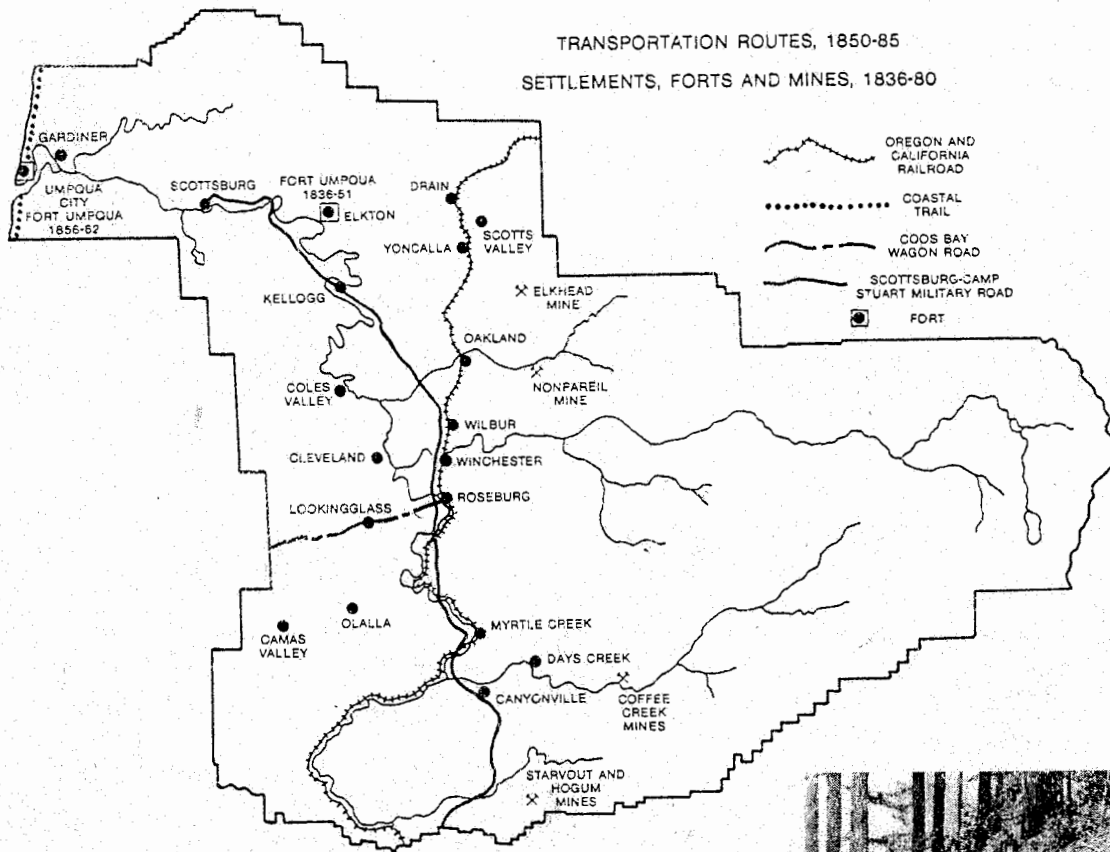
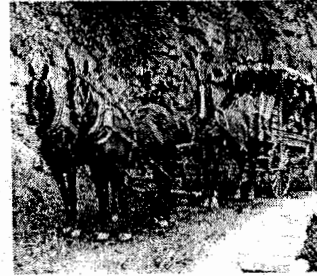
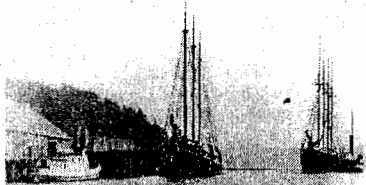


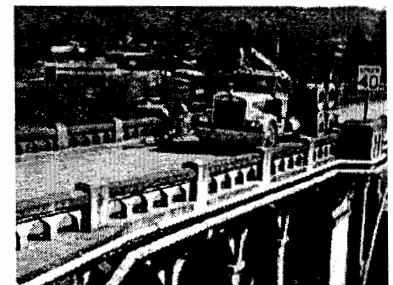
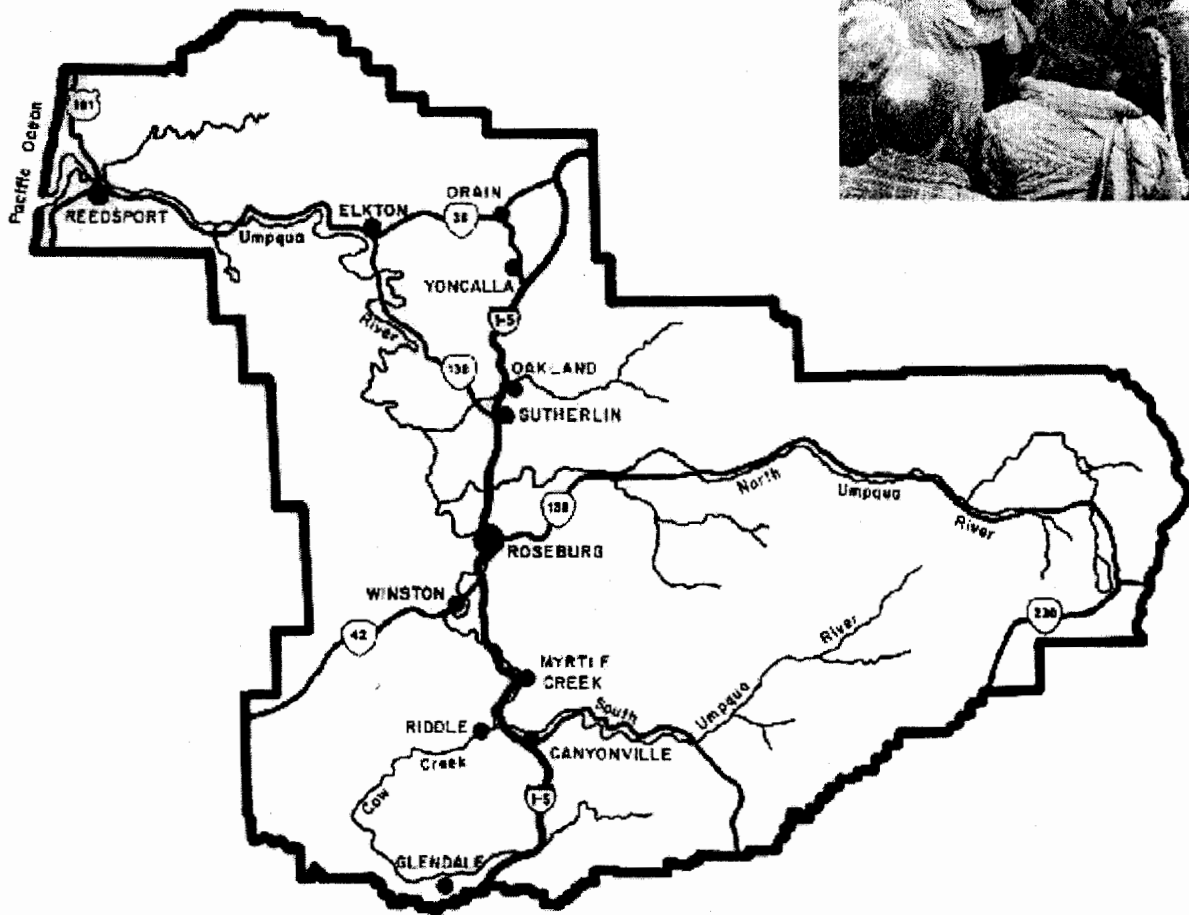
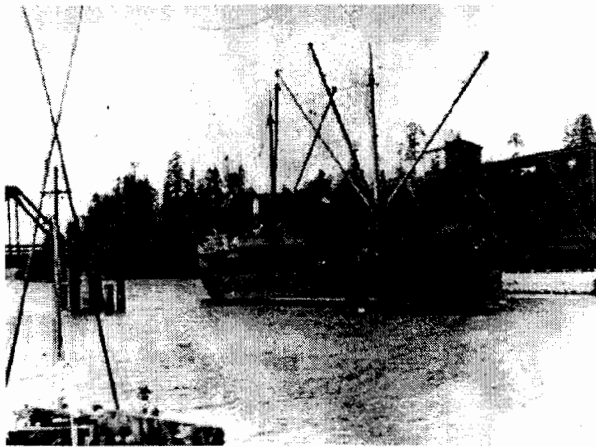
DOUGLAS COUNTY

\$25.00



TRANSPORTATION SYSTEM PLAN

November 1998



RESPONDING TO THE NEEDS OF THE COMMUNITY

PREFACE

TO THE TRANSPORTATION SYSTEM PLAN

Douglas County currently has an acknowledged transportation plan and land use regulations. This plan and its accompanying regulations are an update to Douglas County's acknowledged program and serve as the base for the development of the updated Transportation System Plan (TSP).

The TSP was compiled from the acknowledged Comprehensive Plan Elements and support documents. This document contains the amendments adopted on August 13, 1997, to address the Transportation Planning Rule. The Department of Land Conservation and Development and the Oregon Department of Transportation appealed the Transportation System Plan to the Land Use Board of Appeals (LUBA). In an effort to mitigate the appeal, an emergency ordinance and amendments was adopted on February 14, 1998, these amendments are also included in this document. As of the date of publication, the amendments are under review by the Oregon Court of Appeals and LUBA.

TABLE OF CONTENTS

Chapter 1 -	Comprehensive Plan Chapter 13: Transportation Element
Chapter 2 -	Comprehensive Plan Chapter 15: Land Use Element
Chapter 3 -	Support Document to the Transportation Element
Chapter 4 -	Circulation Plans for Glide, Green and Tri-City
Chapter 5 -	Bikeway Master Plan

GENERAL REFERENCES -

Public Works Department, Construction and Engineering
Division, Average Daily Traffic Counts

Integrated Road Information System: computerized roadway
inventory database for Douglas County

Oregon Administrative Rule 660-12

CHAPTER 1: TRANSPORTATION ELEMENT

TRANSPORTATION

INTRODUCTORY SUMMARY

PURPOSE OF THE TRANSPORTATION ELEMENT

The purpose of the Transportation Element is to address, in detail, Statewide Planning Goal 12 and to assist in development of an effective and efficient transportation network that is compatible with the environment, local and adjacent jurisdictions, and land use planning.

WHAT DOES GOAL 12 REQUIRE?

Statewide Planning Goal 12 requires county and city jurisdictions to provide and encourage a safe, convenient and economic transportation system. All forms of transportation are to be considered in the element, based on an inventory of transportation needs. Consideration of social, economic and environmental impacts and the conservation of energy are also required of the transportation element. Specifically, Goal 12 states a transportation plan shall:

- + Consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian;
- + Be based upon an inventory of local, regional and state transportation needs;
- + Consider the differences in social consequences that would result from utilizing differing combinations of transportation modes;
- + Avoid principal reliance upon any one mode of transportation;
- + Minimize adverse social, economic and environmental impacts and costs;
- + Conserve energy;
- + Meet the needs of the transportation disadvantaged by improving transportation services;
- + Facilitate the flow of goods and services so as to strengthen the local and regional economy; and
- + Conform with the local and regional comprehensive land use plans.

Each plan shall include a provision for transportation as a key facility.

Finally, transportation policies are to be such that they will assist in strengthening the economy and conform to other comprehensive plans.

WHAT IS INCLUDED IN THE TRANSPORTATION ELEMENT?

The Transportation Element contains findings concerning: The background and existing conditions that affect Douglas County's transportation system; a description of Douglas County's transportation facilities; a County roadway network plan; and a Bikeway Master Plan. Also included are: transportation goals and policies, and Bikeway Policies. A detailed discussion of road, rail, air, waterways, pipeline, pedestrian and bicycle transportation and the transportation disadvantaged may be found in the support documents.

DEFINITIONS OF TERMS USED IN THE TRANSPORTATION ELEMENT.

May - Wish or desire (Option)

Should - Condition, obligation, or what is expected (Encouragement)

Shall - Have to, must, command or directive (Requirement)

TRANSPORTATION ELEMENT FINDINGS

ROADS AND HIGHWAYS

1. Due to its rural nature and mountainous terrain, roads and highways are the most important element of the Douglas County transportation system.

COUNTY ROADS

2. County roads include all roads which are part of the County road maintenance system. Generally speaking, the roads which make up this system serve County wide (as opposed to local) traffic and/or meet County construction standards. In 1995 there were 1,165 miles of road within the County road system.

Facilities

3. Douglas County uses a four part classification system to describe the function (either existing or future) of the roads under its jurisdiction as well as the State highways within the County. This classification system includes Principal Highways, Arterials, Collectors and Local roads. The Collector classification is further refined to distinguish between Major and Minor Collectors. The function of these road types is as follows:

Principal Highway

Principal Highways fall under state jurisdiction and the management of these facilities is outlined in the Oregon Highway Plan.

Arterial

The Arterial network will provide through traffic movement (including public transportation) and its distribution from Principal Highways on to the Collector and Local Streets network. As with Principal Highways, Arterials provide connection between major communities in the County. Arterials are subject to regulation and control of parking, turning movements, entrances, exits, and curb uses. Access control and on street parking are a function of the number of lanes, lane and shoulder width, design speed, traffic volumes, and land use. Traffic volumes on major arterial streets can reach up to 30,000 vehicles per day.

Collectors

Major Collector: Major collectors provide for the connection of major residential and activity centers. Such roads primarily accommodate through traffic and channel traffic from local and minor collectors onto streets of higher classification. Access to adjacent properties may be limited. In urban areas, major collectors should help to establish neighborhood identity and define land use patterns. In rural areas, major collectors connect minor rural communities, provide secondary access between major communities and provide access to major employment, recreational and rural residential areas. Traffic volumes on major collector streets generally can range up to 10,000 vehicles per day.

Minor Collector: Minor collectors are intended to distribute local traffic onto other minor collector, major collector or arterial streets. Property access onto minor collectors is often allowed. In urban areas, minor collectors should border neighborhoods thereby helping to establish neighborhood identity. In rural areas, minor collectors also connect rural residential areas. Traffic volumes generally can range up to 5,000 vehicles per day.

In addition, in rural areas minor collectors provide a connection between resource areas having high economic impact on the community and the markets for these products. These resource collectors are generally rural in nature and provide interface with agriculture, forest service, and Bureau of Land Management (BLM) roadways. Traffic volumes range from 250 to 4,000 vehicles per day.

Local Roads

Local roads are intended to provide direct access to abutting property and move traffic from its origin to the major road network. The through movement of traffic on local roads is to be discouraged. Traffic volumes on local roads are generally less than 1,500 ADT.

4. The County road classification system has designated Interstate (I-5) and most of the State highways within the County as principal highways. A portion of one state facility, Stephens Street is designated as an Arterial streets.
5. The roads within the system which have been designated as arterials generally provide access from the I-5 corridor to outlying unincorporated communities and resource areas.
6. The roads within the system which have been designated as major, minor and resource collectors generally carry less traffic and serve smaller areas than the designated arterials and principal highways.
7. Those roads within the County road maintenance system which have been designated as either principal highways, arterials, major collectors, or minor collectors along with the County designation of State highways within the County are included in the following Table and are shown on Map 1 (at end of policy section) titled Major State and County Roadway Systems, and by this reference incorporated herein.

TABLE 13-1. FUNCTIONAL CLASSIFICATION - DOUGLAS COUNTY ROADWAY NETWORK.
(Revised 05/ /97)

PH = Principal Highway	ART = Arterial	MAC = Major Collector
MIC = Minor Collector	NLC = Necessary Local	

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
STATE SYSTEM				
	Hwy 038	Hwy 99 to Hwy 101	PH	2
	Hwy 042	I-5 Exit 119 to Coos Co Line	PH	3
	Hwy 099	Umpqua College Rd. to Diamond Lake Blvd.	ART	
	Hwy 099	I-5 Exit 162 to Hwy 38	PH	
	Hwy 099	South Roseburg City Limits to I-5 Exit 127.	ART	4
	Hwy 099	I-5 Exit 119 to Diamond Lake Blvd.	ART	
	Hwy 101	Lane Co Line to Coos Co Line	PH	8
	Hwy 138	I-5 Exit 136 to Hwy 38	PH	9
	Hwy 138 (Cascade Lakes Hwy)	N. Stephens to Klamath County Line	PH	48/49
	Hwy 230	Hwy 138 to Jackson Co Line (SE)	PH	13
	Hwy 230	Hwy 230 to Jackson Co Line (E)	ART	12
	I-5	Lane Co line to Josephine Co Line	PH	1

COUNTY SYSTEM

001	Tiller Trail	Main Street 1C to Jackson County Line	MAC	
001B	Stanton Park Road	I-5 Exit 99 to I-5 Exit 101	MIC	
001C	Main Street	S from I-5 Exit 99 to 3rd Street	MIC	
002D	Binder Rd	South Side of Hwy 38 to End	MIC	
003	Loon Lake Road	Hwy 38 to End (F.A.S. to MP 10.04)	MIC	17
004	Diamond Lake Blvd.	N. Stephens to Roseburg City Limits	PH	48
004A	Douglas Avenue	Roseburg City Limits to State Hwy 138	MIC	
004C	Buckhorn Rd	MP 0.76 to Rd 16 and 17 Jct.	MAC	50
004C	Buckhorn Rd	Rd 4 to MP 0.76	MIC	
004D	Hatfield Dr.	Rd 4 to Rd 16 and 17 Jct.	MIC	
004E	Wild River Dr.	Rd 4 to Rd 4 to Rd 200 and Back to Rd 4	MIC	
004G	Glide Loop Dr.	Rd 4 to Rd 4	MIC	
005B	Coos Bay Wagon Rd.	Rd. 52 to Jct. Rd. 5B and 112	MIC	
005C	Reston Rd	Rd 5B to Hwy 42 (F.A.S.)	MIC	
005D	Lookingglass Rd	Roseburg City Limits to Rd 52 (F.A.S)	ART	55
006	Garden Valley Rd.	Rd 31D to Rd 9 (F.A.S.)	MAC	
006	Garden Valley Blvd.	Rd 9 to Rd 13A	MAC	
006A	Old Garden Valley	Rd 31A to Rd 31D	MIC	
006	Garden Valley Blvd.	From I-5 (Roseburg City Limits) to Rd 31A (F.A.S.)	ART	
006B	Hubbard Crk Rd.	Rd 13A to End	MIC	
007	Elkhead Rd (see Rd. 050)	I-5 to Rd 50	MIC	
007	Elkhead Rd	Hwy 99 to I-5 (F.A.S.)	MIC	22
008	Scotts Valley Rd	Rd 7 to Rd 7	MIC	
008A	London Hill Rd	Rd 8 to Lane County Line	MIC	
009	Fort McKay Road	Hwy 138 to Rd 6 (F.A.S.)	MAC	31
010	Rolling Ridge	Hwy 138 to Rd 76	MIC	
010A	Stearns Lane	Oakland City Limits to I-5 Exit 138 (hwy 99 to I-5 F.A.S)	MAC	24
010A	Stearns Lane	I-5 Entrance to Rd 10	MIC	
010B	Oakland-Elkton Underpass	Rd 10A to Hwy 99 (F.A.S.)	MIC	
010E	Azalea Drive	Hwy 138 to End	MIC	
010F	Rolling Ridge Rd (see Rd. 76)	Hwy 138 to Rd 76	MIC	
011	Mehl Creek Rd	Rd 57 to Hwy 138	MIC	
012	Azalea Glen Rd.	Rd 97 to Glendale City limits	MAC	
012	Azalea Glen Rd.	I-5 Exit 88 to Rd 97 (part F.A.S.)	MIC	
012A	Junction Road	I-5 Exit 80 to Rd 12 (F.A.S.)	MAC	80
012B	Azalea Glendale Rd	Rd 12 to Rd 313 (F.A.S.)	MAC	81
013	Melqua Rd	Rd 51 to Mode Road	MIC	35
013	Melrose Rd	Rd 167 to Rd 51 (F.A.S.)	ART	37
013	Old Melrose Rd	Roseburg City Limits to Rd 167 (F.A.S)	MAC	38
013A	Melqua Rd	Rd 13 to Rd 6B & Rd 6	MIC	35
014	Dole Rd	Rd 105 to Hwy 387 (N. Jct.)	ART	65
014	Dole Rd	Hwy 386 (S. Jct.) to Rd 105	MIC	
015	North Myrtle Rd	Rd 103 to End	MIC	
015	North Myrtle Rd	Rd 18 to Rd 103 (F.A.S. to Rd 104)	MAC	67
016	Carnes Rd	Hwy 42 (Kelly's) to Happy Valley Rd	MAC	58
016	Carnes Rd	Happy Valley Rd to RFP property	MIC	
016B	Dodson View Rd	Rd 16 to Rd 16	MIC	
016C	Roberts Creek Rd	MP 2.5 to Hwy 42 (Kelly's) (F.A.S.)	MIC	52
016E	Dixonville	Rd 17 to MP 2.5 (F.A.S.)	MAC	52
017	Buckhorn Rd (see Rd. 004C)	Rd 16 to Rd. 17A (F.A.S.)	MAC	
017	Little River Rd.	State Hwy 138 to Rd 17 (FAS)	MAC	

