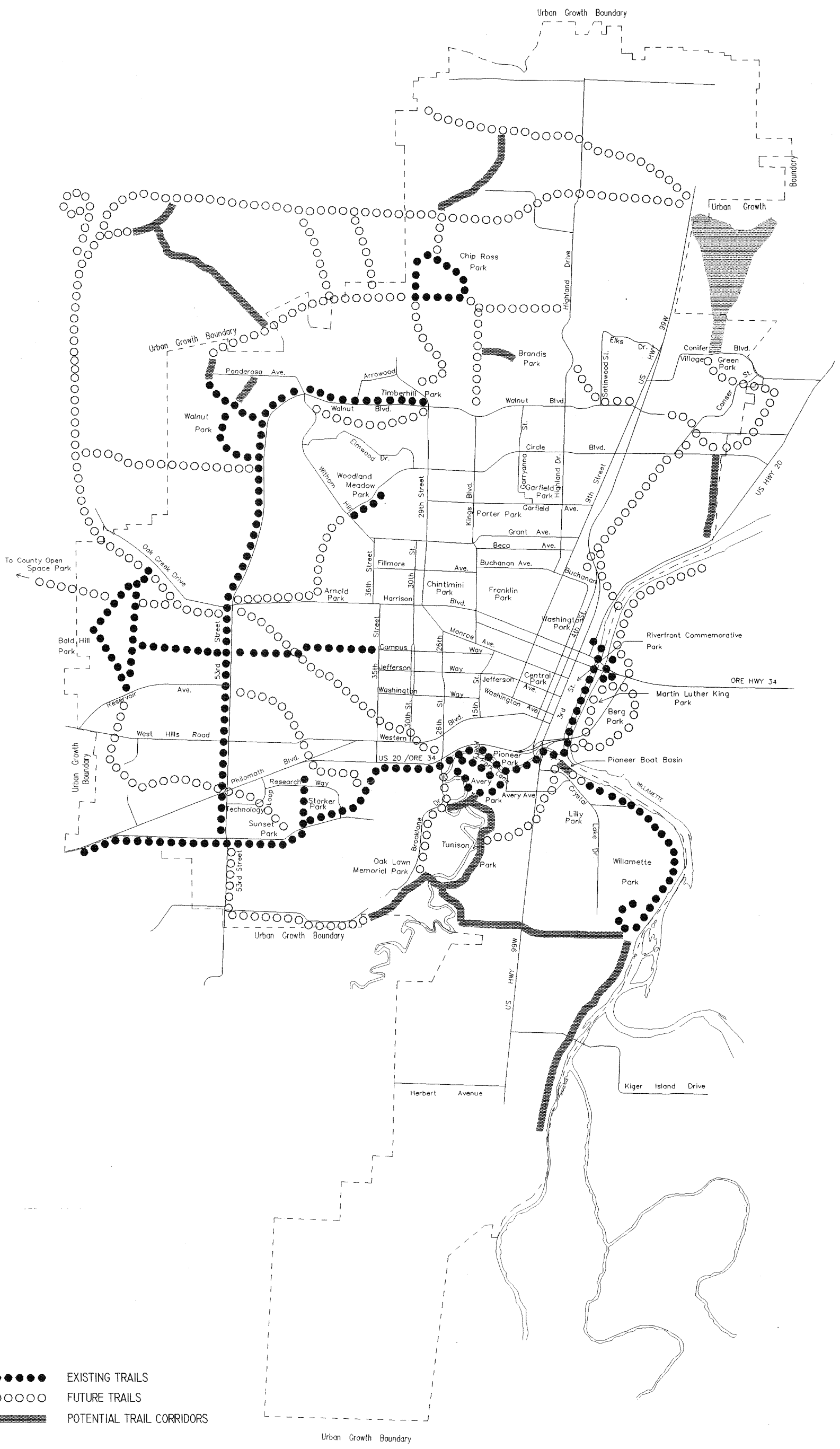
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FILE BIKEPLOT

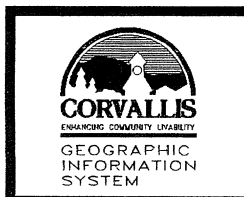
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TITLE

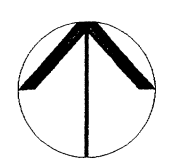
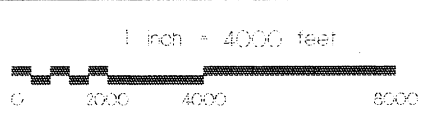