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
017A	Little River Rd	State Hwy 138 to Rd. 17 (F.A.S.)	MAC	51
017C	Little River Rd	Rd 82a to End (F.A.S.)	MIC	
018	South Myrtle Rd	Rd 18A to End (F.A.S.)	MIC	
018	South Myrtle Rd	Myrtle Creek to Rd 18A (F.A.S.)	MAC	68
018A	Riverside Drive	Rd 386 to Rd 18	MAC	69
019	Nonpareil Rd	Rd 75 to Rd 22A (F.A.S.)	MAC	26
019	Nonpareil Rd	Sutherlin City Limits to Rd 75 (F.A.S.)	ART	25
019	Nonpareil Rd	Rd 22A to End (F.A.S.)	MIC	
020	Pruner Rd	I-5 Exit 103 to Rd 263	MAC	71
020	Pruner Rd	Rd 263 to Riddle City Limits	MAC	70
020A	Yokum Rd	I-5 Exit 101 to Riddle City Limits (F.A.S)	MIC	76
020B	Chadwick Ln	Rd 386 to I-5 Overpass	MIC	
021	Canyonville-Riddle Rd	Canyonville to Riddle (F.A.S.)	MAC	75
022	Driver Valley Rd	Oakland City Limits to Rd 22A	MIC	
022A	Fair Oaks Rd	Rd 22 to Rd 19	MIC	
023	Green Valley Rd	From End of 23A to Hwy 138	MIC	
23A	Green Valley Rd	From Rd 388 to Beginning Rd 23	MIC	
024	Hayhurst Rd	Rd 24A to Hwy 38	MAC	18
024	Hayhurst Rd	From Yoncalla City Limits to Rd 24A	MIC	
024A	Drain Rd	Drain City Limits to Rd 24	MAC	19
025	Anlauf Rd	Rd 7 to Rd 196	MIC	
026	Happy Valley Rd	Rd 16 to Rd 47	MAC	57
027	Reuben Rd	Rd 12 to Rd 321 (Part F.A.S.)	MIC	
027A	McCulloch Creek Rd	Rd 27 to End	MIC	
028	Windy Creek Rd	From Rd 12 to MP 0.20	MAC	82
028	Windy Creek Rd	MP 0.20 to End	MIC	
029	Goodrich Highway	I-5 Exit 142 to Rd 126A	MIC	
030	Rice Valley Rd	I-5 Exit 146 to Yoncalla City Limits	MIC	
030	Rice Valley S. Rd	I-5 Exit 146 to End	MIC	
031	Wilbur Rd	Rd 388 Wilbur to Rd 6 (FAS from RD 115 to RD 31A)	MAC	45
031A	Garden Valley Rd.	Rd 6 to Rd 31D (F.A.S.)	ART	33
032	Oak Hill Rd	Rd 388 to Rd 6	MIC	
032A	Gross Lane Rd	Rd 32 to Rd 9	MIC	
033	Tyee Rd	Rd 9 to Hwy 138 (F.A.S.)	MIC	
034	Days Creek Rd	Rd 1 to End	MIC	
035	Gazley Bridge Road	Rd 1C to Rd 35A	MAC	77
035	Gazley Rd	Rd 35A to End	MIC	
035A	Gazley Rd	I-5 Exit 102 to Rd 35	MIC	78
036	Upper Cow Creek Rd	MP 8.00 to End (F.A.S.)	MIC	
036	Upper Cow Creek Rd	I-5 to MP 8.00 (to recreation site) (F.A.S.)	MAC	79
037	Upper Smith River Rd	Hwy 38 west of Drain to End (F.A.S.)	MIC	
038	Oialla Rd	Hwy 42 to End	MIC	
039	Glenbrook Loop	Rd 21 to Rd 321	MAC	74
039A	Glenbrook Loop	Rd 321 to Rd 21	MIC	
040	Boomer Hill Rd	Hwy I-5 Exit 110 to End (F.A.S.)	MIC	
041	Weaver Rd	Hwy I-5 Exit 106 to Rd 20	MIC	
042	Days Creek Cutoff Rd	Rd 18A to Rd 1	MIC	
043	Willis Creek Rd	Brockway Rd (47) to 88	MIC	62
043A	Rice Creek Rd	Rd 88 to End	MIC	
044	Shoestring Rd	Rd 21 to Rd 39	MIC	
046	South Umpqua Rd	Rd 1 to End (F.A.S.)	MIC	
047	Lookingglass Rd	Rd 387 to Hwy 42 (F.A.S.)	ART	55

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
047	Lookingglass Rd	Hwy 42 to Rd 5	MAC	56
048	Lower Smith River Rd	Hwy 101 to Rd 48A (F.A.S.)	MAC	14
048A	North Fork Smith River Rd.	BLM to FS. (F.A.S.)	MIC	
049	Fivemile Rd	Hwy 101 to Lane County	MIC	
050	Elkhead Rd (See Rd 007)	Rd 22 to Rd 7	MIC	
051	Flournoy Valley Rd	Rd 13 to Rd 90 (F.A.S.)	MAC	
051	Flournoy Valley Rd	Rd 90 to Rd 5 (F.A.S.)	MIC	
052	Colonial Rd	Rd 5B to Rd 51	MAC	54
053	Elgarose Rd	Rd 90 to Rd 253	MAC	41
053	Elgarose Rd	Rd 253 to Its Own Jct.	MIC	
054	Boswell Rd	Rd 389 to Rd 25	MIC	
055	Scholfield Rd	Hwy 38 to End	MIC	
056A	Portland Avenue	Proposed route with bridge from I-5 Exit 123 to Hwy 99 at Southgate	ART	110
057	Bullock Rd	Hwy 138 to Bridge Sec.	MIC	
057C	Cougar Creek	From Bridge Sec. South to End	MIC	
057B	Maupin Rd	Hwy 138 to End	MIC	
058	Sunshine Rd	North Umpqua Hwy 138 to End	MIC	
059	Cleveland Hill Rd	Rd 51 to Rd 13	MAC	39
060	Red Hill Rd	Rd 29 to End	MIC	
061	Buck Creek Rd	Hwy 38 to End	MIC	
062	Bear Creek Rd	Rd 212 to I-5 Exit 163	MAC	20
062	Bear Creek Rd	I-5 Exit 163 to End	MIC	
063	Halo Trail Rd	Rd. 389 to End	MIC	
064	Deans Creek Rd	Hwy 38 to End	MIC	
065	Hardscrabble Rd	Hwy 38 to Rd 37	MIC	
068	Laurel Hill Rd	Hwy 38 to End	MIC	
070	Plat I Rd	Rd 19 to Rd 75	MIC	
071	Skelley Rd	Rd 24 to End	MIC	
071A	Skelley South Rd	Rd 71 to End	MIC	
074	Metz Hill Rd	I-5 Exit 142 to Rd 23	MIC	
075	Plat K Rd	Rd 22A to Rd 70	MIC	
076	Rolling Ridge Rd (see Rd. 10F)	Rd 10 to Rd 23	MIC	
077	Wilcox	Hwy 138 to Rd 91	MIC	29
078	Rock Creek Rd	Idlelyd from Hwy 138 to B.M. Rd	MIC	
080	Curry Rd	Rd 6 to End	MIC	
080A	North Curry Rd	Rd 80 to End	MIC	
081	Joelson Rd	Rd 13 to End	MIC	
082	Cavitt Creek Rd	Rd 17 to End	MIC	
082A	New Bridge Rd	Rd 17 to Rd 82	MIC	
083	South Deer Creek Rd	Rd 16 to End	MIC	
084	Newton Creek Rd	Hwy 99 to Parker Road	MAC	105
084	Newton Creek Rd	Roseburg City Limits to End	MIC	
085	Rifle Range Rd	Diamond Lake Blvd to End	MIC	
086	Kester Rd	East of Roseburg - Hwy 138 to End	MIC	
087	Lighthouse Rd	Hwy 101 Access Loop to Rd 251	MIC	
087A	Beach Boulevard	Salmon Harbor Drive to End	MIC	
087D	Eight Street	Beach Blvd to Hwy 101	MIC	
088	Willis Creek Rd	Rd 43 (Willis Creek Rd) to End	MIC	62
088A	Willis Creek Rd	Rd 88 to End	MIC	62
089	Brozio Rd	Rd 31 to End	MIC	
090	Doerner Rd	Rd 51 to Rd 53	MAC	42

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
090A	Snowberry Rd	Rd 90 to End	MIC	
091	Cole Rd	Rd 9 to Rd 9	MIC	30
093	Council Creek Rd	Rd 39 to End	MIC	
094	Shively Cr Rd	Rd 1 to End	MIC	
095	Starveout Rd	Rd 36 to End	MIC	
096	Quines Creek Rd	Rd 12 to End	MIC	
097	Barton Rd	Rd 12 to End and Rd 330 to End	MIC	
098A	Tunnel Rd	Rd 313 to End	MIC	
099	Eakin Rd	Rd 96 to End	MIC	
100	Kent Creek Rd	Rd 47 to End	MIC	
101	Dillard Gardens Rd	Rd 387 to End	MIC	
103	Bilger Creek Rd	Rd 15 to End	MIC	
105	Clarks Branch Rd	MP 2.50 to Rd 16	MIC	
105	Clarks Branch Rd	I-5 Exit 113 to MP 2.50	MIC	66
106	Woodruff Rd	Rd 53 to End	MIC	
107	Lookingglass Rd	Hwy 42 to Rd 47	MAC	65
108	Porter Creek Rd	Rd 47 to Hwy 42	MIC	
109	Tenmile Valley Rd	Hwy 42 to Rd 5	MIC	
110	Green Siding Rd	Rd 16 to End	MIC	
111	Winston Rd	Hwy 42 to Thompson Rd 266	MAC	60
112	Coos Bay Wagon Rd	Rd 5 to End (F.A.S.)	MIC	
113	Military Rd	Rd 5 to City Limits	MIC	
114	Tipton Rd	Hwy 99 to End	MIC	
115	Del Rio Rd	I-5 Exit 129 to Rd 31 (F.A.S.)	MAC	44
115A	Page Rd	Hwy. 99 to End	MIC	
115B	Pioneer Way	Hwy 99 to End	MIC	
116	Territorial Hwy	Hwy 38 to Rd 212	MAC	10
116	Territorial Hwy	Rd 212 to Lane County Line	MIC	10
117	Mathis Hill Rd	At City Limits	MIC	
117A	Williams Rd	At City Limits to end	MIC	
118	Henderer Rd	Rd 11 to End	MIC	
120	South Side Rd	Sutherlin City Limits to Rd 19	MAC	27
120A	North Side Rd	Rd 19 to Rd 22A	MIC	
121	Glengary Rd	Rd 16 to Rd 16	MIC	
123	Roberts Mt. Rd	Rd 16 to Rd 14	MIC	
124	Neal Lane Rd	Rd 18A to Rd 42	MIC	
125	Hoover Hill Rd	Hwy 42 to Rd 38	MIC	
126A	John Long Rd	I-5 Exit 148 to I-5 Exit 150	MAC	23
127	Wilson Rd	Rd 30 to East End	MIC	
128	Upper Camas Rd	Hwy 42 to End of Pavement	MIC	
128A	Kirkendahl Rd	North of Rd. 128 to End	MIC	
129	Westside Rd	Rd 128 to Hwy 42	MIC	
131E	East Camas Rd	East end to Rd. 131W	MIC	
131S	South Camas Rd	From 131W to End	MIC	
131W	Main Camas Rd	Rd 129 to 131S	MIC	
133	Melton Rd	Rd 16 to End	MIC	
134	O.C. Brown Rd	Rd 17 to End	MIC	
135	Brumbach Rd	Rd 17 to End	MIC	
136	Strader Rd	Rd 17 to End	MIC	
139A	Medford Street	Fairgrounds south of Frear St. to End	MIC	
140	Ireland Rd	Hwy 42 to Rd. 38	MIC	
141	Benedict Rd	Hwy 42 to Rd 140	MIC	
142	Lone Rock Rd	North Umpqua Hwy 138 to End	MIC	

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
144	Calkins Rd	Harlan St. to Roseburg City Limits (F.A.S.)	MAC	53
145	Rogers Rd	Rd 32 to Rd 388	MIC	
146	Larson Rd	Rd 5 to End	MIC	
147	Plat B Rd	Rd 22A to End	MIC	
150	Alameda Street	Proposed extension from City Limits Todd to Rifle Range	MIC	BB
150A	Vine Street	Proposed north City Limits to proposed connection with Stephens	MIC	
151	Cornutt Rd	Rd 39 to End	MIC	
152	North Old Town Oakland Rd	Rd 388 to End	MIC	
153	Landers Lane	Hwy 42 to End	MIC	
154	Comstock Rd	Hwy 138 South to End	MIC	
155	Duke Rd	St. Frontage to Plat M	MIC	
155	Duke Rd	Rd 9 to End "Plat M"	MIC	
158A	Hult	Rd 387 to Dyke	MIC	
158C	Dyke	Rd 387 to Hult	MIC	
159	Ramp Rd	From Douglas St to End	MIC	
161	Gazley North Rd	Rd 35 to End	MIC	
167	Melrose (see Rd 13 & 51B)	Rd 6 to Rd 13 (F.A.S.)	ART	
168	Manning Rd	Rd 23A to End	MIC	
169	Boyer Rd	Rd 20 to Rd 263	MIC	
171	Hooker Rd	Rd388 to General Ave	MIC	
174	Callahan Rd	Rd 90 to End	MIC	
177	Mt. Reuben Rd	Glendale City Limits to End	MIC	
178	Sandy Creek Rd	Hwy 38 to End	MIC	
179	Doerner Cutoff Rd	Rd 90 to Rd 51	MIC	
180	Becker Rd	Rd 53 to End	MIC	
182	Richardson Rd	Rd 105 to End	MIC	
186	Little Valley Rd	Rd 26 to End	MIC	
187	Schad Rd	Hwy 138 to End	MIC	
189	Fisher Rd	Rd 6 to MP 3.00	MAC	43
190	Hogan Rd	Rd 29 to Rd 50	MIC	
191	Lower Garden Valley Rd	Rd 6 to Rd 275	MIC	
195B	Dawson Section Rd	Rd 48 to End	MIC	
196	Cox Rd	Rd 25 to End	MIC	
197	South Elk Creek Rd	Rd 24 to End	MIC	
199	Valley View Rd	Rd 70 to Rd 75	MIC	
200	North Bank Rd	Rd 388 to Hwy 138	MAC	46
203	Wells Rd	Rd 10 to End	MIC	
205	Canyonville Transfer Site	Rd 21 to Trans. Site	MIC	
207	Austin Rd	Rd 16 to West End	MIC	
207A	Austin Rd	Rd 16 to East End	MAC	59
208	Cleveland Rapids Rd	Rd 6 to Rd 275 West Side of Rd 6	MIC	
208A	Upper Cleveland Rapids Rd	Rd 6 to End East Side of Rd 6	MIC	
209	Civil Bend Rd	Hwy 42 to Rd 107	MIC	
211	Deady Crossing Rd	Rd 388 to End	MIC	
212	Curtin Rd	Rd 116 to Rd 62	MIC	21
213	Oakland Transfer Site	Oakland Landfill	MIC	
214	Camas Valley Transfer Site	Camas Valley Landfill	MIC	
217	Broad Street	Edenbower at Exit 127 to End	MIC	
220	Big Bend Rd	Rd 6 to End	MIC	
222	Sterling Drive	Hwy 99 to End	MIC	
223	Whistlers Lane	Hwy 138 North and East to Hwy 138	MIC	

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
225A	General Ave	Hooker Rd to Bower St	MIC	
225B	Bower Street	General Ave to Roseburg City Limits	MIC	
225C	Sweetbriar Ave	Bower St to Mulholland	MIC	
239	Brown Street	Hwy 138 to End	MIC	
240	Scottsburg West Rd	Hwy 38 to End	MIC	
244	Whistlers Bend Park Rd	Rd 223 to Park	MIC	
246	Stella St.	Rd 207 to End	MIC	
249	Steamboat Rd	Hwy 138 to End	MIC	
251	Salmon Harbor Dr.	Hwy 101 to MP 1.43	MAC	15
251	Salmon Harbor Dr.	Spur Rd 251 to Rd 87	MAC	16
251	Salmon Harbor Dr.	MP 1.43 to End	MIC	
252A	Johnson Street	Newton Creek Road to Housley Street	MIC	
252B	Knoll Street	Johnson Street to Slope Street	MIC	
252C	Vine Street	Knoll Street to Garden Valley BLVD	MIC	
252D	Porter Street	Knoll Street to Newton Creek Road	MIC	
252F	Hughes Street	Newton Creek Road to End	MIC	
252G	Follett Street	Newton Creek Road to End	MIC	
253	Orchard Lane	Rd 59 to Rd 53	MAC	
258A	Walnut	Rd 386 to End	MIC	
258B	Hill	Walnut to Wecks	MIC	
258C	Chickering	Victor Street to Arrow Way	MIC	
258K	Wecks	Rd 386 to Hill	MIC	
263	Riddle Byass	Rd 20 to Rd 39	ART	72
264	Main Street	Rd 263 to Riddle City Limits	MAC	73
266	Thompson	Rd 387 to Rd 111	MAC	61
274	Speedway Rd	Hwy 99 to End	MIC	
275	Cleveland Park Rd	Rd 208 to Rd 191	MIC	
278A	Del Mar	Carnes Rd No. 16 to Circle Dr.	MIC	
278D	Circle Drive	Green Ave to Del Mar	MIC	
278E	Hebard Avenue	Stella to Circle	MIC	
278F	Green Avenue	Circle Drive to Carnes Rd.	MIC	
282	Curtin Park Rd	W. of I-5 parallel to Curtin Rd. No. 212	MIC	
283	River Forks Park Rd	Rd 6 to Park	MIC	
284	Umpqua College Rd	Rd 388 to End	MIC	
286	Valley Rd	Rd 253 to End	MIC	
288	Melody Lane	Landers Lane Rd 153 to Hwy 42	NCL	
295C	Crest	Hwy 99S to Valley Drive	MIC	
295D	Henry	Hwy 99S to Taylor Avenue	MIC	
295G	Taylor	S. of Henry to Susan St.	MIC	
295H	Susan	Hwy 99S to Taylor St.	MIC	
296	Yoncalla Transfer Site	Rd 389 to End	MIC	
297A	Hewitt Avenue	NE Stephens to Walker Ct.	MIC	
299	Ash Creek Rd	Rd 21 to End	MIC	
303	Ranchero	Rd 96 to Rd 97	MIC	
305	Cooper Creek Rd	Rd 120 to MP 1.80	MAC	28
308	Stewart Parkway	Hwy 99 to Rd 6 (F.A.U.)	ART	107
313	Glendale Valley Rd	Glendale City Limits to I-5 Exit 80 (F.A.S)	ART	83
317	Lookingglass Transfer Site	Rd 52 to Transfer Site	MIC	
318	Glide Transfer Site Rd	Rd 6 to Transfer Site	MIC	
321	Cow Creek Rd	Rd 39 to Rd 27	MIC	
322A	Parker Rd	South off Newton Creek Rd	MIC	
322B	Kirby	East off Parker Road	MIC	

ROAD NO.	NAME	LIMITS	FUNCTIONAL CLASSIFIC.	PLAN MAP NO.
324B	Westview	Rd 31 to End	MIC	
326A	San Souci	Old Melrose Rd 13B to End	MIC	
328	Myrtle Creek Transfer SiteRd	Rd 14 to Transfer Site	MIC	
329	Reedsport Landfill Rd	Rd 55 to Transfer Site	MIC	
334A	Cherokee	Rd 31A to End	MIC	
341	Braunda Rd	Rd 13 to End	MIC	
342	Roseburg Landfill Rd	I-5 Exit 121 to Dump	MIC	
344	Glendale Transfer Site Rd	I-5 Exit 83 to End	MIC	
347A	Laurel Oaks Dr	Rd 52 to End	MIC	
349	Grange Rd	Hwy 99 to Hwy 99	MIC	
352E	Alameda Street	Tri-City S. from Chadwick Rd	MIC	
352F	Tri City Drive	West off Old Pacific Hwy Rd 386 to End	MIC	
354A	Chandler Drive	W. from Carnes Road	MIC	
357	Wagontire	SE off Clarks Branch Rd 105 to End	MIC	
357A	Homestead Rds.	Rd 357 to End	MIC	
359A	Churchill Dr	Rd 30A to End	MIC	
359B	Indian Creek	Rd 359A to End	MIC	
359C	Wheeler Canyon	Rd 359B to End	MIC	
359D	Hilltop Dr	Rd 359C to End	MIC	
359E	Teeples Ct	Rd 359D to End	MIC	
359F	Old Homestead	Rd 359B to End	MIC	
360	Prescott Rd	I-5 Exit 148 to End	MIC	
365	Berry Creek Rd	Rd 140 to Park Access	MIC	
366	Rolling Hills Rd	Hwy 42 to Rd 207	MIC	
369	Cleveland Loop Dr.	Rd 59 to End	MIC	
370	Touchstone Rd	Rd 51 to End	MIC	
374	Slide Creek Transfer Site Rd	Slide Creek Transfer Site	MIC	
377	Harmony Drive	Rd 366 to End	MIC	
383	Jeffries Road	I-5 Exit 99 to End	MIC	
386	Old Pacific Hwy	I-5 Exit 103 to Wecks Rd	MAC	
386	Old Pacific Hwy	Wecks Rd to I-5 Exit 108	ART	
387	Old Hwy 99 South	I-5 Exit 112 to Hwy 42	ART	
388	Old Hwy 99 North	Winchester Bridge north to I-5 Exit 138	ART	
388	North Stephens	North of Exit 127 to Winchester Bridge	ART	
	Note: The name changes from North Stephens to Old Hwy 99 North at Winchester Bridge. Both are designated Rd. 388			
389	Drain Yoncalla	I-5 Exit 150 to Hwy 38	ART	
390	Wildwood	Hwy 101 to Coos County Line	MIC	
395	Industrial Drive	Carnes Road to Green Siding Road	MIC	
396	Ingram Drive	Speedway Road to Grant Smith Road	MIC	
400	South Stephens	City Limits to Hwy 42.	ART	

PROPOSED ROUTES - Identified for future planning considerations. No funding source identified (Also identified as Proposed Routes in the Financial Analysis Section) (Revised 8/13/97)

Southerly Bypass of Central Avenue in Sutherlin	ART	A
Sunshine Road Extension to North Bank Road	MAC	B
Roseburg Bypass from the North Umpqua Highway near Dixonville	MAC	C
Extension of Vine Street north from City Limits toward the new Interchange on North Stephens	MIC	D
Harvard Avenue Extension (including bridge) to Melrose Road	ART	E
Portland Avenue Extension and bridge to Highway 99	ART	DD

County Roads Within City Urban Growth Boundaries

8. Many County Roads are located within city urban growth boundaries, flow into city streets or continue into or through cities. This situation creates a need to coordinate road classifications and construction standards with the effected cities to ensure that these roads will be able to accommodate future traffic demands placed on them.
9. There are approximately fifteen miles of County maintained roads within eight of the cities in the County. Some of the roads which make up this mileage carry significant amounts of through traffic and connect County roads together or connect County roads to the State Highway System. The County recognizes that such roads serve more than city needs and should remain in the County system.
10. Other County roads within city limits, only provide access to adjacent properties and do not carry significant volumes of through traffic. The County would like to surrender jurisdiction of this second type of road to the cities within which they are located.

Maintenance

11. The Douglas County Road Department is responsible for maintenance of the 1,165 miles of roads within the County road maintenance system.
12. In the 1995-96 fiscal year approximately fourteen million dollars were spent on maintenance and improvement of the County road system.
13. It is expected that the Road Department will use an increasing percentage of its resources on maintaining the existing road system.

System Users

14. Over the past 30 years, the use of the automobile as a means of transportation in this County has increased steadily. The number of annual miles traveled per capita over this period has increased from approximately 2,900 in 1950 to 6,900 in 1982 and to 9,500 in 1990.
15. In 1994, 89 percent of the workers in the County traveled to work by private automobile. Seventy-six percent of the workers drove alone while 13 percent carpooled.
16. The average number of persons per private vehicle used for commuting to work in Douglas County in 1980 was 1.14, as compared with 1.13 for the State and in 1990 was 1.09 for the County, as compared with 1.09 for the State, overall.
17. In 1996, the mean travel time to work in the County and State was approximately the same - 18.7 minutes in the County and 19.6 minutes for the State.
18. In 1980, approximately 94 percent of the County's households, had at least one motor vehicle available for their use, 66 percent had two vehicles available and 28 percent had three or more available. In 1990, approximately 96.9 percent of the County's households, had at least one motor vehicle available for their use, 76.1 percent had two vehicles available and 20.5 percent had three or more available.
19. The last year that average daily traffic (ADT) was recorded for all roads within the County was 1995. During that year traffic volumes varied from a low of 8 ADT and a high of 15,100 ADT on County roads. Approximately 65 percent of the roads in the County system had volumes of less than 500 ADT during that year.

20. Traffic volumes in 1978 were, for many County roads, the highest of any year recorded. Since that time ADT has declined and within the last few years began to increase again.
21. Douglas County Planning Department completed a review of the Level of Service for Principal Highways, Arterials and Major Collectors using data from the "1996 Edition - Public Works Department Average Daily Traffic Volumes". Acceptable levels of service on state highways have been determined by Oregon Department Of Transportation and are described in the Oregon Highway Plan.
22. The review of 1996 data identifies only three County routes that do not have an "A" Level of Service. Two of the three routes have a "C" Level of Service. The remaining route has a "D" Level of service and is impacted by many factors; an existing industrial site, an interchange and commercial development. It should be noted this LOS "D" applies to the portion of the route in close proximity to the interchange. Based upon these results, the existing road network generally is adequate to serve future needs. Individual analysis may be required for specific areas of concern.
23. Amendments to the Comprehensive Plan shall be consistent with the provisions of ORS and OAR specifically including OAR chapter 660 division 12. The OAR's now provide that amendments which significantly affect a transportation facility and amendments to land use designations densities and design standards shall assure that allowed uses are consistent with the identified function, capacity and level of service of the facility.

Future Projections

24. Total employment in Douglas County is expected to increase by 27percent over the study period (1995 to 2015). The Oregon Department of Transportation Employment Forecast to the Year 2015 identifies a 1.35% annual increase in employment or a 27% increase over the study period. Within the manufacturing sector, the movement away from resource-based industries will accelerate. Lumber and wood products manufacturers will still employ thousands and account for the greater bulk of manufacturing employment in Douglas County for years to come, but the industry will continue to decline as timber supply problems adversely affect the competitiveness of local firms and world markets. The diversification and growth of the Douglas County economy will be reflected by growth in both passenger and freight transportation demands. To the extent that the County follows these projections for the state overall, it should experience similar growth in transportation demand.
25. The number of passenger miles traveled by automobile in the United States has increased every year since 1950 with the exception of the two periods of energy crises in the 1970s. This trend is expected to continue past the year 2000. The 1992 average annual vehicle miles of travel per vehicle is 11,063.
26. In addition to passenger miles of travel, population per automobile is a good measure of long-term demand for auto travel. Between 1970 and 1980 the number of persons per automobile in the State declined from approximately 1.9 persons per auto to approximately 1.8 persons per auto. The number of persons per auto was projected to continue to decline over the next two decades further substantiating the future demand for automobile travel. Between 1980 and 1990 the number of persons per automobile in the State declined from approximately 1.8 persons per auto to approximately 1.09 persons per auto. For projection purposes, this is a minimum occupancy per automobile.
27. Between 1970 and 1978 traffic volumes on the highways and arterials within the County system increased by an average of 91%. Between 1970 and 1995 traffic volumes on the principal highways and arterials within the County system increased by an average of 36%. Over the same period the County population grew by 36%. This growth in ADT equals the rate of population growth.

County Projections

28. The estimate of year 2020 traffic volumes on rural roads within the County system was based on the projected rural population growth and projected per capita increases in automobile use for the four subareas of the County to the year 2016. By assignment of these projected increases to the 1995 ADT on rural roads it was determined that the capacity of all of the existing rural roads which have been designated as local roads or minor collectors (requiring two travel lanes) is adequate to carry year 2020 traffic volumes. All of those roads which are projected to carry in excess of 10,000 ADT are designated as major collectors, arterials or highways.
29. Most of the improvements that will be required on rural roads are those which will allow their traffic capacity to be realized.
30. In addition to the assessment of rural road capacities, rural areas of the County were surveyed for locations where new routes or route improvements appeared to be desirable. Following is a listing of the new routes only the Sutherlin Bypass is identified as a proposed route in the Financial Analysis Section. The Roberts Creek Bypass is a conceptual idea. Until further financial analysis and engineering is completed, this route is not proposed for construction:

Bypass from The North Umpqua Highway near Dixonville to I-5 (Conceptual - No funding identified) . This route would serve as a bypass for southbound and westbound truck traffic thus relieving congestion in downtown Roseburg. Existing roadways will be utilized wherever possible and other portions may need realignment. The Greater Roseburg Area Transportation study included a recommendation for a truck route from Dixonville to Kelly's Corner. The study identified a measurable benefit by removing trucks from downtown Roseburg via this route. Two major issues must be addressed prior to implementation of this bypass. This route diverts truck traffic an extensive distance on winding roads to Dixonville. A second and substantial issue may be the cost to pave the existing gravel roads. The 1996 GRATS (Table 5-14) estimated the construction cost of this project at 25.5 million dollars. This estimate does not include the purchase of additional right-of-way. Additional analysis of the route selected and the construction cost is recommended.

Southerly Bypass of Central Avenue in Sutherlin. In conjunction with the City of Sutherlin, coordinate the planning and development of a southerly bypass road to relieve congestion on Central Avenue. The Sutherlin Area Transportation Study supported a southerly bypass route for Central Avenue using Calapooya Street or Comstock Road. The dogleg corners on the Calapooya Street route should be re-aligned.

31. Due to the amount and density of future development expected within the Roseburg UGB and the extent to which County roads inter-tie with roads within the city limits, a more sophisticated approach was utilized to determine future circulation needs within this area. As a result of this process, ten corridors are identified as being necessary. Five of these corridors were previously identified by the Roseburg Major Street Traffic Safety Program which is part of the Roseburg Urban Area Comprehensive Plan. Therefore, they are not described in this element. The remaining corridors identified as being needed but not reviewed in the financial analysis section are as follows: (Revised 5/___/97)

Extension of Vine Street north of city limits to Stephens Street (Conceptual - No funding identified). This extension would serve the developing area as well as provide another access to east Roseburg.

Extension of Rifle Range Road north to Alameda Road (Conceptual - No funding identified). This extension would serve the developing area as well as provide another access to east Roseburg.

Extension of Harvard Avenue from the existing city limits to Garden Valley Boulevard (Conceptual - No funding identified). This extension would include a bridge across the South Umpqua River and give the Calkins Road area another access. The intersection at Garden Valley

Extension of Portland Avenue to Highway 99 (Conceptual - No funding identified). This proposed arterial would provide another river crossing and more effectively utilize the Portland Avenue Interchange.

Connection from Sunshine Road to North Bank Road (Conceptual - No funding identified). This connection will provide a needed linkage from the north side of the North Umpqua River via a bridge to the Roseburg Area. It will serve as a rural collector.

32. Aside from the new corridors identified and the minor improvements required on existing roads, future efforts will need to focus on maintenance of the entire road system.

Construction Standards

33. County standards for development of new roads differ between urban and rural areas.
34. Within the County's five urban unincorporated areas, construction of new roads which serve or have the potential of serving more than three separate properties are generally required to meet County construction standards such that they may be incorporated into the County road maintenance system.
35. In rural areas construction of new roads which serve as collectors or important local roads or have the potential of serving more than fifty separate properties are required to meet County construction standards such that they may be incorporated into the County road maintenance system. The Land Use and Development Ordinance has variable standards for construction of private roads serving less than fifty properties.
36. Private roads may serve as access to a limited number of lots and parcels as stipulated in the Land Use and Development Ordinance and subsequently meet a lesser improvement standard.
37. New private roads are not eligible to become part of the County road system.
38. Minimum width and surfacing standards for public nonmaintained roads have been established to provide direction for road improvements that are required as part of land division approvals adjacent to these roads. (Revised 10/19/94)
39. The minimum right-of-way necessary for the safe and efficient development or redevelopment of rural public maintained County roads is generally sixty (60) feet. (Revised 10/19/94)

Local Improvement Districts

40. One mechanism used for the upgrading of public roads so that they can be included in the County system is the use of local improvement districts.

Revenue Sources

41. Funds for County road maintenance and construction activities come from three main sources: National Forest Revenues, the State Highway Trust Fund, and the Surface Transportation Program - Rural Funds.
42. National Forest Revenues are received by the County as a result of timber harvesting on Forest Service lands within the County. In the 1983-84 fiscal year, 3.7 million dollars were received by the County from this source. In the 1994-95 fiscal year, 11 million dollars were received by the County from this source.
43. The State Highway Trust Fund is collected primarily through motor vehicle registrations. In the 1983-84 fiscal year, the County received approximately 1.3 million dollars from this fund. In the 1994-95 fiscal year, the County received approximately 5 million dollars from this fund.

44. The Federal Highway Administration, through its Surface Transportation Program - Rural Funds (STP-R), formerly Federal Aid Secondary funds for counties (FASC), program, distributes monies to counties for construction or maintenance of county roads and bridges which have been designated as major collectors. In the 1983-1984 fiscal year, the County received \$755,000 from the federal government under the FASC program.
45. General Fund monies are typically not used for any road maintenance or improvement projects.
46. In 1996, Public Works Department reviewed the six transportation studies conducted in Douglas County. Projects were prioritized based on a weighted measure of system need and available funding. The analysis considered proposed timing of the project, the source of the funding, the extent of the project proposed (maintenance, new construction, or safety). Financial analysis also considered the source of the construction funds and excluded projects within cities or not within County jurisdiction. Public Works Department identified with few exceptions, the projects were found on the Public Works roadway improvement list. The Public Works Department Road budget supports the completion of the "Proposed Routes" found in Table 13-1 and Finding 30.

Special Road Districts

47. The County promotes special road districts as a means for local property owners to maintain public roads which do not meet County standards and therefore are not maintained by the County.
48. Special road districts which are authorized by ORS 371.305 - 371.385 are statutorily limited in the amount they can levy in a given year to one-quarter of one percent of the assessed valuation of the district.
49. These districts offer the benefit of providing the mechanism whereby residents may establish for themselves appropriate standards for road maintenance in their area.

Urban Unincorporated Circulation Plans

50. Urban unincorporated circulation plans, providing for safe and efficient traffic movement in Glide, Green and the Tri City portion of the Myrtle Creek Urban Growth Boundary, have been developed as part of Douglas County's overall transportation policy. Those plans are located in the Urban Unincorporated Section of the Land Use Element.
51. Upon the completion of the Myrtle Creek Local Street Area Plan, Douglas County will evaluate and if needed, update the Tri-City Circulation Plan.

STATE ROADS

Facilities

52. The Oregon Department of Transportation (ODOT) is the agency responsible for administration of the State Highway System which includes 338 miles within Douglas County.
53. The roads within the State Highway System have been classified as interstate, primary and secondary roads depending on their functional usage and traffic volume.
54. The condition of the State Highway System was rated in 1996 by ODOT using a 5-step rating system ranging from Very Good to Very Poor. In Douglas County most highways were found to be in Fair, Good or Very Good condition.

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56. Due to the completeness of the State Highway System, the reductions in the revenues received from gas taxes, and its overall condition, the 1991 Oregon Highway Plan (OHP) adopted policies which established maintenance and preservation of the State Highway System as a high priority concern.

Users

57. Traffic volumes, as measured by average daily traffic (ADT) on the State highways vary from a low of 230 ADT on Tiller Trail Hwy. near the Douglas/Jackson County line, to a high of 37,000+ ADT on I-5 and 27,200 on Highway 99 through Roseburg (1995 counts).
58. The length of Interstate-5 within Douglas County is 87.7 miles. Over the 87.7 miles, Interstate-5 provides three rest stops for the traveling public and 39 exits to serve the communities along the corridor.
59. The Transportation Element identifies Interstate-5 as the interconnecting route to Urban Unincorporated Areas, Rural Communities and Incorporated Cities located along the corridor.
60. Many interchanges are the sole access to rural communities or rural service centers via frontage roads or collector streets.
61. The Oregon Highway Plan discourages the use of Interstate-5 for the purpose of local travel.
62. The range of ADT on each of the State highways results primarily from the volume of local (as compared with through) traffic.
63. Truck freight traffic accounts for approximately 10% of all traffic on the State highways in the County. Approximately 75% of this traffic consists of five axle combinations or greater.
64. Truck freight traffic for 1994 was on average 21,021,551 tons per mile for all highways. State highways 101 carried 7,267,797 tons per mile, State Highway 38 carried 6,683,797 tons per mile, State Highway 42 carried 7,573,058 and I-5 carried approximately 38,483,693 tons per mile in the same year.

Future Plans

65. The Oregon Department of Transportation has developed and regularly updates a Six-Year Highway Improvement Program. This is a list of highway projects scheduled for construction during the ensuing six years. The Program includes projects over which the State has complete responsibility and projects by local governments for which federal or state funding has been approved.

FEDERAL ROADS

66. The two agencies which are responsible for the construction and maintenance of most federal roads within the County are the Bureau of Land Management (BLM) and the U.S. Forest Service.

Facilities

67. The BLM has jurisdiction over approximately 4,475 miles of roadway in the County.
68. The Forest Service has jurisdiction over approximately 1,049 miles of roadway opened and maintained for use by passenger cars in the County.
69. Other federally maintained roads within the County include those under the jurisdiction of the Bonneville Power Administration, Veteran's Administration and the Dunes National Recreational Area. These three agencies are responsible for a total of 96.7 miles of roadway, most of which is either unimproved or graveled.

Users

70. BLM and Forest Service roads are multipurpose roads. While serving some recreational and residential groups, most BLM and Forest Service roads were constructed to access areas where timber sales have occurred. These roads are not designed for rural residential development.

Future Plans

71. None of the federal agencies with roads within the County have plans for major road projects, either improvements or new construction, in areas under their jurisdiction in the foreseeable future.

CITY ROADS

72. In 1996 there were 223 miles of roads within the 12 cities in Douglas County (excluding State and County maintained roads). The number of miles in each city varied widely from a low of 2 miles in Elkton to a high of 106 miles in Roseburg.
73. The city road mileages serve primarily local needs.

OTHER ROADS

Public Non-County Maintained

74. There are approximately 335 miles of public non-county maintained roads within the County. These roads are generally unimproved or graveled as most roads which are paved have been included within the County road system.
75. Most public non-county maintained roads are either maintained by the individual or group efforts of property owners adjacent to the roads or are not maintained at all.

Private

76. Private roads include those roads in the County which have not been dedicated to public uses. These roads are all located on private property.
77. Some private roads are often open to public use and appear to be public roads. Other private roads are located on easements and are intended to serve a single user.
78. Many private roads in the County are owned by timber companies and are used to transport logs to mills for processing.

Undeveloped Rights of Way

79. In the early 1900s, numerous subdivisions were platted in Douglas County without consideration being given to any topographic constraints which might restrict their development. The result of this is that there are numerous dedicated rights of way which could never be developed as roads to serve adjacent property due to the steepness of the terrain or other constraints.
80. As interest arises in development of properties which would require access by such undeveloped rights of way, the County should determine the most appropriate means of access and, through vacation, trade or sale eliminate unusable rights of way and acquire appropriate access to allow efficient land utilization in these areas.

RAIL TRANSPORTATION

81. Railroads are an important part of the Douglas County freight transportation system carrying local goods to markets across the country and goods needed in the County from markets elsewhere.

Facilities

82. Rail service to the County is provided by the Central Oregon Pacific Railroad and the Longview, Portland and Northern Railroad. Central Oregon Pacific operates two branch lines which run through the County - one line on the coast and the other through the central valley. The Longview, Portland and Northern Railroad (LP&N) operates a short branch line which extends from the Umpqua River on the Central Oregon Pacific coastal line to the International Paper facilities in Gardiner. Central Oregon Pacific Railroad (COPR) is a wholly owned subsidiary of RailTex Inc. COPR is the operator of the local branch line which provides rail support. The rail service is deemed important to the region and provides a lower cost option for freight shipments.
83. The Oregon Public Utility Commission through its track inspection program provides an indication of the condition of and the maximum allowable speeds for all rail lines in the State. Segments of each of the Central Oregon Pacific lines in the County are designated as Class 3 and 4 indicating maximum speeds of 40 and 60 miles per hour, respectively. No Class 1 (rated at 10 mph) lines are identified in the County.
84. In addition to the speed restrictions, the interior Central Oregon Pacific Railroad line between Riddle and the southern County line is restricted in that this section of track is not able to accommodate "AAR plate F cars" which have maximum height of 17 feet above the rails.

Users

85. The shipment of goods to and from the County by rail totals 1,214,000 tons. In 1992, Central Oregon Pacific Railroad traffic originating and terminating in Oregon was lumber or wood products, fiberboard, paperboard or pulp board. The total originating and terminating tonnage in Douglas County is 3.6 percent of the state total.
86. The Oregon Transportation Plan calls for the Port of Coos Bay to have multi-modal connections, and access to rail freight services. Rail service is currently provided by an independent carrier. The plan indicates that increased reliance should be placed on rail transportation for bulk freight movements between rail access points. The need for making roadway capacity improvements could be postponed if shipments are diverted away from the highway and onto rail. The Highway 38 and 42 corridors are considered a critical link in the state and regional freight transportation system.
87. The Federal Railroad Administration categorizes rail lines according to the gross tonnage carried by a given line in a given year. By this system the two Southern Pacific lines in Douglas County are both classified as "A" Branchlines carrying between 1 and 5 million gross tons per year while the Longview, Portland and Northern line is a "B" Branch line carrying less than one million tons.

88. There is no passenger rail service available in Douglas County.
89. Serious car shortages from time to time have helped erode the railroads' share of freight shipments in Oregon. Also, recent growth in the west and south and the fact that a larger share of the lumber and plywood markets is being met by production in the southeastern states brings the markets for western wood products closer to home where there is more reliance on trucks.
90. The railroads are more energy-efficient than trucks over the same routes, although trucks can achieve much wider area coverage and greater flexibility because the highway network is so much more extensive than the railway network.

Projections

91. Projections in the OTP establish rail freight growth at 2.5 percent per year (the same as for truck). At this rate, rail traffic would grow by 50 percent in 20 years. The difficulty in predicting freight movements is that so many outside factors influence traffic movements.
92. Originating traffic in lumber and wood products, is cyclical due to changes in production and demand associated with construction activities. Assuming the trends described in the Oregon Transportation Plan continue and that commodity movements not mentioned grow at an average rate of 2.5 percent annually as forecast in the OTP, total originating and terminating rail tonnage would be 43 million short tons in the year 2000. This represents a 27 percent increase over 1992.
93. The Greater Roseburg Area Transportation Study supported relocating the rail switching yards from downtown Roseburg to Green. Until this project is completed, the use of Dillard rail spurs should continue. Central Oregon Pacific Railroad is encouraged to complete a detailed study to determine the economic, environmental and transportation related impacts and benefits of relocating the switching yard to Green or to another location outside Roseburg.
94. More substantial increases in demand for rail service, depend on changes from current trends in both commodities and mode choice.

AIR TRANSPORTATION

95. The role of aviation in the County's overall transportation system is becoming increasingly important as the advantages of this form of transportation become recognized.

Facilities

96. There are four existing public use airports in Douglas County including Roseburg Regional, Myrtle Creek Airport, Felt Field (Roseburg) and the USFS Toketee Airfield.
97. There are numerous private airstrips located throughout the County which provide service to agricultural, residential and industrial users.

Oregon Aviation System Plan

98. The Oregon Aviation System Plan (OASP) includes 165 existing or proposed airports as part of its system. The Roseburg Regional and Myrtle Creek Municipal airports are included in this group.
99. Airports included within the OASP are eligible for state financial assistance for airport improvements.

National Airport System Plan

100. The federal government has established the National Airport System Plan (NASP). Two airports in Douglas County, Roseburg Regional and Myrtle Creek Municipal, are part of this national system.
101. The NASP has projected service levels and operation capacities for all airports in its system to the year 2014. The Myrtle Creek airport is projected to remain at their General Aviation - Basic Utility service and operational levels. The service and operational levels at the Roseburg Regional Airport are General Utility Stage I, Airport Reference Code (ARC)B-II airport. Should commercial air service be initiated, the dimensional design standards for the airport are not expected to change.

Roseburg Regional Airport

102. The Roseburg Regional Airport has a 4,600 foot long 100 foot wide asphalt runway with medium intensity lighting that includes medium intensity taxiway lighting. A total of 108 general aviation aircraft were based at the airport in 1994 with annual operations totaling 30,794, including both based and itinerant use.
103. The Roseburg Regional Airport Master Plan projects that in the year 2014 there will be 150 aircraft based at that facility and that annual operations for that year will total 45,884.

Sutherlin Municipal Airport

104. Sutherlin had a municipal airport between 1946 and 1990; it was closed in 1991. Closure was based on the realization that the airport could not be expanded for commercial aviation use.
105. Air passenger facilities are available at Roseburg and Eugene. The City of Sutherlin has designated the former airport park area as an industrial park. There are three tenants in the industrial park, and further development is anticipated. There are no plans to re-open the Sutherlin airport in the future.

Myrtle Creek Municipal Airport

106. This facility has a 2,600 foot long and 50 foot wide asphalt runway with no lighting. Eleven aircraft were based at the airport in 1995 with a total of 2,200 local itinerant operations at that facility in the same year.
107. In 1995, the City of Myrtle Creek and State of Oregon - Department of Transportation Aeronautics completed an Airport Layout Plan Report in order to examine the existing configuration of the airport and to provide direction for future airport development. The development of the Airport Layout Plan Report reflects recognition by the City of Myrtle Creek of a need to improve basic airfield facilities, operational efficiency and safety while providing opportunities for private investment in aviation facilities.
108. The OASP projects that by the year 2013 the number of based aircraft at Myrtle Creek will total 31 planes and the number of annual operations will reach 6,250.

Toketee Airfield

109. The Toketee Airfield is and is located within the Umpqua National Forest and operated by the U. S. Forest Service via a special agreement with ODOT to provide an emergency airstrip. The Oregon Department of Transportation completes the maintenance of this facility. The facility consists of a 6,000 foot dirt runway. No aircraft are based at the airfield and no services are available. The airfield is used predominantly by the Forest Service for emergency and administrative purposes. The number of operations occurring at the airfield in 1979 was 600.

Felt Field

110. Felt Field is the only privately owned public use airport in the County. The facility includes a 2,375 foot long turf runway with no lighting. In 1991, seventeen aircraft were based at the airport. There are no records of the number of annual operations in 1996. The 1979 annual operations totaled 3,700.
111. The OASP projects that by the year 2000 the number of based aircraft at Felt Field will total 32 planes and the number of operations will reach 5,900.

Users

112. There is no scheduled commercial air passenger service available in Douglas County.
113. It is estimated by the State Aeronautics Division that, in 1979, there were 449 active pilots in Douglas County. Projections by that Division indicate that the number of active pilots should increase to 622 by the year 2000.
114. The Oregon Transportation Plan has defined a minimum level of service for commercial airports. For Roseburg, Air service connections between Portland or other West Coast hubs, and other areas of Oregon should be provided whenever commercially viable (three round trip planes per day of 19 passengers as a minimum measure of commercial viability) or whenever intercity air connections are more economic than providing operating assistance to other modes.
115. The number of active general aviation based aircraft at existing airports in Douglas County in 1995 was estimated to be 150 by the State Aeronautics Division. By the year 2014, this number is projected to increase to 227, a 51% increase. (Revised 7/22/97)

Airport Compatibility

116. The Federal Aviation Administration has defined "imaginary surfaces" which identify the areas where fixed objects would obstruct navigable airspace above airports. It is to the benefit of both air travelers and people on the ground to have navigable airspace free of obstructions.
117. Compatible land uses that avoid safety and noise conflicts may be achieved through either existing zoning districts or by establishing a special airport overlay zone that would modify the underlying zoning districts in the vicinity of airports.