- EXISTING TRAILS
- ○ ○ ○ ○ FUTURE TRAILS
- ▬▬▬▬▬ POTENTIAL TRAIL CORRIDORS

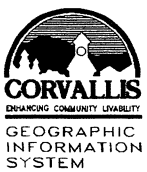
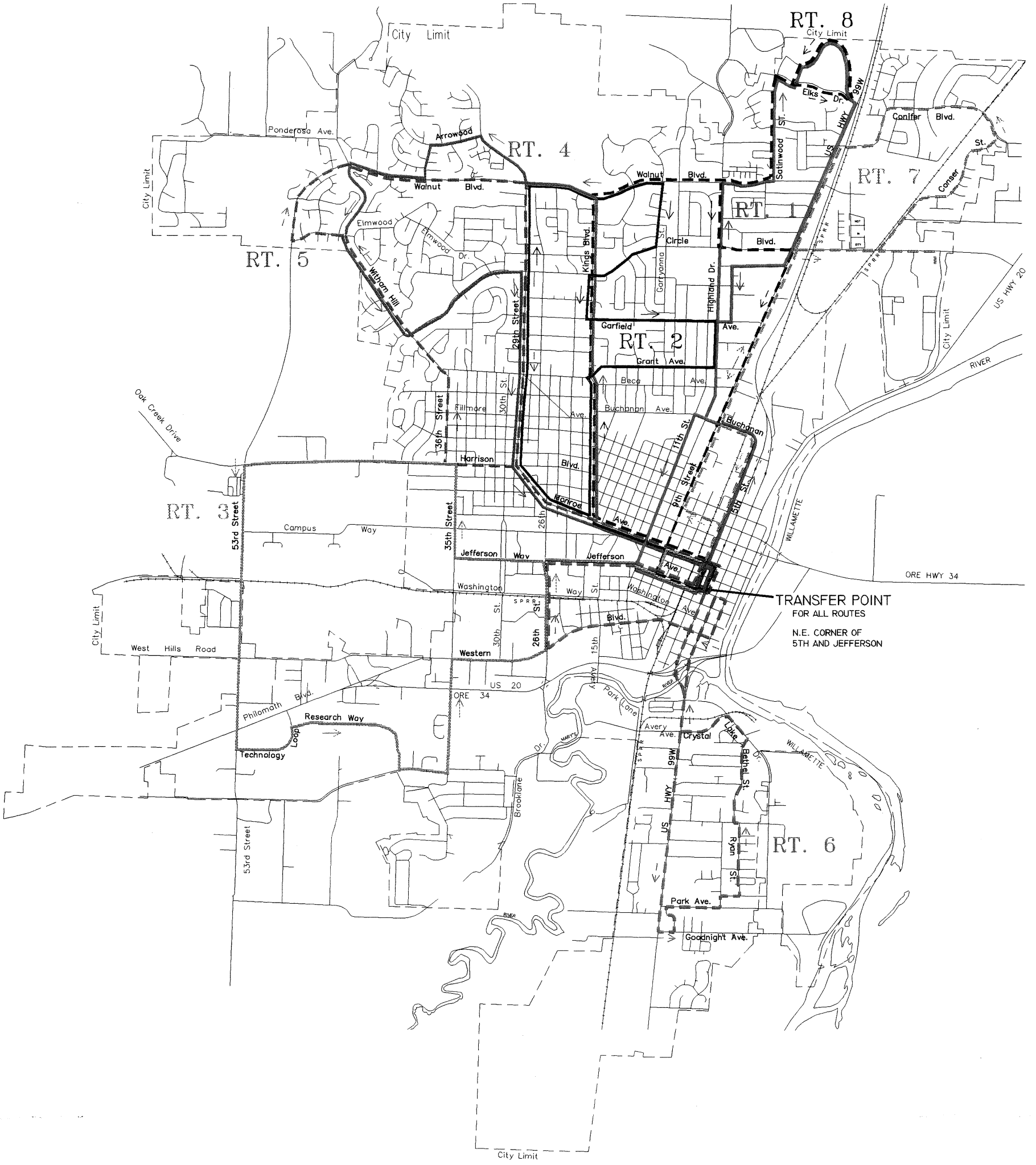


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 FILE FIG. A - 4

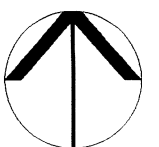
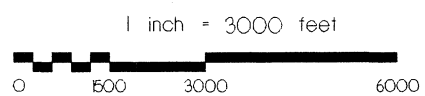


TRAILS MASTER PLAN



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 FILE FIG. A - 5



TRANSIT ROUTES