WATERWAY TRANSPORTATION

118. Water transportation is a very efficient method for the movement of goods and raw materials. The average 1979 rate per ton-mile for water transported freight was less than one cent. To approximate 1995 rates, shipping costs for grain down the Columbia River from the Lewiston/Clarkston area were used. The range is (dollars per ton of grain): \$5.55 - barge, \$10.15 train, \$25.00 - truck. The average 1995 freight revenue rate per ton-mile for water transported freight was \$0.0073. This compares with \$0.025 by rail and \$0.2508 by truck.
119. The economy of this form of transportation in conjunction with the types of goods and raw materials which require movement in this area have resulted in the Port of Umpqua being the third largest tonnage handling port on the Oregon coast.
120. Portions of three rivers in Douglas County are navigable for freight transportation including the Umpqua River, Smith River and Schofield Creek. The Umpqua and Smith Rivers are maintained by the Corps of Engineers to depths of 22 feet and 6 feet for lengths of 12 miles and 1 mile respectively. Schofield Creek is navigable for 6 miles with a channel depth of 6 feet.

Facilities

121. Port facilities in coastal Douglas County are under both public and private ownership. These facilities include Salmon Harbor, a docking facility located in Reedsport under the jurisdiction of the Port of Umpqua, Umpqua River Navigation sand and gravel receiving and shipment station in Reedsport, Willamette Industries Bolon Island dock, and International Paper's wood chip unloading wharf in Gardiner.

Users

122. In 1980 a total of 1,010,646 short tons and in 1995 a total of 268,874 short tons were shipped using port facilities in coastal Douglas County. The majority of the materials shipped included sand, gravel, crushed rock and wood products. The remainder of the shipments were comprised of fuel oil, and fish.

Projections

123. As the variety of goods shipped in the County is limited primarily to sand and gravel and wood products, the future of waterborne freight transportation is tied closely to the market for these materials and the efforts at diversification of the coastal economy.
124. Some homes on the north side of the Umpqua River do not have direct road access. These property owners obtain access via boat to Highway 38. The ongoing access needs of these property owners should be addressed when highway improvements are proposed.

PIPELINE TRANSPORTATION

125. Pipelines are the predominant means of transporting gaseous and liquid fuels.
126. Among the advantages of this form of transportation are its low operating cost and relatively small labor requirement.
127. Pipeline drawbacks include its high initial investment, one-way flow of one or a limited variety of products, and a low transport speed of about five miles per hour.

Facilities

128. The Northwest Pipeline Corporation operates a ten inch natural gas transmission line in central Douglas County. Gas from this line is distributed to consumers in the County by W.P. Natural Gas.
129. Natural gas is generally available along this pipeline corridor including all cities in the interior of the County except Elkton, Drain, Yoncalla and Glendale.
130. No gas or oil transmission or distribution facilities are located in the coastal portion of the County.

Users

131. W.P. Natural Gas serves approximately 11,120 customers in Douglas County including 9,300+/- residential users and 1,820+/- commercial and industrial users.
132. The largest consumer of natural gas in southwest Oregon is Glenbrook Nickel which uses approximately 8 million therms per year, one-tenth of W.P. Natural Gas sales in Oregon.
133. Over the period from 1972 to 1982 the amount of gas sold in Oregon decreased from approximately one billion therms to 680 million therms, a decrease of 32%.

Projections

134. The existing pipelines in the State have sufficient capacity to meet the State's needs at least to 1999. The Oregon Transportation Plan provides a minimum level of service for pipelines. In order to make alternative fuel widely available to the transportation uses and to support regional economic development opportunities, adequate natural gas should be available every 100 to 150 miles on major interstate/statewide transportation corridors throughout the state when economically feasible. The pipeline system within Douglas County exceeds the standards of the Oregon Transportation Plan.
135. Industries along the Hwy. 42 corridor have expressed interest in the development of a natural gas pipeline from the existing Grants Pass lateral west of Roseburg to the coast. Preliminary investigations indicate that such a utility, accommodated within the existing Bonneville Power Administration electric transmission line clearing, may be viable and may be a catalyst to economic development in the area.

PUBLIC TRANSPORTATION

136. The Oregon Public Transportation Plan, outlines the public transportation choices for a community. Implementation of the Oregon Public Transportation Plan builds from maintaining the existing system as it is today. A second step should keep pace with growth. And a third step should offer a menu of service options. A variety of public transportation services are available to Douglas County residents.

Bus Service

137. Greyhound Lines, Inc. operates buses along two north-south corridors through Douglas County.
138. Along the I-5/Highway 99 corridor, Greyhound operates four buses per day - two northbound and two southbound.
139. Greyhound operates two buses per day - one northbound and one southbound along Highway 101.
140. Raz Transportation provides service from Reedsport to Eugene, but not to the interior of Douglas County.
141. In addition to scheduled bus service, chartered bus service is provided in the County by Greyhound, Trailways, Ellison Transportation and other smaller charter companies.

Taxi Service

142. Taxi service is available to west, south and central Douglas County by companies based in Reedsport, Roseburg and Myrtle Creek.
143. The Oregon Transportation Plan has defined a minimum level of service for the Roseburg Market area to have at least three minimum intermodal (Ex. taxi, bus, transit, train, air) round trip connections to Portland available per day via intercity passenger modes. The minimum of three intermodal methods to connect to Portland are: ① "Umpqua Regional Transit" to Roseburg, bus to Eugene for connection by bus to Portland, ② Taxi to Roseburg, bus to Eugene for connection by air to Portland, ③ Bus to Eugene, connect to passenger rail to Portland. Historically, the commercial vendors (bus and air) have met market demand for service. The existing level of service complies with the pre-defined minimum.
144. ODOT has funded a fixed route pilot project, north from Roseburg to Oakland and south to Canyonville, which has complemented an established demand responsive service to the transportation disadvantaged in rural areas of the County. The combined fixed route and senior van systems, provides a needed service throughout Douglas County.

145. ODOT proposes to develop daily intercity transit modes/markets and support public/private partnership opportunities to serve Hwy. 38 and 42, including connections to the Willamette Valley. This extension would enhance and expand the existing senior on-demand transit services.

PEDESTRIAN TRANSPORTATION

146. The use of footpaths and bicycle paths as means of transportation is more effective in urban areas and within urban growth boundaries than in rural areas
147. In rural areas trip origins and destinations are separated by greater distances, motor vehicle speeds are higher and sidewalks are not economically feasible to construct. These factors have the effect of discouraging walking as a means of transportation outside of immediate neighborhoods.

TRANSPORTATION DISADVANTAGED

148. The transportation disadvantaged who, because of age, disability or low income, are unable to take full advantage of Douglas County's automobile-based transportation system are demonstrating an increasing interest in public transportation services that are available to other Oregonians. While members of the general public make an average of 2.2 trips per person per day, the comparable figures for those who are transportation
149. No one mode of transportation can solve the mobility problems experienced by these people.
150. The most efficient system would be one that meets the varying requirements of its passengers with a variety of types and levels of service.

The Poor

151. The costs of ownership and operation of the automobile often limits, or even eliminates, that transportation option to the poor.
152. The problems of the poor become particularly significant in a county such as Douglas where the population density is low, where activity centers are widely dispersed, and where few trip destinations are accessible by other means of transportation.
153. In 1979, 10,289 County residents or 11.1 percent of the total population had incomes below the poverty level. In 1990, 13,828 County residents or 14.6 percent of the total population had incomes below the poverty level.

The Young

154. Those persons in the 10 to 14 age group generally desire an increased level of mobility and often do not have access to the transportation necessary for their social and extracurricular activities.
155. In 1980 this group totaled 9,603 persons or 10.2 percent of the County population. In 1990 this group totaled 7,154 persons or 7.3 percent of the County population.

The Elderly

156. As a result of the natural aging process the elderly often experience difficulty in operating an automobile or in taking advantage of other forms of transportation. As a group these people suffer from a series of limitations including physical weakness, limited use of limbs, poor eyesight, hearing loss, slow reaction time, etc. While no single limitation may be severe enough to merit inclusion in the handicapped group, any combination of these physical limitations may reduce the elderly's mobility.

157. In 1980, 10,165 persons or 10.8 percent of the County population was over 65. In 1990, 17,340 persons or 17.7 percent of the County population was over 65.

The Disabled

158. Those persons classified as disabled include those who, because of physical limitations, are unable to operate an automobile or use conventional types of public transit and those who are unable to comprehend and appropriately respond to directional signs or verbal instructions.
159. The 1990 Census identifies 13,557 or 14.3 percent of Douglas County residents were disabled. The census category does not include seniors with physical limitations that are unable to use current modes of transportation. As the number of seniors increase, the number of citizens with disabilities is expected to increase..

The Composite Group

160. Not all of the people included in these groups are transportation disadvantaged and in need of special public transit. Rather identification of these people simply indicates those with a potential need for these services.
161. A study prepared by ODOT estimated the potentially transportation disadvantaged in Douglas County in 1972 to comprise 16.5 percent of the County population. Applying this percentage to the 1995 population would indicate that as many as 16,120 persons in Douglas County were potentially transportation disadvantaged in that year.
162. Areas such as Glide, Glendale, Reedsport clearly would benefit from transit services. Historically, transit services have been provided through multi-jurisdictional subsidies, fares and donations. Although, recent statewide property taxes reduction measures have been approved by voters, preliminary surveys conducted by the Umpqua Regional Council of Governments in the greater Roseburg area suggest that voters are not opposed to subsidizing a transit system that has a local benefit. Local community efforts in the greater Roseburg area to provide volunteer demand responsive transit services may not adequately serve forecast demand but it does rally community support and heighten public awareness. It is recommended that the State of Oregon, ODOT, Douglas County and its incorporated cities continue support for the flexible transit programs.
163. The Umpqua Regional Council of Governments is conducting a transit feasibility study for the greater Roseburg area. At the conclusion of this study, Douglas County will evaluate the conclusions as part of its comprehensive planning program.

BICYCLE TRANSPORTATION

Bicycle Usage

164. The popularity of bicycling continues to increase in this country.
165. Assuming Douglas County is typical of the nation overall, there are approximately 27,000 bicycles in the County. Bicycles are found in most American households; the number of cyclists is rising, particularly among adults, who outnumber child cyclists. It is estimated that one Oregonian in two owns a bicycle.

Types of Bicycle Trips

166. Cycling activity, as with other forms of travel, falls into two major categories: recreational and utilitarian. The type of bikeways appropriate for recreational use often differ considerably from those intended for utilitarian use. Recreational cycling involves the use of bikeways for touring, exercise, social purposes or as a sport. Utilitarian cycling utilizes bikeways to reach a specific destination,

such as employment, school, and for neighborhood circulation trips such as shopping, childrens' activities, etc. The skills of the cyclist within both of these categories vary greatly.

167. Often the recreational cyclist will prefer meandering or looping routes with scenic qualities which avoid areas with high automobile traffic volumes. Recreational trip length is not as important a factor as utilitarian trip length in that the cycling activity is the purpose of the recreational trip rather than reaching a specific destination.
168. Consideration of trip length and relative travel time is a prime factor in identifying work trips which could be served by bikeways. Work trips are utilitarian and are very sensitive to travel time. Average trip distances are short (typically under five kilometers), and short trips are the ones most easily made by bicycling or walking.
169. Urban areas benefit most from improved bicycle and pedestrian transportation facilities. School trips are utilitarian and have the most probability of being served by bicycle travel. However, responses to the County bikeway questionnaire indicate that in rural portions of the County where elementary school attendance areas are large relatively few students ride to school.
170. Neighborhood circulation trips cover all the miscellaneous trips made in a neighborhood which cannot be readily classified including children's activities, local shopping, visiting friends, trips to parks, etc. The number and frequency of these types of trips is a function of the local population and the favorability of the bicycling environment. This type of trip is particularly important to all youth below driving age as the bicycle is their primary means of personal mobility. The number of dedicated walkways between residential areas have been reduced because of increasing vandalism and criminal activities.

Trip Length

171. In Oregon, approximately 16% of the adult population do not have a valid driver's license. Walking and bicycling are often their only transportation choices, especially in areas not served by public transportation. School age children make up approximately 13% of Oregon's population. Walkways and bikeways enable school children to walk or bike more safely and conveniently to school, reducing the need for busing or automobile trips by parents.
172. The length of cycling trips for various recreational and utilitarian purposes varies considerably depending on topography, bikeway availability and traffic characteristics. With minimal physical exertion, a person in reasonable physical condition can walk up to one kilometer (0.621 mile) or ride a bicycle up to 5 kilometer (3.1 miles) or more, in less than twenty minutes. - shorter than many automobile or transit commutes.

Monthly Ridership

173. Bicycle volume counts conducted by ODOT indicate that in 1973 seventy-four percent of all usage of the bikeways counted occurred from May through October. A 1993 survey taken for the Oregon Bicycle and Pedestrian Plan in Eugene, Corvallis and Bend indicate that a third of regular bicycle commuters ride year-round; others ride from March to November. Traveling in the dark may be more of a deterrent than weather.

Bicycle Accidents

174. The Oregon Bicycle and Pedestrian Plan identifies that most bicycling crashes (65% - 85%) do not involve collisions with motor vehicles; they usually involve falls or collisions with stationary objects, other cyclists and pedestrians. Many bicycle/motor vehicle crashes are not reported. The Oregon Bicycle and Pedestrian Plan statistics reveals statewide approximately 800 injury crashes a year are reported including 10-15 fatalities (1-2% of total).

175. In Douglas County, between January, 1977, and September, 1982, there were 105 bicycle accidents which were reported to the Oregon Motor Vehicles Division. Two of these accidents involved fatalities. Only one cyclist in the 105 accidents did not receive injuries. All but one accident involved a motor vehicle as a direct collision. The only accident not involving a collision resulted from a cyclist's attempts to avoid a collision with a motor vehicle. As reflected by these statistics, the cyclist is in jeopardy regardless of who violated the traffic laws.
176. Seventy-five per cent of the accidents, reported between January 1977 and September 1982, involved cyclists 18 years of age and younger.
177. Sixty per cent of the accidents during the survey period occurred between 3:00 p.m. and 7:00 p.m. This is consistent with the period of high ridership, as it is after school and during the early family hours. Also, traffic volumes during this period of time are heavier, resulting in a higher degree of exposure.
178. Of the 105 accidents reported, 75 were determined to be the fault of the bicyclist. Thirty were the fault of the motor vehicle driver. Most crashes are due to bicyclists or motorists disobeying the rules of the road, often out of ignorance. Most crashes occur where two roadways or a roadway and a driveway intersect, and one user failed to yield the right of way to the other. The leading cause of crashes in which the bicyclist is at fault is wrong-way riding. This behavior is observed in about 15% of riders, and is responsible for 17% of crashes.
179. No unincorporated location within the County was identified as exhibiting a pattern of bicycle-related accidents.

COUNTY BIKEWAY SYSTEM

Route Selection Criteria

180. Three primary and a number of secondary criteria have been used in the process of selection of bikeways for designation by this Plan. The primary criteria include anticipated usage of the bikeway, safety of the bikeway and cost of construction. These criteria were rated as being of significant importance by most of the respondents to the questionnaire. Although all are considered to be of significant importance, the relative value of each varied from route to route.
181. In the less densely populated portions of the County, most of the cycling which occurs is recreational. The distances from residential areas to activity centers in rural areas generally are such that utilitarian cycling is not practical.
182. In the more densely populated areas, such as Roseburg, where residential areas are closer to activity centers, utilitarian cycling is more common.
183. The greatest amount of utilitarian cycling occurs within city limits - particularly Roseburg - where densities are the greatest and the distances from residential areas to activity centers are the shortest.
184. It is recognized that the increased interest in jogging and walking has resulted in use of many bikeways by this secondary user group. This secondary use is anticipated to continue and, as a result, has been considered in designation of all bikeways in this Plan.
185. In all rural areas most bikeways are anticipated to be recreational. However, in the more urban areas of the County, consideration has been given to utilitarian needs as well as recreational needs.
186. The recreational routes which are proposed are intended to serve cyclists of most levels of ability and interest from the occasional cyclist interested in a trip of moderate length involving an hour or less time to the accomplished cyclist interested in long distance trips involving a half day, full day or longer.

187. Utilitarian routes have been mapped to connect major residential areas with activity centers including industrial, commercial, institutional and recreational sites. These routes are located in the urban area around Roseburg and in Green and the Tri City portion of the Myrtle Creek UGB.
188. In unincorporated areas of the County where densities are low, short distance bikeways generally would not receive enough use to warrant inclusion in this Plan. The exceptions to this are the County's urban unincorporated areas particularly the Tri City portion of the Myrtle Creek UGB and Green.
189. The need for additional short distance bikeways in the County's urban unincorporated areas should be assessed in the future and this Plan amended as appropriate.
190. The significance of safety to residents of the County was made evident by the responses to the bikeway questionnaires. This criterion was rated as the most significant factor to be used in selection of specific bikeways.
191. Four potential conflicts between motor vehicles and bicycles were evaluated in designating routes along roadways for inclusion within the bikeway system. These four criteria include the speed of motor vehicle traffic, the volume of motor vehicle traffic, the separation of motor vehicle and bicycling traffic and turning and intersection conflicts.
192. The degree to which safety has been considered in designating bikeways in this Plan has varied depending on the type of use a designated route is anticipated to receive. In designating routes intended for short distance school, neighborhood circulation or recreational use, safety has been considered to be a more significant factor than for routes intended for long distance recreational use.
193. As a criterion in route selection, construction cost includes consideration of the anticipated primary user group and the physical characteristics of the route.
194. The cost of construction has been a more significant criterion in designating recreational bikeways than utilitarian bikeways due to the importance of safety and directness of utilitarian bikeways.
195. The adequacy of road right-of-way width, roadway pavement width and physical barriers to bikeway construction are other factors involved in the evaluation of the cost of bikeway construction.
196. Often only one roadway exists which would satisfy an identified bikeway need. This is particularly true in rural areas where there are fewer roads.
197. In areas where alternative routes could serve an identified need, five criteria, in addition to anticipated usage, safety and construction cost, were used in the route selection process. These criteria include directness of the route, continuity of the route with other routes or facilities, the grade(s) of the route, the scenic quality of the route and the frequency of required stops along the route. The relative significance of these five criteria in the route selection process varied depending on the anticipated primary usage of the alternative routes under consideration. For utilitarian routes, directness, continuity and grade(s) of the potential alternatives were the more significant criteria. For recreational routes, scenic quality and the number of required stops were given greater consideration.

Determination of Bikeway Classification

198. This Bikeway Plan includes all three classes of bikeways.
199. The criteria used in determination of the appropriate classification for each route was based on a number of factors including safety, cost of route construction, level of usage anticipated, and type of usage anticipated.

- 200. Few Class I routes have been proposed by this Plan due primarily to the high cost of construction of this bikeway type. This Class of bikeway is proposed primarily in areas where no other class of route is feasible or where safety requires it. This Class of bikeway is proposed in areas where no other class of route is feasible, such as the maintenance road under I-5 on the Fairgrounds to Green Route #30 or where safety requires it, such as State Highway 99 over the North Umpqua River. (See Bikeway Master Plan Map for location of bikeways.)
- 201. No Class II bikeways are designated in this Plan other than those which presently exist. This class of bikeway is generally considered to be undesirable.
- 202. For the purposes of this Plan, Class III bikeways have been divided into two subclasses: Class III and Class IIIs. Class III bikeways will all include creation of striped lanes on the roadway pavement in addition to signing and other required improvements. Class IIIs bike routes may require some of the improvements required for Class III bikeways. However, Class IIIs routes will not include creation of striped lanes.
- 203. In the determination of the appropriate classification for all routes in the County, emphasis has been placed on designating bikeways for Class III and IIIs improvements. This is due to the generally low cost of development of these types of bikeways and their appropriateness in the more rural portions of the County.
- 204. Bikeways which have been designated for full Class III improvements (including striping of bike lanes) have received this designation because of the high volumes of automobile traffic they carry and widths of their respective travel lanes, the high volume of existing or anticipated bicycle ridership on the road and/or the extent of existing or anticipated usage of the bikeway by children.
- 205. Use of these criteria has resulted in the designation for full Class III improvements to many State highways and roads to schools and parks which are proposed to be included within the bikeway system.
- 206. Roadways which are proposed for improvement to the Class IIIs bike route standards generally are those routes in rural areas which are relatively long distance and are intended for use by accomplished cyclists, and rural routes with low volumes of vehicular and/or cycling traffic use.

Inventory of Designated Bikeways

- 207. Approximately 679 miles of bikeways have been designated by this Plan for unincorporated area of the County. A breakdown of this mileage by type of bikeway follows:

<u>Designated Bikeways</u>	
Class I	25.8 miles
Class II	1.2 miles
Class III	297.2 miles
Class IIIs	335.4 miles

- 208. Of the 60 bikeways designated by this Plan, the total length of 4 of these and part of an additional 3 bikeways have been constructed. The total mileage of these constructed bikeways is 27.4 or 5.5% of the overall system.
- 209. The bikeways designated by this plan are shown on the Bikeway Master Plan Map, Map 2 (at end of policy section), and defined by the following listing:

TABLE 13-2. DESIGNATED BIKEWAY ROUTES. (Revised 7/22/97)

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
COAST						
1	U.S. Hwy 101	101	Northern County limits to Southern County limits	III	State	22.0
2	Sparrow Park Rd.	247	U.S. Hwy 101 to end (beach)	III's	County	3.5
3	Salmon Harbor Dr.	251	U.S. Hwy 101 to end (beaches)	III	County, State & Federal	4.0
4	Lighthouse Rd.	87	U.S. Hwy 101 to Sal- mon Harbor Dr. #251	I or III's	County, State & Federal	1.5
5	Transcontinental Bike Route					
	Smith River Rd.	48	U.S. Hwy 101 to BLM Rd. 20-11-36.0	III's	County	13.0
	BLM Rds.	20-11-36.0	End of Smith River Rd. #48 to beginning of BLM Rd. 20-8-17.0	III's	Federal	28.0
	BLM Rd.	20-8-17.0	BLM Rd. 20-11-36.0 to northern County limits	III's	Federal	11.0
6	Reedsport-Sutherlin Route					
	State Hwy	38	Reedsport city limits to Elkton city limits	III's	State	35.0
	State Hwy	138	Elkton city limits to Sutherlin city limits	III's	State	24.0
NORTH COUNTY						
7	State Hwy Drain Yoncalla Hwy Goodrich Highway	99 389 126A	Pass Creek Park to Rice Hill (excluding sections within Drain city limits)	III	State & County	18.0
8	Territorial Hwy	116	State Hwy 99 to northern County limits (Gravel)	III's	County	5.6
9	Hayhurst Route					
	State Hwy	38	Drain city limits to Hayhurst Rd. #24	III	State	1.0

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
9 (Cont.)	Hayhurst Rd.	24	State Hwy 38 to Yoncalla city limits	III	County	8.0
10	The Dr. Al Morelang Aerobic Route					
	Elkhead Rd.	7	Drain Yoncalla Hwy 389 to beginning Elkhead Road #50	III	County	10.0
	Elkhead Rd.	50	End of Elkhead Rd. #7 to Driver Valley Rd. #22	III	County	8.0
11	Scotts Valley Rd.	8	Elkhead Rd. #7 to Scotts Valley School	III	County	0.6
CENTRAL COUNTY						
12	Dr. Warren Kadas Scenic Loop					
	Driver Valley Rd.	22	Oakland city limits to Fair Oaks Rd. #22A (southerly intersection)	III	County	13.0
	Fair Oaks Rd.	22A	Driver Valley Rd. #22 to Driver Valley Rd. #22 (link)	III	County	4.0
13	Sutherlin-Driver Valley Route					
	Nonpareil Rd.	19	Sutherlin city limits to Plat K Rd. #75	III	County	3.0
	Plat K Rd.	75	Nonpareil Rd. #19 to Fair Oaks Rd. #22A	III	County	1.4
14	Cooper Creek Access					
	Southside Rd.	120	Sutherlin city limits to Cooper Ck. Rd. #305	III	County	0.9
	Southside Rd.	120	Nonpareil Rd. #19 to Cooper Ck. Rd. #305	III	County	1.1
	Cooper Ck. Rd.	305	Southside Rd. #120 to end (Cooper Ck. Reservoir)	III	County	2.4
15	The Ron Hjort - Rochester Bridge Loop					
	Green Valley Rd.	23A	Oakland city limits to beginning of Green Valley Rd. #23	III	County	0.4

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
15 (Cont.)	Green Valley Rd.	23	End of Green Valley Rd. 23A to Rochester Rd. 76	IIIs	County	2.4
	Rochester Rd.	76	Green Valley Rd. #23 to Rolling Ridge Rd. #10	IIIs	County	1.0
	Rolling Ridge Rd.	10	Rochester Rd. #76 to State Hwy 138	IIIs	County	0.4
	Stearns Lane	10A	Rolling Ridge Rd. #10 to Oakland city limits	IIIs	County	3.4
16	Oakland-Sutherlin Route					
	Oakland Underpass	10B	Stearns Lane #10A to State Hwy 99	III	County	0.1
	Oakland Shady Hwy	338	Oakland Underpass #108 to Sutherlin city limits	III	State	0.7
17	Church Rd.	9A	State Hwy 138 to Fort McKay Rd. # 9	IIIs	County	0.5
18	Sutherlin-Garden Valley-Winchester Route					
	Fort McKay Rd.	9	Sutherlin city limits to Garden Valley Rd. #6	IIIs	County	6.2
	Garden Valley Rd.	6	Fort McKay Rd. #9 to River Forks Park	IIIs	County	7.4
	Old Garden Valley Rd.	6	River Forks Park to Garden Valley Rd. #6 (east)	III	County	1.4
	Garden Valley	31A	Garden Valley Rd. #6 (north) to Del Rio Rd. #31	III	County	0.6
	Del Rio Rd.	31	Garden Valley Rd. #31A to Del Rio Rd. #115	III	County	4.2
	Del Rio Rd.	115	Del Rio Rd. #31 to State Hwy 99	III	County	2.0
18A	Wilbur Rd.	31	Del Rio Rd. #31 to Oakland Shady Hwy 338	IIIs	County	2.2
	Oakland Shady Hwy	338	Sutherlin city limits to College Rd. #284	III	County	4.4

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
18A (Cont.)	State Hwy	99	College Rd. #284 to Roseburg city limits excluding North Umpqua Bridge and segment between Club and Courier (North Roseburg)	III	State	3.7
	State Hwy	99	Bridge over North Umpqua River	III	State	0.1
	State Hwy	99	Club St. to Currier Ave. (North Roseburg)	II	State	0.2
18B	Garden Valley Rd.	31	Garden Valley Rd. #6 to Del Rio Rd. #31	IIIs	County	1.2
19	Garden Valley Rd.	6	Roseburg city limits to Garden Valley Rd. #31A	III	County	3.4
20	Umpqua College Rd.	284	Oakland Shady Hwy #338 To UCC	III	County	1.7
21	Page Rd.	115A	State Hwy 99 to Mile Post 0.76	II	County	0.8
22	North Bank Rd.	200	Oakland Shady Hwy #338 to N. Umpqua Hwy 138	IIIs	County	17.0
22.5	Sunshine Rd.	58	North Bank Rd. #200 to North Umpqua Highway 138 (No Access Across River)	IIIs	County	5.0
23	North Umpqua Route					
	Douglas Ave.	4A	Roseburg city limits to No. Umpqua Hwy 138	III	County	1.0
	North Umpqua Hwy	138	Douglas Ave #4A to Glide Loop Rd. #4G	III	State	13.7
	North Umpqua Hwy	138	Glide Loop Rd. #4G to river crossing	I	State	1.6
	North Umpqua Hwy	138	River crossing to Swiftwater Rd. #361	IIIs	State	4.4
	North Umpqua Hwy	138	Swiftwater Rd to Diamond Lake	IIIs	State	61

BIKEWAY ROUTE #	ROUTE # NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
24	Buckhorn Road Route					
	Buckhorn Rd.	4C	North Umpqua Hwy 138 to Dixonville Rd. #16	III	County	0.7
	Buckhorn Rd.	17	Dixonville Rd. #16 to O.C. Brown Park	III	County	1.1
	Buckhorn Rd.	17	O.C. Brown Park to Little River Rd. #17A	IIIs	County	10.2
	Little River Rd.	17A	Buckhorn Rd. #17 to No. Umpqua Hwy 138	IIIs	County	1.2
25	Whistler's Bend Park Access					
	Whistler's Lane	223	North Umpqua Hwy 138 to Whistler's Bend Pk. Rd. #244	IIIs	County	2.0
	Whistler's Bend Pk. Rd.	244	Whistler's Lane #223 to Whistler's Bend Park	IIIs	County	2.0
26	Roseburg-Melrose Route					
	Melrose Rd.	167	Garden Valley Rd. #6 to Melrose Rd. #13	III	County	1.2
	Melrose Rd.	13	Melrose Rd. #167 to Melrose Rd. #51	III	County	0.2
	Melrose Rd.	51	Melrose Rd. #13 to Colonial Rd. #52	IIIs	County	1.8
26.5	Harvard Ave. Extension		Roseburg city limits to Garden Valley Rd. #6 (No access across river)	III	County	2.5
27	The Craig Glass Fun Run-Bike Route					
	Melqua Rd.	13A	Melrose Rd. #13 to Cleveland Hill Rd. #59	IIIs	County	4.2
	Cleveland Hill Rd.	59	Melqua Rd. #13 to Melrose Rd. #51	IIIs	County	4.0
27.5	Cleveland Hill-Umpqua Route					
	Melqua Rd.	13 & 13A	Cleveland Hill Rd. #59 to Hubbard Ck. Rd. #6	IIIs	County	5.8
	Hubbard Ck. Rd.	6	Melqua Rd. #13A to Fort McKay Rd. #9	IIIs	County	1.2

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
28	Melrose-Lookingglass-Roseburg Route					
	Flournoy Valley Rd.	51	Colonial Rd. #52 to Reston-Lookingglass Road #5	III	County	6.3
	Reston-Lookingglass County Rd.	9.5	5 to Roseburg city limits		Flournoy Valley Rd. #51	I I I s
	Old Melrose Rd.	13	Roseburg city limits to Melrose Rd. #167	III	County	3.0
29	Roseburg-Green Route					
	State Hwy	99	Roseburg city limits to Carnes Road #16	III	State	2.5
	Carnes Rd.	16	State Hwy 99 to Roberts Ck. Rd. #16	III	County	2.0
29.5	Portland Ave.	56A	State Hwy 99 to I-5 Interchange #123 (No access across river)	III	County	0.3
30	Fairgrounds-Green Route					
			Fairgrounds to Carnes Rd. #16	I	County & State	1.9
31	Green-Dixonville Route					
	Roberts Ck. Rd.	16	State Hwy 99 to Dixonville Rd. #16	III	County	10.0
	Dixonville Rd.	16	Roberts Ck. Rd. #16 to Hatfield Dr. #4D	III	County	3.2
	Hatfield Drive	4D	Dixonville Rd. #16 to No. Umpqua Hwy 138	III	County	0.7
32	State Hwy	42	Carnes Rd. #16 to Winston city limits	I	State	2.0
33	Winston Loop					
	Winston Rd.	111	State Hwy 99 to Winston Park Rd. #266	III	County	1.5
	Winston Park Rd.	266	Winston Rd. #111 to Winston city limits	III	County	0.5

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
34	Lookingglass-Winston Route					
	Lookingglass Rd.	47	Reston-Lookingglass Rd. #5 to Lookingglass Rd. 107	III	County	5.0
	Lookingglass Rd.	107	Lookingglass Rd. #47 to Winston city limits	III	County	0.8
35	Brockway Rd.	47	Lookingglass Rd. #107 to Dillard Hwy #387	III	County	0.8
36	Happy Valley Rd.	26	Lookingglass Rd. #47 to Carnes Rd. #16	III	County	4.7
37	State Hwy	42	Winston city limits to Lookingglass Ck.	II	State	0.2
	State Hwy	42	Lookingglass Ck. to Olalla-Tenmile Rd. #141	III	State	8.8
38	Berry Creek Access					
	Olalla-Tenmile Rd.	141	State Hwy 42 to Olalla-Coos Bay Rd. #140	III	County	1.1
	Olalla-Coos Bay Rd.	140	Olalla-Tenmile Rd. #141 to Berry Ck. Access Rd. #365	III	County	1.0
	Berry Creek Access Rd.	365	Olalla-Coos Bay Rd. #140 to Berry Creek Reservoir	III	County	2.0
39	State Hwy	42	Upper Camas Rd. #128 to South Camas Rd. #131S	III	State	1.2
40	Main Camas Rd.	131W	State Hwy 42 to Camas Valley Elementary School	III	County	.2
41	Winston-Myrtle Creek Route					
	Dillard Hwy.	387	Winston city limits to Dole Rd. #14	III	County	6.0
SOUTH COUNTY						
	Dole Rd.	14	Dillard Hwy #387 to Myrtle Ck. city limits (Gravel)	III	County	5.6
42	South Myrtle Route					
	South Myrtle Rd.	18	Myrtle Ck. city limits to Lower South Myrtle Rd. #18A	III	County	1.2

BIKEWAY ROUTE #	ROUTE NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
42 (Cont.)	Lower South Myrtle Road	18A	South Myrtle Rd. #18 to Myrtle Ck. city limits	III	County	1.2
43	Covered Bridge Route					
	Days Creek Cutoff Rd.	42	Myrtle Ck. city limits to Neal Lane #124	III	County	0.6
	Neal Lane	124	Days Ck. Cutoff Rd. #42 to Myrtle Ck. city limits	III	County	0.2
44	Myrtle Creek Hwy	386	Myrtle Creek city limits to I-5 Interchange #103	III	County	3.9
45	Chadwick Rd.	20B	Myrtle Creek Hwy #386 to So. Umpqua High School	III	County	0.6
46	Tri City-Riddle Route					
	Pruner Rd.	20	I-5 Interchange #103 to Riddle Bypass Rd. #263	III	County	0.6
	Riddle Bypass	263	Pruner Rd. #20 to Glen- brook Loop Rd. #39 (excluding section within Riddle city limits)	III	County	2.4
47	Glenbrook Loop Rd.	39	Riddle city limits to Hanna Nickel entrance	III	County	2.7
48	Canyonville- Riddle Rd.	21	Riddle city limits to Canyonville City Limits	III	County	4.8
49	Yokum Rd.	20A	Riddle city limits to I-5 Interchange #101	III	County	2.4
50	Tiller Trail Hwy	1	I-5 Interchange #101 to Canyonville city limits	III	County	2.4
51	Tiller Trail Hwy	1	Canyonville city limits to Herbert's Pond Park	III	County	0.7
	Tiller Trail Hwy	1	Herbert's Pond Park to Tiller-So. Umpqua Rd. #46	III	County	22.0
52	Canyonville Park Rd.	215	Tiller Trail Hwy #1 to Canyonville Co. Park	III	County	0.4
53	Windy Creek Park Access					
	Azalea-Glen Rd.	12B	Glendale city limits to Azalea-Glen Rd #12	III	County	0.3

BIKEWAY ROUTE #	NAME	ROUTE NUMBER	ROAD LIMITS	CLASS	JURIS- DICTION	APPROXIMATE MILEAGE
53 (Cont.)	Azalea-Glen Rd.	12	Azalea-Glen Rd. #12B to Windy Creek Rd. #28	III	County	0.2
	Windy Creek Rd.	28	Azalea-Glen Rd. #12 to end County Rd.	IIIs	County	5.7
	State Forestry Rd.	32-6-13	End County Rd. to Windy Creek County Pk.	IIIs	State	0.6
54	Diamond Lake Loop		Route circles Diamond Lake	I	Federal	10.4
55	Diamond Lake-Crater Lake Route					
	Forest Service	6592	Diamond Lake Loop to State Hwy 230	III	Federal	0.7
	State Hwy.	230	Forest Service Rd. #6592 to State Hwy 138	III	State	0.4
	State Hwy.	138	State Hwy 230 to Southern County limits	III	State	4.4
56	Diamond Lake-Lemolo Lake Bike Trail		Diamond Lake to Lemolo Lake	I	Federal	8.4
57	Glendale/Powers Bike Trail		Glendale to County Line		State	21
58	Interstate - 5 Bike Trail		Lane County to Jackson County		State	88

Consistency With Other Bikeway Plans

210. The City of Roseburg adopted a Bikeway Master Plan on July 1988. The City of Reedsport adopted a Bikeway Master Plan on May 1990. These are the only cities in Douglas County with an adopted bikeway plan.
211. Bikeways which are shown on the Bikeway Master Plan Map within cities are either in existence or have been adopted as bikeways by those cities.
212. Bikeways within the urban growth boundaries of the cities have been included in this Plan. These routes, particularly the ones which abut city limits, have been coordinated with the affected cities to ensure continuity through these areas.
213. Of the counties which are adjacent to Douglas County, only Jackson and Josephine Counties have adopted bikeway plans. Neither of these plans have designated bikeways which abut Douglas County.
214. Five bikeways within the State bikeway system, the Coast Bicycle Route (Hwy. 101), Interstate-5, Hwy. 138, 38 and 42 passes through Douglas County. Bicycle facilities should be provided along the sections of Highway 38 from Drain to Elkton and Reedsport to Scottsburg. All five bikeways are included as part of this Plan.

- 215. There is no comprehensive plan for bikeway development in the Umpqua National Forest. However, the Forest Service has constructed a Class I bikeway that circles Diamond Lake. The Oregon Department of Transportation plans for Diamond Lake-Crater Lake Route has not been completed to date. The connections from the highway to the lake via Forest Service bike routes were completed. The highway portion has been included as it is considered to provide good recreational opportunities for campers in the Diamond Lake area to visit Crater Lake.
- 216. The Bicycle Travel Association was instrumental in establishing in 1976 the TransAmerica Bicycle Trail from Astoria, Oregon, to Yorktown, Virginia. This 4,250 mile trail is the longest recreational trail in the world. An integral part of this trail is referred to as the Pacific Alternate, a 100.7 mile trail from Winchester Bay to Eugene. This alternate route is also included in this Plan as Bikeway Route #8.
- 217. The State Comprehensive Outdoor Recreation Plan 1977 (SCORP) published by the State Parks Department, indicates that by 1990 Douglas County will have a need for 44 miles of bikeways. This projection is significantly lower than the mileage included in this Plan. The 1995 SCORP has divided the state into 12 regions, Douglas County is located in Region 6 (Coastal) and Region 9. Region 6 contains 10 miles of bicycle trails with a level of use at 468,740. Region 9 Contains 146 miles of bicycle trails with a level of use at 1,073,070. The Plan projects an increase in use from 1987-2000 of 7% for Region 6 and 71% for Region 9.
- 218. The SCORP projections are qualified by the State Plan as having a "low level of reliability". These projections are countered by the results of local meetings conducted by the State which indicated bike trails to be a high priority.

IMPLEMENTATION

Responsible Agencies

- 219. The responsibility for improvement and maintenance of the bikeways designated by this Plan lies with those agencies which have jurisdiction over the right-of-ways on which the bikeways are located. A breakdown of the mileage for which each agency is responsible is as follows:

County	278.6 miles
State	340.0 miles
Forest Service	38.1 miles
Bureau of Land Management	21.9 miles

- 220. The Federal government is not statutorily required to take land use actions consistent with County plans and policies. However, it is likely that Federal participation in development of these bikeways under Federal jurisdiction will occur. The bikeways identified in the National Forest will meet the needs of the recreational cyclists, as identified in this Plan.

Guidelines for Construction Priorities

- 221. Priorities for improvement of bikeway facilities were determined through several modes of public input including questionnaires, staff discussions and guests attending committee meetings. Information was also obtained from other agencies involved in bikeway planning and design, from literature on the subject of bikeways, and from existing bikeway trail systems manuals and descriptions.
- 222. Numerous considerations are to be used in prioritizing bikeways for construction including the following:
 - a. Timely use of available county bicycle funds in cooperation with other agencies proposing to construct bikeways which fall within the jurisdiction of both agencies.

- b. Bikeways which presently receive a high level of use and those bikeways which, upon improvement, are anticipated to receive a high level of use over those which presently receive or are anticipated to receive lower levels of use.
- c. Distribution of available funds throughout the County consistent with other considerations.
- d. Timing consistent with roadway improvements. If a designated bikeway may be improved as part of scheduled improvements to a roadway at a cost significantly less than the cost of bikeway improvements if installed independently, improvements of this bikeway should be a high priority.

Funding Sources

- 223. Funding for improvements of bikeways is available from various sources at the Federal and State levels in addition to County financing.
- 224. In 1971 the Oregon Legislature adopted the "Bicycle Bill" which requires that not less than one per cent of the funds received each year by any county from the State Highway Fund shall be expended to establish footpaths and bicycle trails along newly constructed, reconstructed, or relocated highways.

Bikeway Design

- 225. In Douglas County, bikeways are divided into four distinct classifications which have been determined necessary to provide the overall bikeway facilities required to fulfill the needs and potential users in this County, commensurate with monies available for these facilities. These bikeways are classified as follows:

Class I: A separate trail for joint use of bicyclists and pedestrians. It may be entirely independent of other transportation facilities.

Class II: A bikeway that is adjacent to the travel lane of motorized traffic, but provides a physically separated through lane for bicycles and pedestrians.

Class III: A bikeway that shares the roadway with motor vehicles. Class III routes are designated by signing, striping, and other visual markings. A Bicycle Lane is a Class III Bikeway.

Class IIIs: A Class III bikeway which is signed only. A Bicycle Route is a Class IIIs Bikeway.

- 226. Separate Class I bicycle paths on their own right-of-way along a street or freeway are the ideal bicycle facility.
- 227. The minimum widths of bike paths should be at least 10 feet, and consideration should be given to even wider cross sections to provide ample space to allow riding abreast and sharing with joggers and pedestrians.
- 228. A commonly used Class II bikeway treatment involves the adaptation of new or existing sidewalks for bike use by constructing curb cuts at intersections.
- 229. Some early bikeways used sidewalks for both pedestrian and bicyclists. While in rare instances this type of facility may be necessary or desirable for use by small children, in most cases it should be avoided.
- 230. Sidewalks are not suited for cycling for several reasons:
 - Cyclist face conflicts with pedestrians;
 - There may be conflicts with utility poles sign posts, benches, etc.

- Bicyclists face conflicts at driveways, alleys and intersections
- Bicyclists are put into awkward situations at intersections where they cannot safely act like a vehicle but are not in the pedestrian flow either, which creates confusion for other road users. Cyclists are safer when they are allowed to function as roadway vehicle operators, rather than as pedestrians.

231. Where constraints do not allow full-width walkways and bikeways, solutions should be sought to accommodate both modes (e.g. narrowing travel lanes or reducing on-street parking). In some urban situations, preference may be given to accommodating pedestrians. Sidewalks should not be signed for bicycle use - the choice should be left to the users.
232. Striping Class III bike lanes on the street adds legitimacy and credence to the cyclists' presence on the road and defines a physical area for cycle riding.
233. Bike lane striping is a visual reminder to both cyclist and motorist which reinforces cyclist obedience to the rules of the road, encourages more predictable behavior while stimulating motorist consciousness relative to the presence of cyclists.
234. It is intended that all proposed Class III bikeways be ultimately improved to their full designated standards, which would include signing, lane striping, and stenciling of symbols and word messages on the pavement.
235. In order to allow safe and practical phase development of Class III bikeways, they must not be signed as Class IIIs bikeways until all the criteria for this latter class has been met.
236. A Class IIIs Bikeway is a treatment whereby certain streets in the street network are designated as Bike Routes, and bikes share the roadway with autos, but without bike lanes.
237. Properly used, however, the signed bike route is a very effective tool to provide specific designated linkage within the framework of the Bikeway Plan along streets of low volume which, because of their location, serve a cyclist's purpose.

Design Standards

238. The design of bikeway improvements in Douglas County shall, in general, conform to standards set forth in the American Association of State Highway and Transportation Officials' Guide for Development of New Bicycle Facilities, dated October 3, 1991.
239. These standards are intended to provide appropriate guidance for the design and construction of bikeways within the right-of-way of streets and roads under the maintenance jurisdiction of public agencies within the County. They shall also apply as minimum requirements to all new development in Douglas County where bikeway facilities are proposed or required by the governing authority.

Bikeway Operation and Maintenance

240. Roads and highways with bicycle traffic often require a higher level of maintenance than other highways.
241. Neglected maintenance will render a bicycle facility unrideable, and the facility will become a liability rather than an asset.
242. Once the system envisioned by this Bikeway Master Plan is fully implemented, most, if not all, of the bikeway revenues from State gasoline tax will be spent on operation and maintenance of the system.

BICYCLE SAFETY EDUCATION

243. An organized bicycle safety education program to broaden the rider's knowledge and skill is badly needed in Douglas County.
244. The existing bicycle programs in Douglas County are primarily taught by law enforcement officers at the invitation of area schools.
245. The majority of parents consider a bicycle a toy for their child. This concept needs to be changed to recognition of the bicycle as a means of transportation.
246. Reaching parents can be achieved through school handouts and child education.
247. Riders need to become familiar with their equipment. Properly functioning equipment will promote better bicycling.
248. Use of the bike path sign along designated bikeways will increase public awareness particularly operators of motor vehicles, of the possibility of bicyclists in the area.
249. Law enforcement is a necessary component of bicycle safety. Stricter enforcement can limit both intentional and unintentional infractions. As with any law, lack of enforcement leads to a general disregard of the law. Local police officers should be willing to enforce the motor vehicle code with bicyclists and motorists.
250. At this point, the court system seems adequate to handle the violations. The County's size and decentralized nature discourages a bicycle court concept.
251. A comprehensive bikeway safety education program should be developed as a means of promoting safe bicycling in Douglas County.

BICYCLE LAWS AND LEGISLATION

Laws

252. Douglas County utilizes the Oregon Revised Statutes in its regulation of bicycles and their use in the County. No additional regulation has been adopted by the County which further addresses this topic.
253. Bicyclists must know and obey the rules of the road except for those which cannot apply to bicycles.
254. Bicyclists have the same rights and duties as drivers of motor vehicles.
255. There are additional rules which apply to bicyclists.

Legislation

256. Both the Federal Government and State of Oregon during the past 10 to 15 years have recognized the significance of bicycling by enacting various Bills and other legislative rules relating to this activity.
257. The Oregon Recreational Trails System Act of 1971 established a state trails system for hiking, horseback riding, and bicycling.
258. In 1971 the Oregon Legislature enacted the "Bicycle Bill" which requires that bikeways or footpaths be established as part of all highway projects except where the establishment of such facilities would be contrary to public safety, disproportionate in cost to the need in probable use, or where sparsity of population, other available ways, or other factors indicate an absence of any need or probable use.

TRANSPORTATION POLICIES

GOAL: To provide and encourage a safe, convenient and economical transportation system.

OBJECTIVE A: To accommodate existing and projected transportation demand in Douglas County.

POLICIES:

1. Transportation services and facilities shall support and be compatible with the land use designations shown on the Comprehensive Plan Map.
2. The evaluation of all proposed Comprehensive Plan Map amendments should include an assessment of the effect of the amendments on transportation in and through the areas subject to the amendments.
3. Existing and planned transportation facilities and corridors shall be protected from conflicting land uses.
4. All transportation facilities shall be periodically evaluated for their adequacy to accommodate existing demand.

OBJECTIVE B: To develop and utilize design standards for road construction which promote vehicular safety and economy of construction.

POLICIES:

1. The following classification system will be used for the planning and maintenance of all roads within the County maintenance system:
(Revised 7/22/97)
 - a. Principal Highway
 - b. Arterial
 - c. Major Collector
 - d. Minor Collector
 - e. Local

2. The County shall assess the existing and future function of those County maintained roads which have not been classified and assign to them the appropriate designation.
3. Pursuant to the Oregon Highway Plan, direct access points to state managed interstate highway and interchanges shall be prohibited. Direct access to remaining principal highways and arterial roadways should be discouraged to avoid conflicts with through traffic.
4. Direct access to non-interstate Principal Highways should be provided within unincorporated communities at levels which are consistent with land use classifications and facility operations.
5. Oregon Department of Transportation will provide access to any unit of land which enjoys legal right of access and is developing per the comprehensive plan and zoning ordinance in effect at the time of adoption of the 1997 Transportation System Plan.
6. Access to and road approach permits for state roads are the jurisdiction of the Oregon Department of Transportation (ODOT). For units of land developing per the Comprehensive Plan and Land Use and Development Ordinance in effect at the time of adoption of the 1997 Transportation System Plan where legal right of access exists ODOT will provide access or purchase from the property that right of access.
7. Direct property access from major collector roads may be allowed as design features permit.
8. Through traffic on local roads shall be discouraged.
9. On street parking should only be permitted in areas where it would not interfere with the movement of through traffic.
10. For those roads located within city UGBs, the County shall coordinate road classifications and construction standards with the affected cities.

OBJECTIVE C: To encourage energy conservation through promotion of means other than the private automobile for transportation.

POLICY:

1. Efforts to decrease the dependence on the private automobile shall be encouraged.

OBJECTIVE D: To improve transportation availability to the transportation disadvantaged.

POLICY:

1. The transportation disadvantaged shall be considered in the design of transportation facilities and alternative transportation modes.

OBJECTIVE E: To provide for the timely, economic and efficient implementation of the County road system.

POLICIES:

1. The County Roadway system shall be periodically evaluated to determine the need for improvements.
2. Needed roadway improvements shall be made, as funds are available, in a systematic manner based on a priority rating process.
3. Considering health, safety and welfare, average daily traffic (adt), road design standards and development impacts, a minimum County road right-of-way of sixty (60) feet outside of Urban Growth Boundaries and Urban Unincorporated Areas is generally necessary.

* In the instances of land divisions adjacent to a road within the County road system that has less than sixty (60) feet of right-of-way, property owners are encouraged to dedicate one-half of the additional right-of-way necessary to develop the road to sixty (60) feet.

- * Setback standards from existing public rights-of-way shall be maintained and enforced to insure new development does not intrude into the future right-of-way, as determined by the roads functional classification. (Revised 11/29/95)
- 4. Where feasible, through the land division process, the cost of installation of road improvements to local or minor collector standards shall be borne by the benefiting or adjacent properties.
- 5. The cost of installation of street improvements to a standard higher than that for minor collector streets shall be borne by the County.
- 6. Douglas County shall work with the appropriate cities to develop means for the surrender of jurisdiction of County roads within city limits.
- 7. Douglas County shall develop a capital improvement program which addresses the extent and timing of County participation in road improvements as identified by this Element.
- 8. The County shall develop and maintain the mechanisms to facilitate delayed acquisition and improvement of certain public roads as a condition of property division. (Revised 11/29/95)
- 9. The County supports the upgrading of all public roads to County standard.
- 10. As a condition of approval of the division of property adjacent to or through which one of the streets designated by the Comprehensive Plan would pass, the County may require the property divider to irrevocably offer to sell right-of-way when the requirement is related both in nature and extent to the impact of the proposed development. Any such offer to sell shall be that necessary to develop the designated street to its ultimate standard for its full length adjacent to or through the property to be divided. (Revised 11/29/95)

11. In situations where an existing structure is proposed for improvement, and economic, safety, and usage factors indicate that a lesser width standard is warranted, then a right-of-way or lane width standard lesser than that required by this plan may be considered. (Revised 6/28/89)
12. An irrevocable offer to sell right-of-way shall state the consideration to be paid by Douglas County for purchase of the right-of-way. The consideration shall be based on the market value, of that portion of the land to be purchased, as indicated by the tax assessment records for the year in which the preliminary land division was approved. Douglas County shall have the right at any time in perpetuity from the date the irrevocable offer to sell is made to accept the offer for the consideration identified in the offer to sell. Acceptance of the offer to sell shall not bind Douglas County to purchase the right-of-way. (Revised 11/29/95)
13. Setback standards provide, in addition to safety, environment, noise, utility, parking and visual benefits, a mechanism in rural areas of Douglas County to protect future right-of-way. Maintenance of the setback standards in rural zoning designations serves an important public and private interest. (Added 11/29/95)

OBJECTIVE F: To encourage, coordinate and assist in the development of transportation modes other than private vehicle.

POLICIES:

Rail

1. The installation of spur lines in industrial areas as means of facilitating the use of rail transportation shall be encouraged.
2. The development of rail service connecting the Roseburg area to the Port of Coos Bay and Port of Umpqua at Reedsport shall be encouraged.

Air

3. Encourage the development and use of airport facilities and services throughout Douglas County.
4. Promote the development of an airport facility in coastal Douglas County.
5. Douglas County shall assist in the promotion of safety in the vicinity of airports by the application of appropriate land use regulations.
6. The County shall encourage the study of the feasibility of alternate locations for the Roseburg Municipal Airport.

Water

7. The County shall coordinate with the Port of Umpqua in the development of Salmon Harbor and other Port owned properties.
8. The County shall continue to support efforts involving the maintenance of the main channel of the Umpqua River.
9. Transportation development activities in the estuarine area of Douglas County shall be consistent with the County's Coastal Resource Plan.

Public Transit

10. The County shall encourage the reestablishment of bus service to all cities in the County.

Pedestrian

11. The County should study the need for urban unincorporated area sidewalk standards. The study should focus on new development adjacent to collector or arterial streets.

BICYCLE TRANSPORTATION

GOAL: To provide a safe, convenient, and efficient bikeway network for Douglas County which addresses both transportation concerns and recreation needs.

OBJECTIVE A: To develop a system of bikeways throughout the County which meets the needs for all types of users consistent with the demand for each.

POLICIES:

1. Bikeways shall be provided which satisfy recreational needs both long distance and local.
2. Bikeways shall be provided which satisfy utilitarian needs by connecting major residential areas to major activity areas (recreational, employment, institutional, commercial) within the County
3. Strong emphasis shall be placed on providing bikeways which satisfy both recreational and utilitarian needs.
4. Bikeways shall be provided which connect communities within the County.
5. Bikeways shall be provided which are capable of serving the needs of secondary users such as joggers and hikers.
6. Emphasis shall be placed on providing bikeways which satisfy recreational needs over utilitarian needs particularly in the less densely populated portions of the County.
7. The need for short distance bikeways in the County's urban unincorporated areas should be assessed and, as appropriate, the Plan amended to accommodate identified needs.
8. This Bikeway Plan should be periodically reassessed to ensure its consistency with identified needs is maintained.

OBJECTIVE B: To designate specific, cost efficient, bikeways in the unincorporated portions of the County which satisfy the needs of each bicycle user group.

POLICIES:

1. In the designation of specific bikeway routes, safety, cost of route construction and potential usage both by cyclists and other users shall be the primary criteria.
2. In instances where more than one route in an area would serve an identified need, the criteria used in selection of the most appropriate route shall include (in addition to safety, cost of construction and potential usage) directness, continuity, grade(s) and aesthetic quality of the route and frequency of required stops.
3. Emphasis shall be placed on designation of Class III and Class IIIs bikeways where practicable due to the high cost of constructing Class I and relatively undesirable aspects of Class II bikeways.
4. The designation and construction of Class II bikeways shall be discouraged due to the dangerous interface they create between cyclists and motor vehicles.
5. The Bikeway Master Plan Map, Map 2, designating specific bikeway locations, is part of the Douglas County Comprehensive Plan and included at the end of this Element.

OBJECTIVE C: To provide a system of bikeways which is coordinated with other jurisdictional bikeway plans.

POLICIES:

1. The County shall coordinate with other jurisdictions and agencies to ensure development of routes which are continuous across jurisdictional boundaries and which serve the needs of all Douglas County residents.
2. The County shall coordinate the designation and improvement of bikeways within urban growth boundaries with the affected cities.

OBJECTIVE D: To encourage safe bicycling and a safe bikeway system throughout the County.

POLICIES:

1. The County shall develop a comprehensive bicycle safety education program.
2. Safety shall be a primary consideration in designation of bikeways, particularly those intended primarily for short distance recreational and school use.
3. The County shall, within its means, assist school districts in the establishment of an ongoing bicycle safety education program.

OBJECTIVE E: To develop a set of standards for bikeway development and establish a system for prioritization of bikeway construction.

POLICIES:

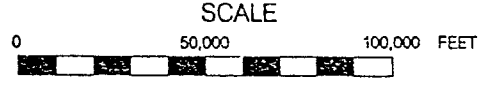
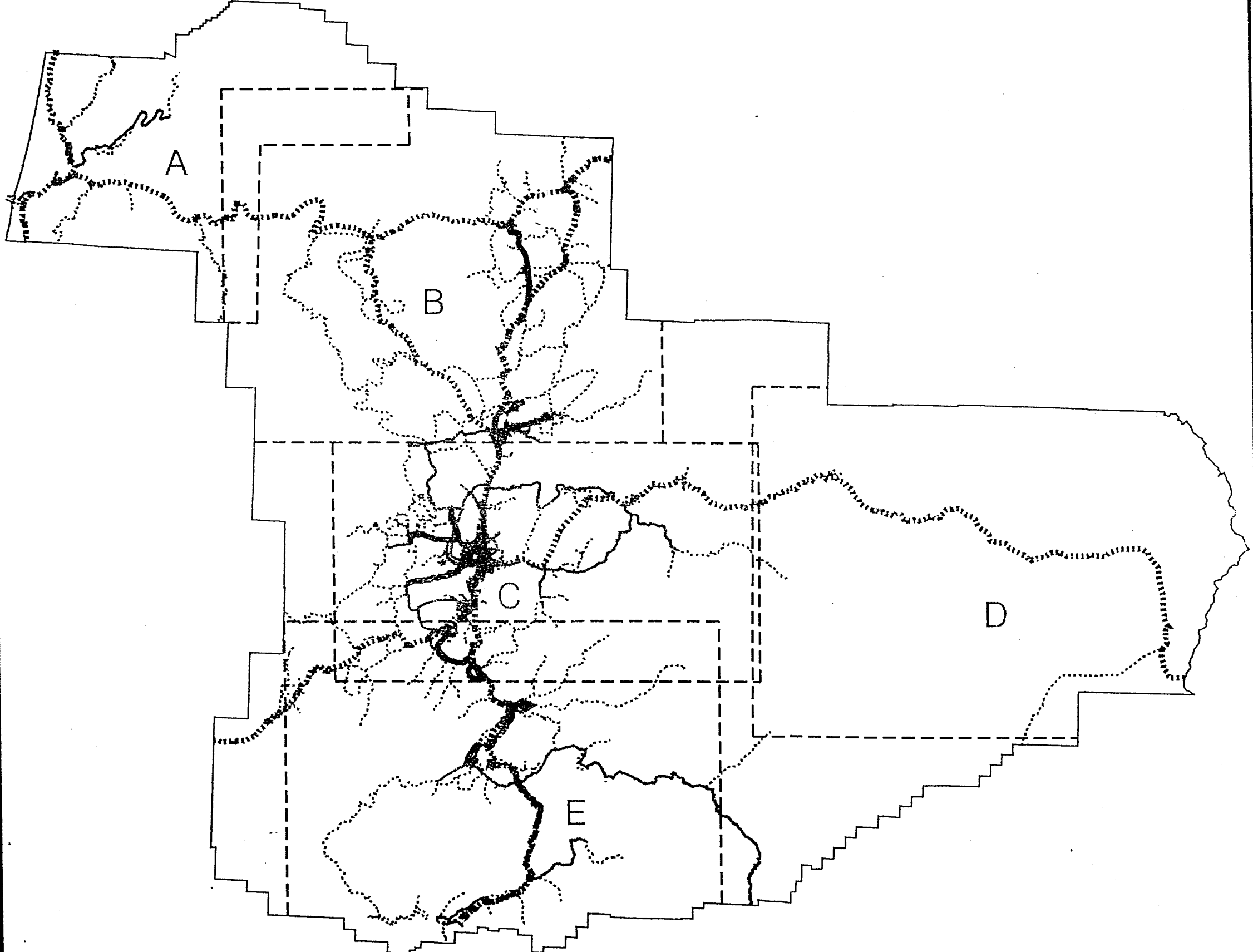
1. All bikeways designated in this Bikeway Plan shall be developed to meet the appropriate County Bikeway Improvement Standards.
2. All Class III bikeways (excluding Class IIIs) shall ultimately include full Class III improvements including lane striping. However, to allow phasing of development of this Plan, signing of Class III bikeways shall take place as soon as a route meets minimum standards for signing, its construction is practicable, and the route is considered safe for use.
3. To facilitate the use of Class I bikeways by joggers, such bikeways, where feasible, should be constructed with a maximum 2% cross slope.
4. The State of Oregon Department of Transportation is encouraged to install appropriate bikeway improvements on highways and roads under their jurisdiction (and within their maintenance system) as improvement projects are conducted on designated County bikeways.

5. The State of Oregon should include in their Six Year Improvement Program provisions for implementation of County bikeway designations on State highways selected for improvement, construction or reconstruction.
6. The County shall develop a program of capital improvements for designated bikeways on the County maintained road system.
7. Funds for development of bikeways should be expended throughout the County consistent with other considerations.
8. Bikeways which presently receive or are anticipated to receive upon improvement a high level of use should be improved prior to those which presently receive or are anticipated to receive lower levels of use.
9. Emphasis shall be placed on timely use of available County bikeway funds in cooperation with other agencies proposing to construct bikeways which fall within the jurisdiction of both agencies.
10. Emphasis shall be placed on improvement of locations along designated bikeways which have been identified as high accident locations.
11. In instances when a designated bikeway may be improved as part of scheduled improvements to a roadway at a cost significantly less than the cost of improving the bikeway independently, the bikeway should be improved as part of the roadway improvements.
12. No bikeway shall be signed, striped, or otherwise physically improved so as to indicate it is available for or encouraged to be used by bicyclists until such time as the entire route or a logical segment of it meets County Bikeway Improvement Standards.
13. In the event that development of a Class I or III bikeway is impractical, a Class II bikeway may serve to implement designations of this Plan.
14. In maintenance of County roads, an emphasis should be placed on those roads which also have been designated as bikeways by this Plan.

15. After the establishment of each bikeway in Douglas County, an effort should be made to determine actual maintenance costs required to keep it in a safe and enjoyable condition for the user.
 16. Jurisdictions responsible for bikeways identified in this Plan should budget sufficient funds each year from available bikeway resources to accomplish the annual maintenance of all bikeways under its jurisdiction.
 17. Federal agencies should include within their respective land use programs the provision for implementation of bikeways designated by this Plan which are within their jurisdiction.
 18. New points of vehicular access to roads which have been designated as bikeways shall, as practicable, be minimized.
-

TRANSPORTATION
ELEMENT

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS INDEX



- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS

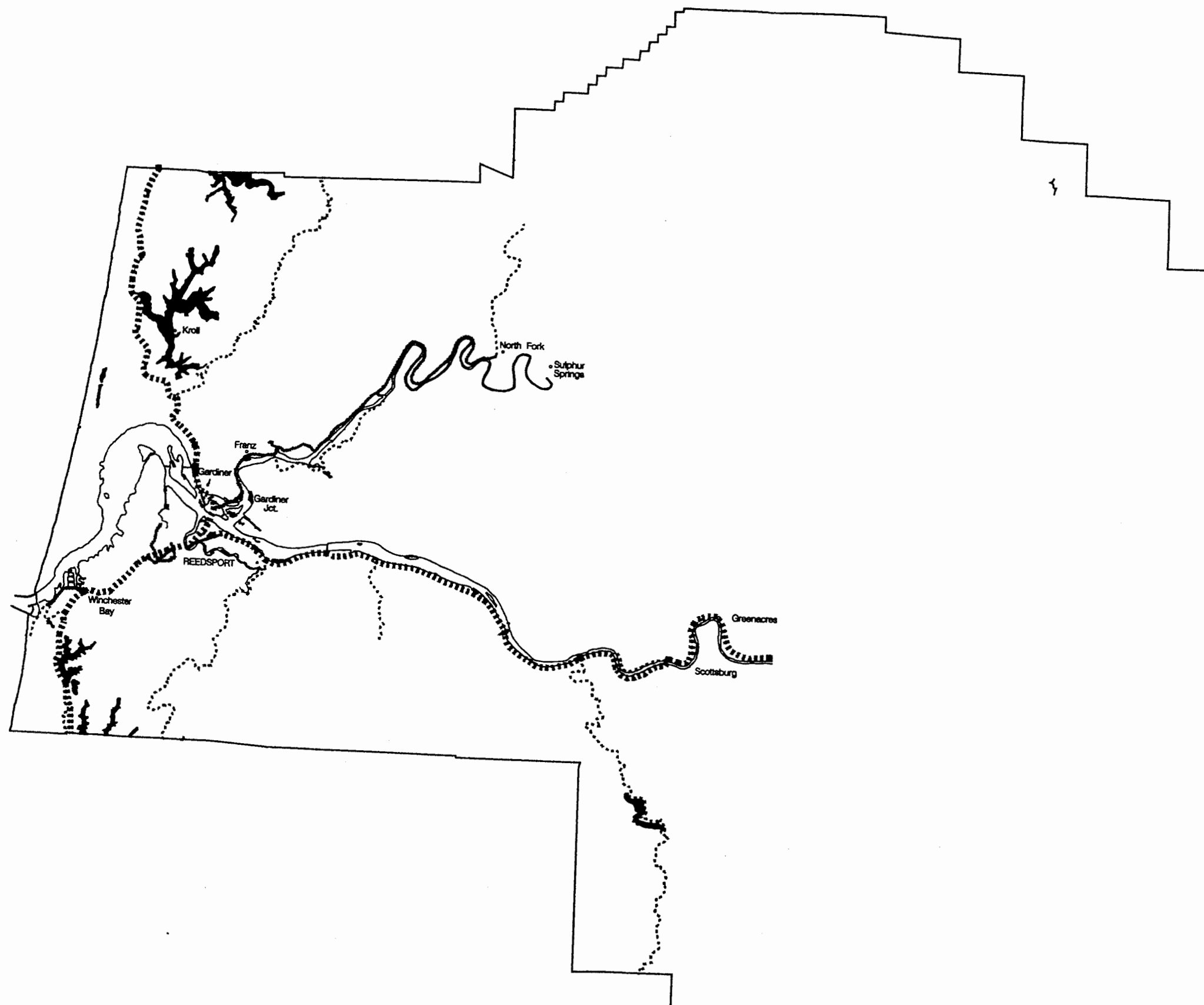
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TRANSPORTATION
ELEMENT
MAP A

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS



SCALE
0 18,000 FEET

- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS

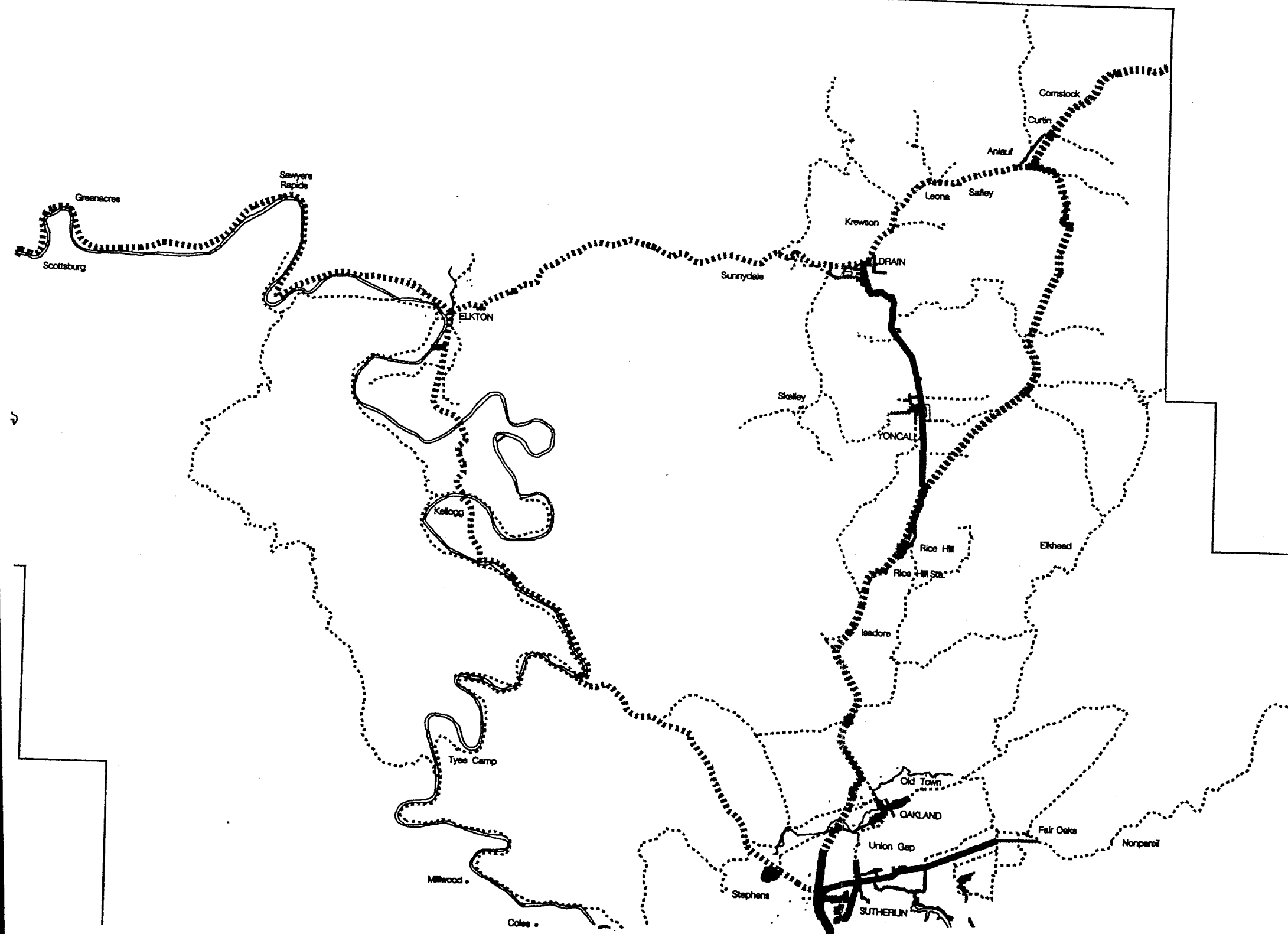
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TRANSPORTATION
ELEMENT
MAP B

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS



SCALE
0 18,000 FEET

-  PRINCIPAL HIGHWAY
-  ARTERIALS
-  MAJOR COLLECTORS
-  MINOR COLLECTORS

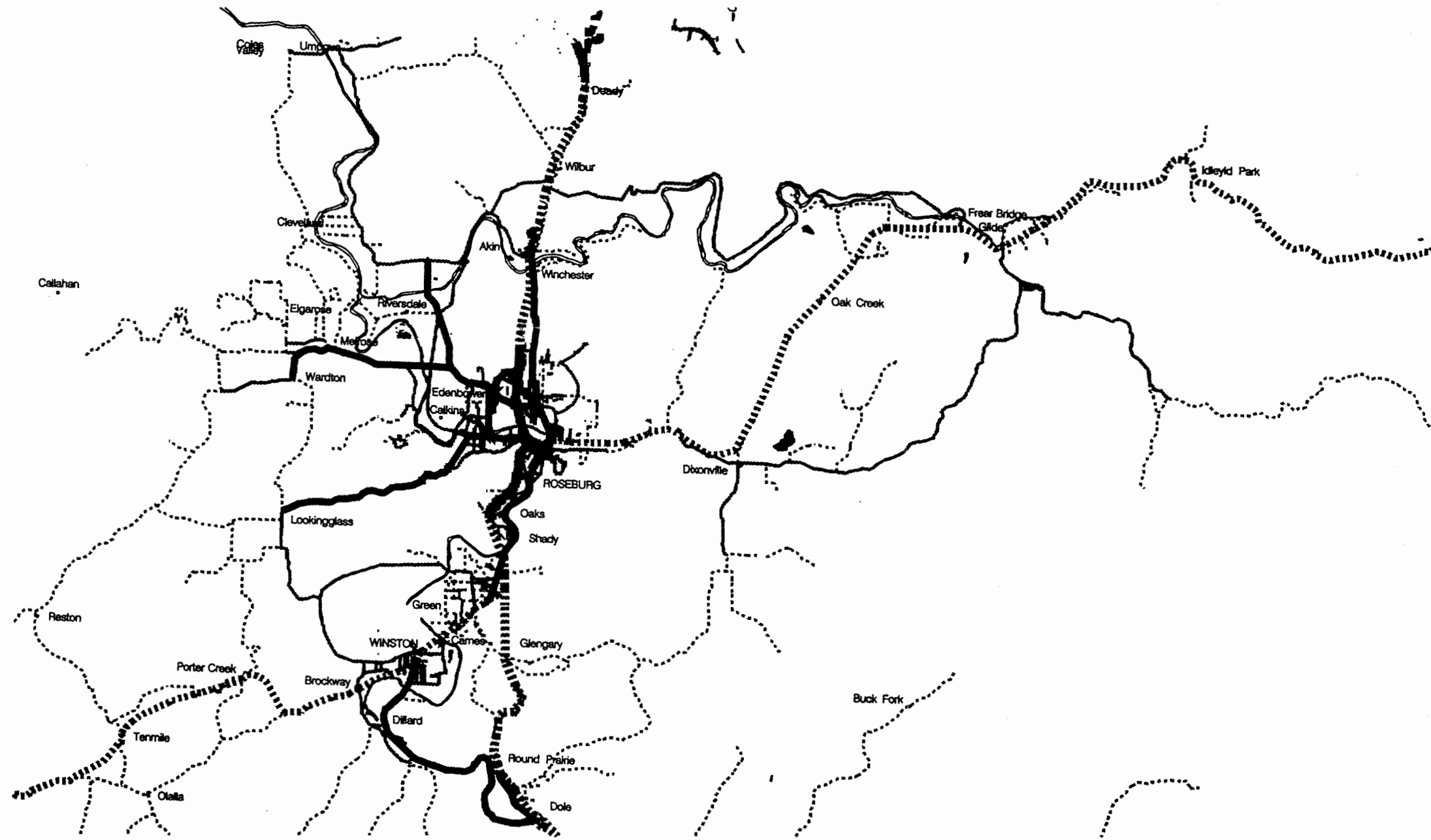
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TRANSPORTATION
ELEMENT
MAP C

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS



SCALE
0 18,000 FEET

- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS

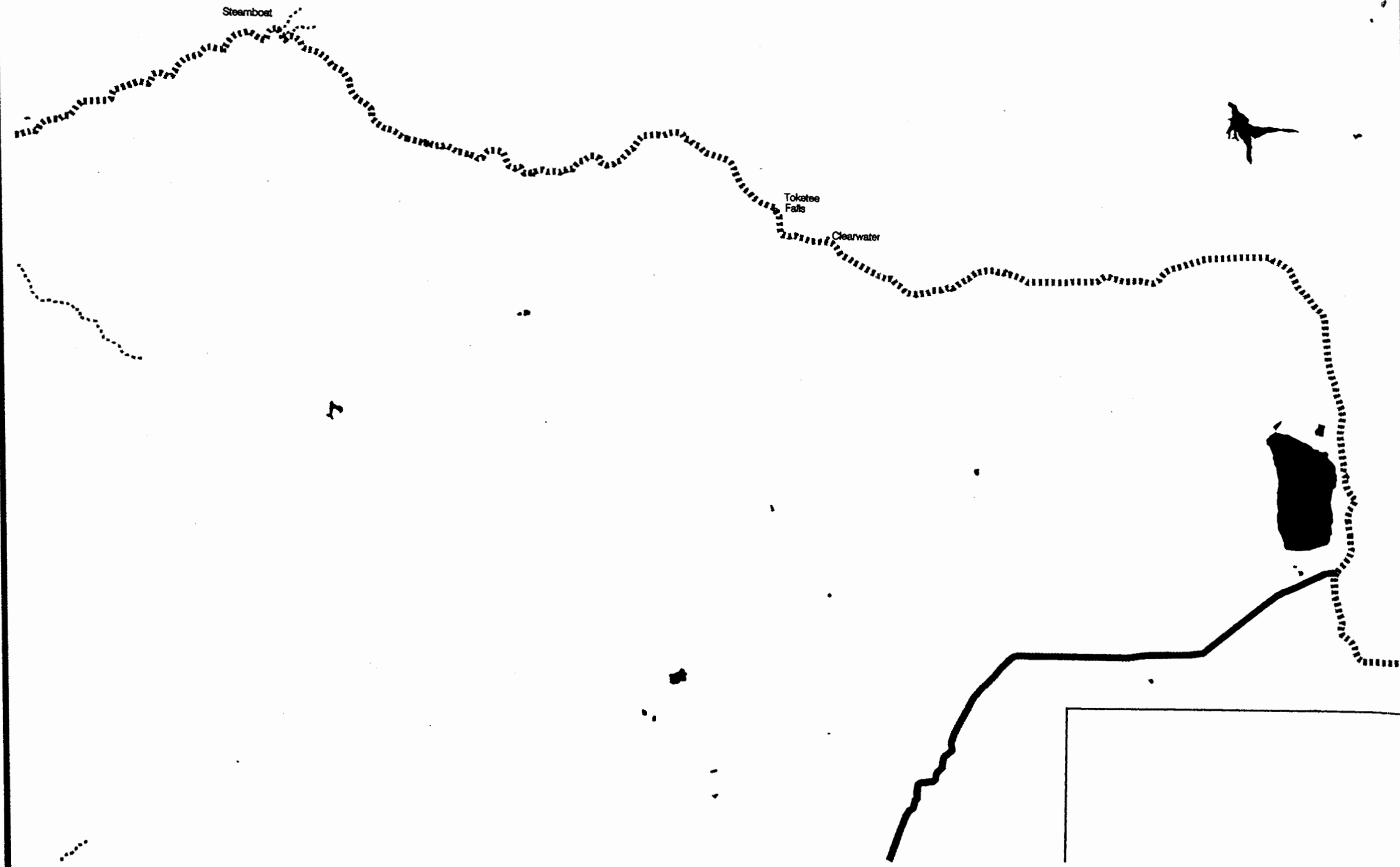
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TRANSPORTATION
ELEMENT
MAP D

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS



SCALE
0 18,000 FEET

- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS

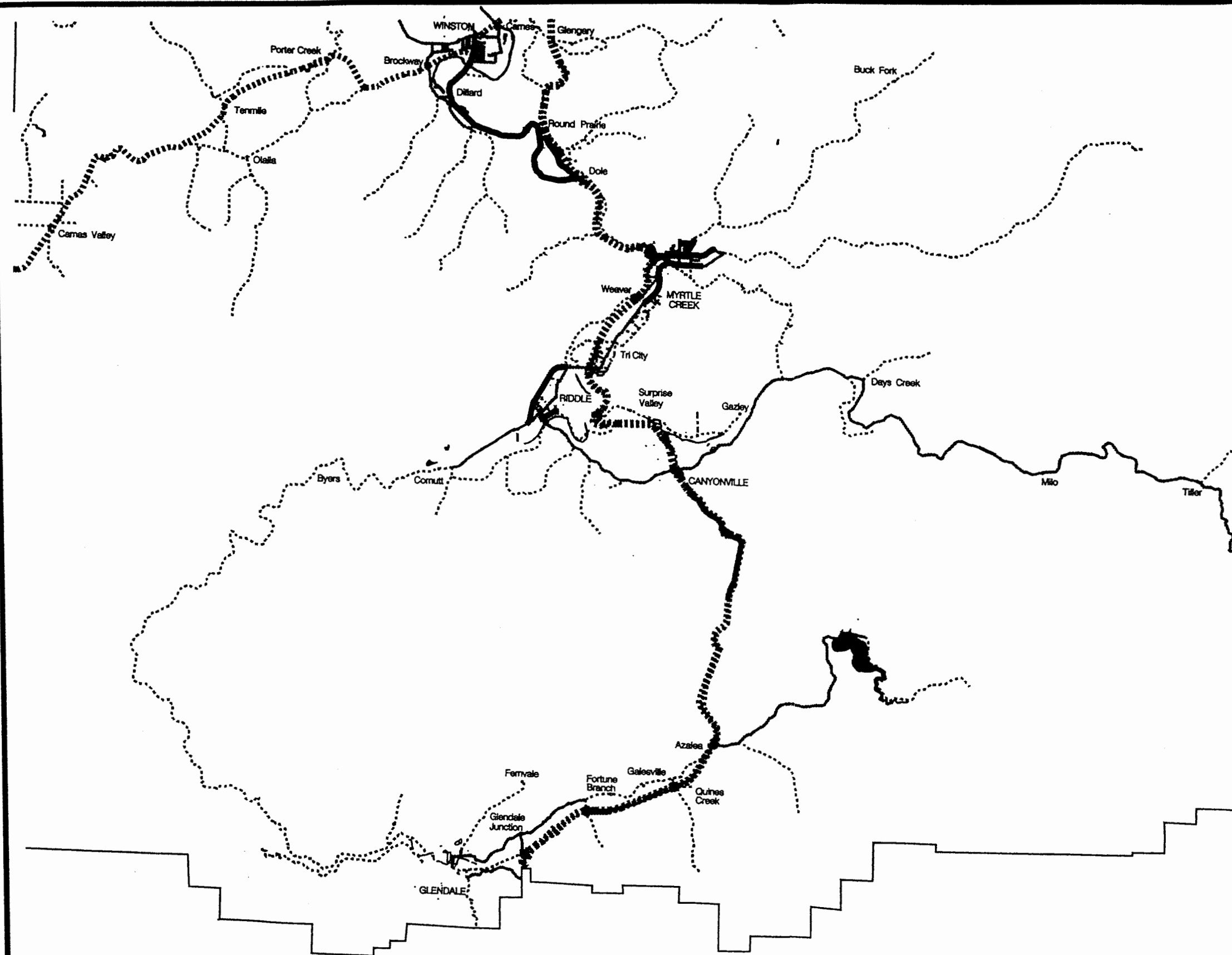
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TRANSPORTATION
ELEMENT
MAP E

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS



SCALE
0 18,000 FEET

- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS

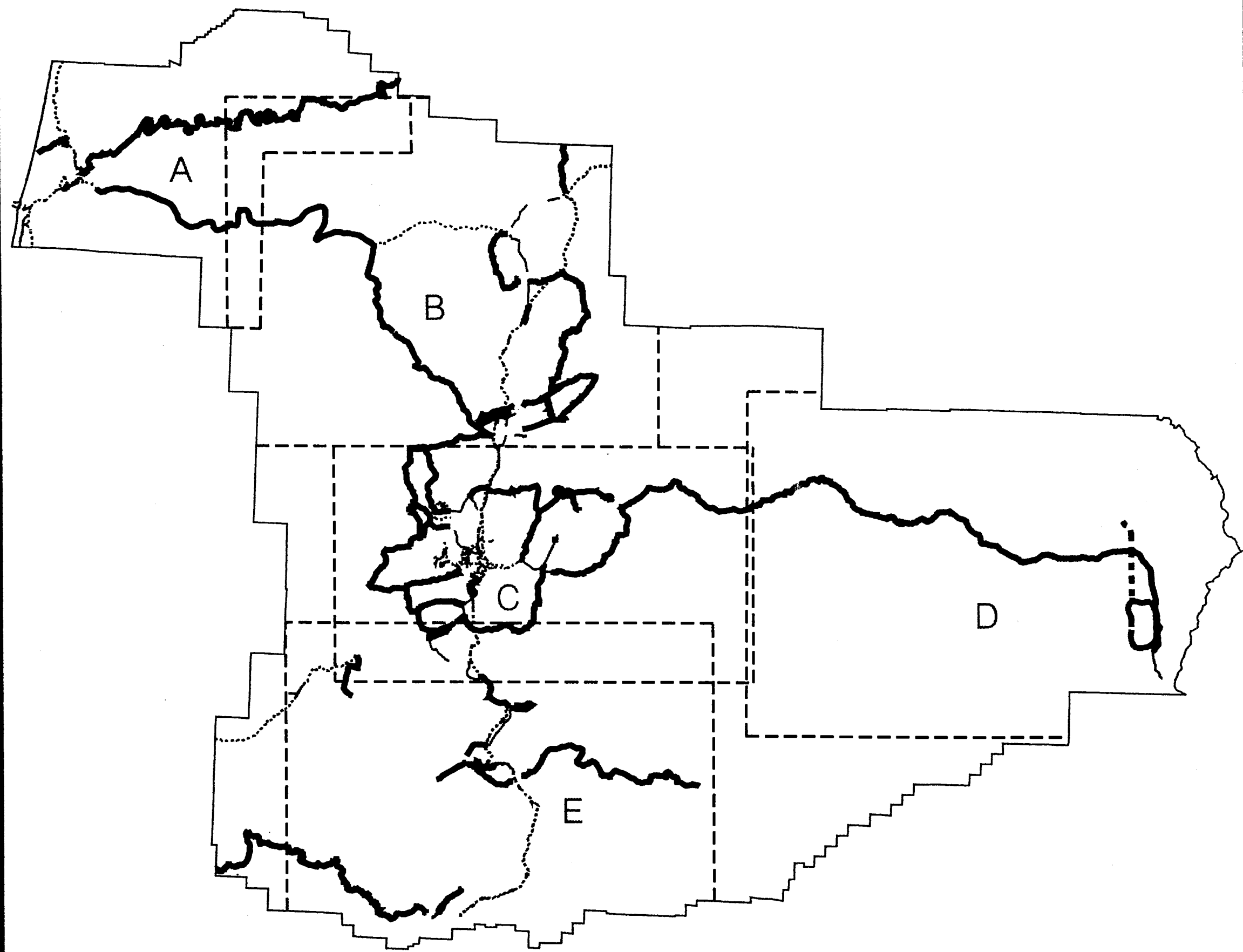
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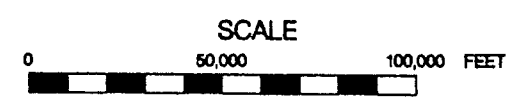
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TRANSPORTATION ELEMENT

BIKEWAY CLASSES INDEX



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNED ONLY)
- STATE /CITY



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TRANSPORTATION
ELEMENT
MAP A

BIKEWAY
CLASSES



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNEND ONLY)
- STATE /CITY

SCALE
0 18,000 FEET

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TRANSPORTATION
ELEMENT
MAP B

BIKEWAY
CLASSES



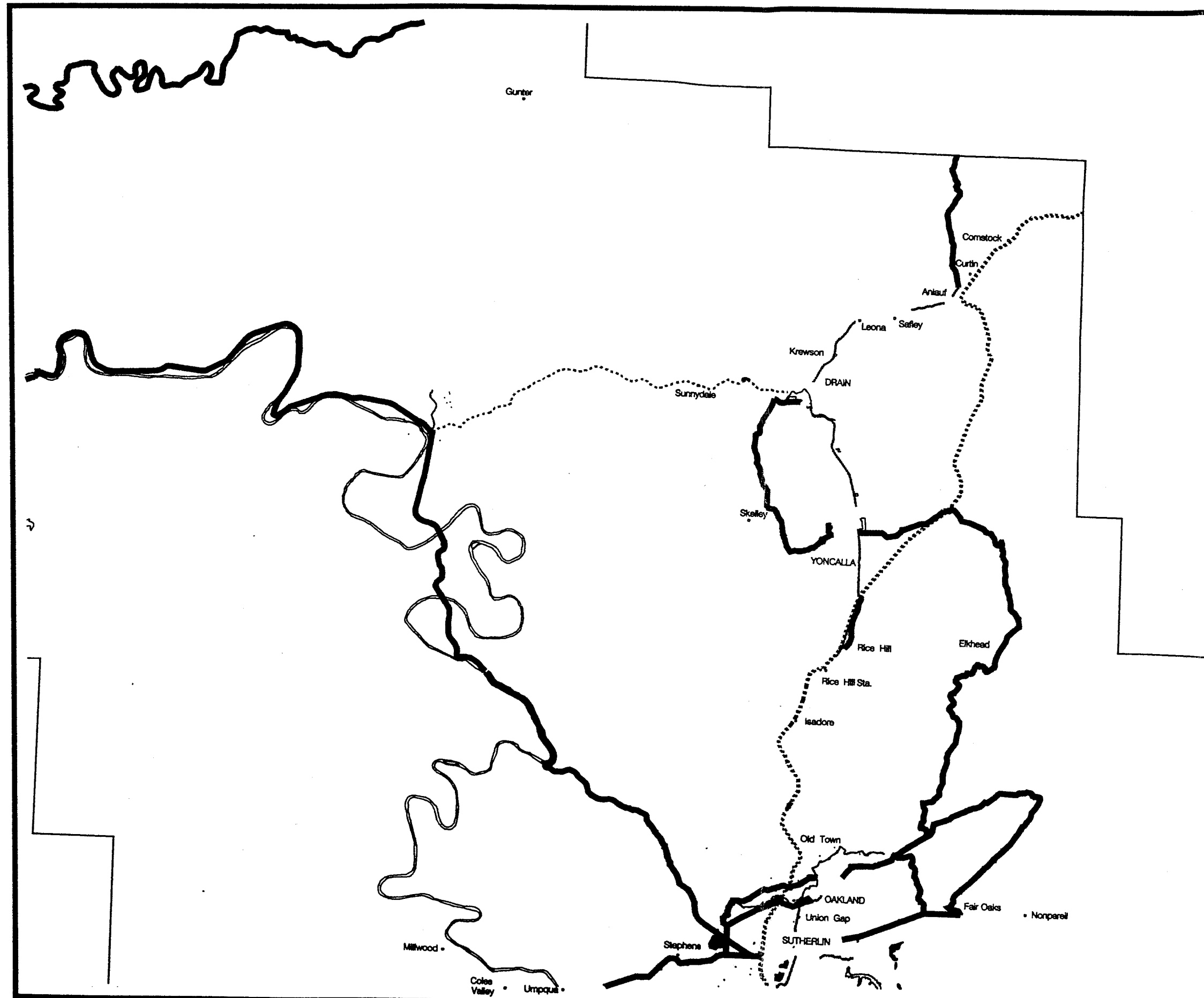
SCALE
0 18,000 FEET

- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNED ONLY)
- STATE /CITY

DOUGLAS COUNTY
PLANNING DEPARTMENT
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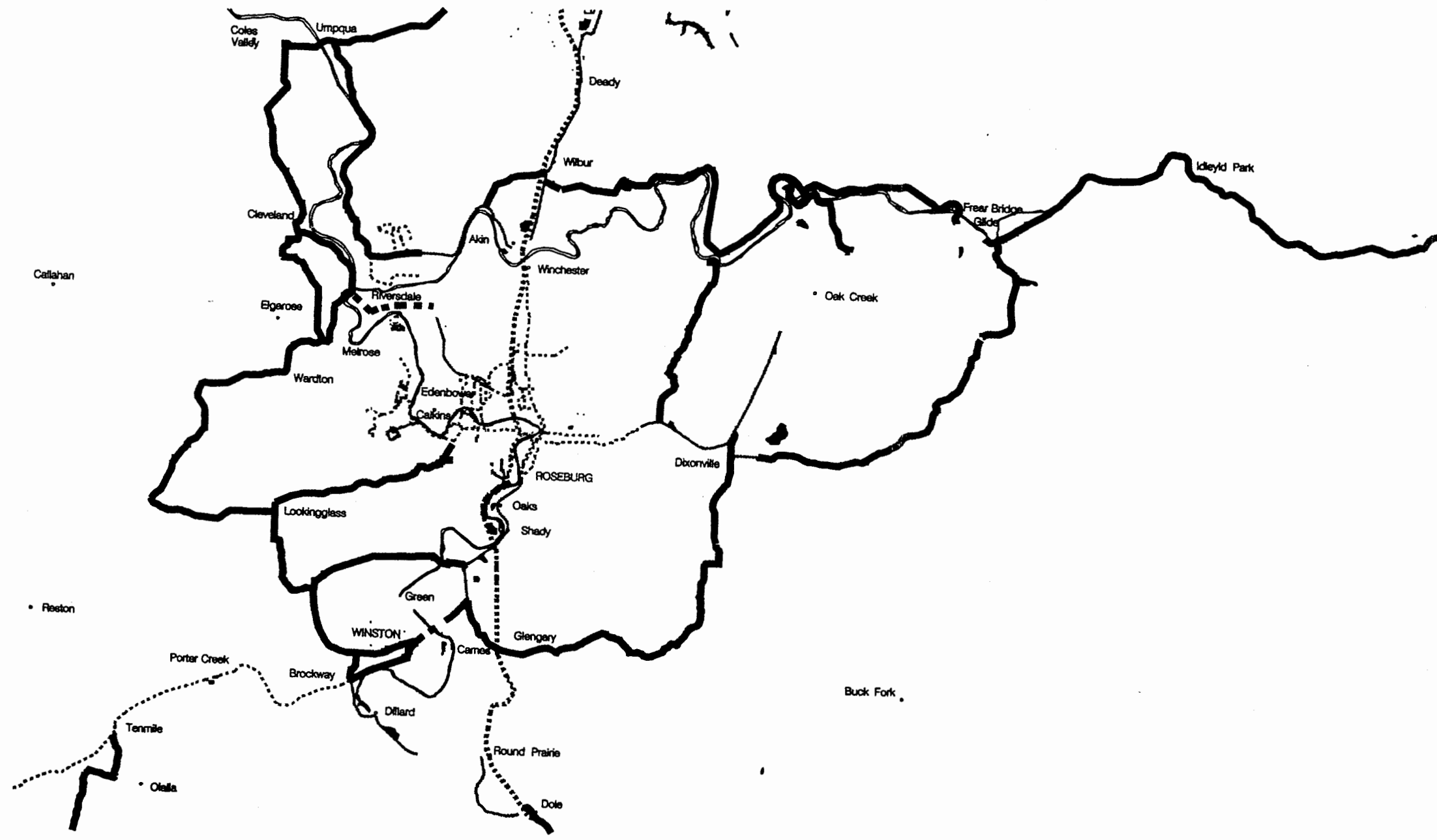


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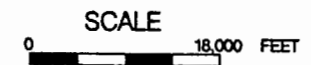


TRANSPORTATION
ELEMENT
MAP C

BIKEWAY
CLASSES



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNEND ONLY)
- STATE /CITY



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TRANSPORTATION
ELEMENT
MAP D

BIKEWAY
CLASSES



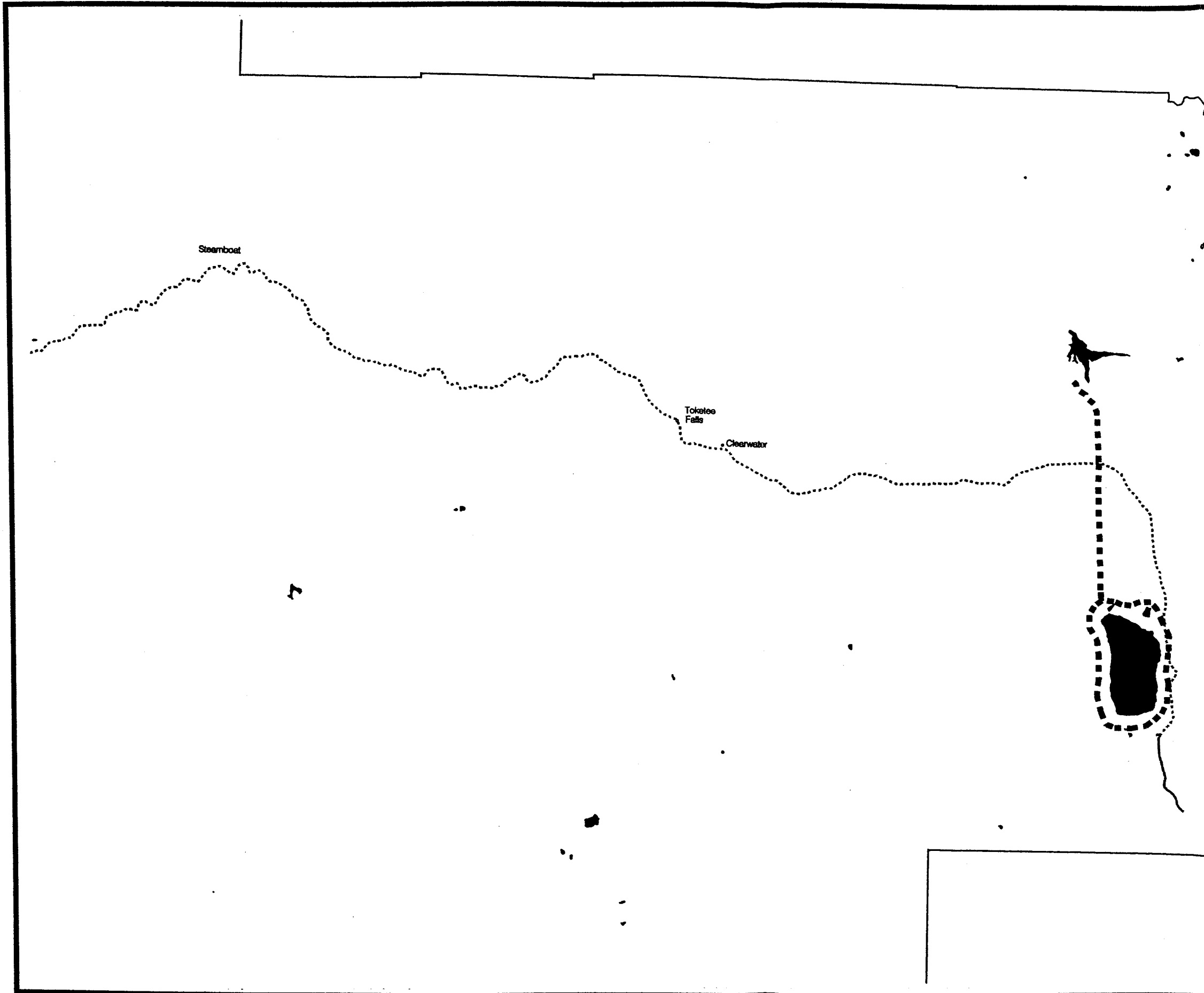
- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNEND ONLY)
- STATE /CITY

SCALE
0 18,000 FEET

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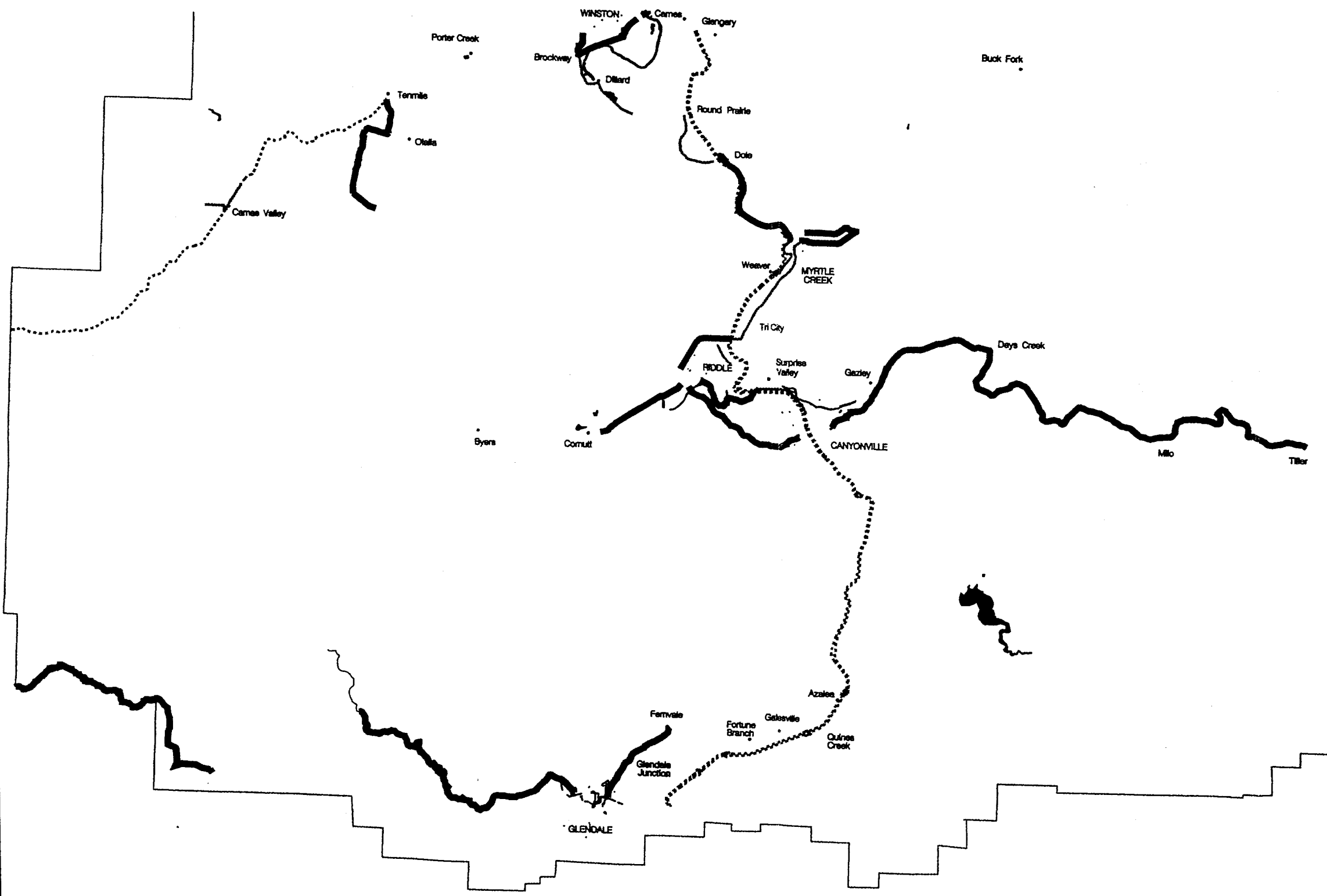


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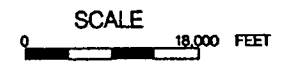


TRANSPORTATION
ELEMENT
MAP E

BIKEWAY
CLASSES



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNEND ONLY)
- STATE /CITY



DOUGLAS COUNTY
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CHAPTER 2: LAND USE ELEMENT

Rural Unincorporated Communities

OBJECTIVE: To provide for safe, convenient and economical transportation in rural unincorporated communities.

POLICY:

1. Encourage organized access on to rural County roads and State Highways.

POLICY IMPLEMENTATION:

1. Prior to approval of new commercial and industrial development within rural unincorporated communities which will access onto State of Oregon Highways or County roads the applicant shall obtain an access permit from the Oregon Department of Transportation or the Douglas County Public Works Department, whichever is applicable.

URBAN UNINCORPORATED AREA

Findings

TRANSPORTATION

Urbanization leads to increased traffic. In many instances, this increase results in congestion and the need for additional traffic controls. Other needs caused by increased traffic are street widening and resurfacing.

Small lot piecemeal parcelization within urban areas creates problems related to the provision of appropriate access to all properties and the provision of an efficient overall circulation pattern. Access to properties in major partitions has often been through private easement. Such partitions and accompanying easements have become obstacles to logical access to adjacent parcels. Easements created as a result of piecemeal land partitioning often prove to be inadequate to handle the additional traffic placed on them by subsequent partitioning and do not facilitate development of an overall circulation system for an area.

It has been the County policy to allow considerable latitude in development of streets as part of partitioning and subdividing. Unpaved public streets have often been approved. Also, many streets have not been sufficiently developed to qualify for County maintenance. These dedicated streets have often proved to be inadequate in handling urban volumes of traffic and ultimately become a source of local aggravation.

In several urban unincorporated areas, historic platting has resulted in County ownership of right-of-way which, due to topographic and other constraints, are unbuildable and inappropriate for access to private property.

It is the intent of the County to ensure that all transportation needs are met within the UUAs. Circulation plans were prepared for all UUAs. Such plans ensure that adequate access is provided to all properties and that an efficient overall transportation system is developed. In addition, street standards which are adequate for emergency vehicle use and sufficient enough to handle anticipated traffic volumes are required. Programs for the upgrading of existing streets need to be implemented.

URBAN AREA CIRCULATION PLANS

In the development of circulation plans, certain objectives and standards were observed. These objectives and standards were used in determining which existing streets currently function as collectors or arterials and which existing streets will serve these functions in the future. The objectives and standards were also used in generally establishing the location of future collector and arterial streets.

The objectives and standards used are not unique nor were they specifically developed for circulation planning in Douglas County. They represent commonly held values and principles for vehicular circulation at all levels. As such, many of these objectives and standards should be utilized in the review of plans for development of all streets, not just those identified.

OBJECTIVES

There were five major objectives used in the development of urban area circulation plans. The first objective was to provide convenient access to all existing and future residential, commercial, industrial and public areas. The lack of convenient access via designated collector or arterial streets often results in use of local streets not planned for through traffic. To provide convenient access, existing traffic patterns were studied and major routes which provide access between neighborhoods and from residential areas to activity

centers (commercial, industrial and public) were identified. Obstacles to convenient access were also identified and, where feasible, these obstacles were eliminated or alternate access provided. The general location of future collector and arterial streets through undeveloped areas were established in such a manner as to ensure reasonably direct access.

The second objective was to ensure the safety of vehicular movement. The ultimate traffic volumes to be carried by each collector and arterial street considered for designation were approximated using existing Comprehensive Plan land use designations. Based upon those projected volumes, the street's location and type of traffic it is anticipated to carry, each street studied was assigned a classification including standards for its development to ensure safe traffic movement. New intersections were planned for such locations as would minimize hazardous situations.

The third objective was to keep through traffic out of neighborhoods. By providing convenient and safe access to collector and arterial streets which skirt neighborhoods, through traffic will have no need to use local neighborhood streets. Use of local streets for residential access only preserves the privacy of the residences, improves vehicular safety and generally enhances the liveability of the neighborhood.

The fourth objective was to ensure that streets are economically planned. By designating only those streets which warrant construction to a collector or arterial standard, all other streets may be developed to the lesser local street standards. This is cost effective both in terms of street construction and maintenance. Conversely, by ensuring that the rights of way of future streets which will serve as collectors and arterials are adequate for those purposes, costly condemnations and street widenings can be avoided.

The fifth objective was to ensure the adequate access of emergency vehicles to all dwellings. Areas where potential natural hazards such as flooding or landslides exist were identified and their effect on traffic circulation assessed. In instances where such hazards would adversely effect circulation, alternate plans were developed. Also identified were areas where limited access exists and where a significant number of dwellings exist or could be constructed. In these areas, where feasible, alternate or secondary access was planned.

STANDARDS

Street Classification System

In the development of circulation plans, the existing County road classification system was used. As applied, those street classifications include Principal Highways, Arterials, Major Collectors, Minor Collectors and Local Streets. These street types are defined below.

Principal Highway: Principal Highways fall under state jurisdiction and the management of these facilities is outlined in the Oregon Highway Plan.

Arterial: The Arterial network will provide through traffic movement (including public transportation and its distribution from Principal Highways on to the Collector and Local Streets network. As with Principal Highways, Arterials provide connection between major communities in the County. Arterials are subject to regulation and control of parking, turning movements, entrances, exits, and curb uses. Access control and on-street parking are a function of the number of lanes, lane and shoulder width, design speed, traffic volumes, and land use. Traffic volumes on major arterial streets can reach up to 30,000 vehicles per day.

Major Collector: Major collectors provide direct collection and distribution of local traffic and accommodate "through" traffic, as well. Access to adjacent properties may be limited. Traffic volumes on major collector streets can generally range up to 10,000 vehicles per day.

Minor Collector: Minor collectors connect neighborhoods and activity centers. They also distribute neighborhood traffic onto major collector or arterial streets. Property access onto minor collectors is often allowed. Traffic volumes can generally range from up to 5,000 vehicles per day.

Local Street: Local streets provide direct access to adjacent properties. Through traffic on local streets is discouraged. Traffic volumes on local roads are generally less than 1,500 ADT

To ensure that the various street classifications defined above are able to accommodate the volume and type of traffic anticipated, standards for their construction have been adopted by the County. The standards are found in Chapter Four of the Land Use and Development Ordinance.

In Tri City, that segment of Highway 99 north from Wecks Road to the Myrtle Creek city limits is designated as an arterial. With the future connection to I-5 via Weaver Road and a new bridge, this arterial segment will ultimately carry greater amounts of traffic than Highway 99 south from Wecks Road. However, existing topographic constraints, flood plain limitations, and prior development severely limit the opportunity for achieving the full right-of-way width for this road segment. An ultimate right-of-way width of 84 feet allowing four moving lanes and a continuous left turn lane would be adequate in consideration of the physical and developmental limitations. At full development of an 82 foot roadbed, no room will be available for development of a shoulder (due to the reduced right-of-way). This situation will necessitate parking restrictions. (Revised 7/22 /97)

Within the Sutherlin UGB, that segment of Highway 99 south from the UGB to the city limits shall have an ultimate right-of-way of 90'. Although this roadway is designated as an urban arterial, road improvements will occur at the rural arterial levels as specified in the Land Use & Development Ordinance. Urban level arterial road improvements are not anticipated because of limitations imposed by existing development, topography and road design standards. A 90' right-of-way will allow use of this roadway segment at levels consistent with adjoining roadway, both within and outside the city limits. (Added 11/12/97)

In development of the circulation plans, a number of major collector streets were identified which will serve the function of major collectors but will not carry amounts of traffic sufficient to warrant their development to the ultimate four lane major collector standards. For those streets, a right-of-way width of 74 feet allowing for two moving lanes and a continuous left turn lane would be adequate.

Within Green and Tri City, Green Avenue, Circle Drive, Hebard Avenue, Stella Street, Chandler Avenue, Rolling Hills Road, Landers Lane, Industrial Drive, Austin Road, part of Little Valley Road, part of Carnes Road, Stella, Green Avenue, Green Siding Road, Grant Smith Road (southeast from Highway 42), Chickering Street, Chadwick and Clark Street are designated as minor collector streets. These streets have been fully developed including pavement, curbs and gutters. However, their pavement width is less than that prescribed for minor collector streets. As an alternative to widening these fully developed streets, the County should consider alternative means, such as parking restrictions, to enable them to function in a manner consistent with their minor collector designation

Necessary Local Streets

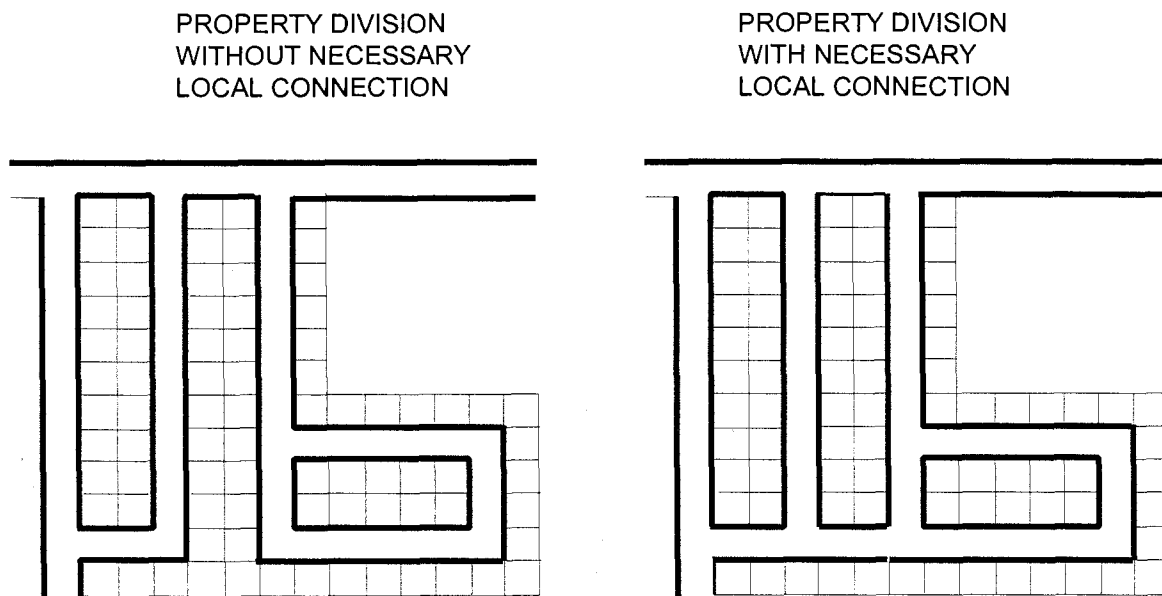
In addition to principal highways, arterials and major and minor collectors, the circulation plans have designated certain streets or street segments as necessary local streets. The purpose of designating necessary local streets is to ensure that street connections are provided in areas where, without such connections and upon development as prescribed by the Comprehensive Plan, inadequate vehicular access would exist. To explain this situation, certain standards regarding property access should be discussed. These standards address desirable lengths for residential cul-de-sac streets.

The County Land Use and Development Ordinance and Comprehensive Plan both discourage long cul-de-sacs. This length is generally defined as greater than 400 feet in urban areas. (Assuming a typical single family subdivision with 6,500 square foot lots, a street of this length could access between 15 and 20 dwellings.) There are a number of reasons for this recommended limit. Dead end or cul-de-sac streets have the potential of resulting in hazardous situations during times of emergency. If, for example, there is an automobile accident or flood that blocks the sole access point or, in a hillside area, the road gives way or is blocked by a landslide, emergency access to or from the area would be impossible. The longer the cul-de-

sac, the more dwellings affected by blockages of these types. Police patrol is less efficient with cul-de-sacs due to the doubling back on the same street just traveled. And, the longer the cul-de-sac, the more liable emergency vehicles are to misdirection.

Given this concern for cul-de-sac length or the maximum number of units being located on a cul-de-sac, necessary local streets have been designated on each of the circulation maps under three sets of circumstances. First they have been included to make existing cul-de-sac streets form looping streets where, without such street connections, there exists the potential for more than 20 dwellings to be constructed on the cul-de-sac streets.

Secondly, necessary local streets have been shown in locations where single properties have the potential for division into 20 or more lots and, due to the property configuration, only one point of access could be provided by the property alone. Under such circumstances, necessary local connections have been mapped across the adjacent property or properties which provide the most logical secondary access to the site. An example of such a property is shown on the following figure.



And thirdly, necessary local streets have been shown in other areas where they provide access to landlocked parcels or where they otherwise provide logical, efficient street connections and circulation.

The development of necessary local streets is not considered to be more important than the development of any other local streets. As indicated, they have been designated in areas where necessary connecting links do not exist and, without their designation, the necessary link would probably not be made. In all areas where necessary local streets are not shown, either all necessary street connections exist or they can be easily made as a condition of individual property division.

Necessary local streets have only been shown in instances where no public street access currently exists. In instances where inadequate public street access exists it is assumed that, as a condition of property division, street improvements will be installed to ensure that necessary connections can be made.

Other Standards

The quantity and location of streets shown on the circulation plan maps are based upon land use designations which have been adopted as part of the County Comprehensive Plan. Traffic volumes were determined for all residentially planned areas according to the densities prescribed. Traffic volumes for

commercially and industrially planned areas were averaged using typical types of development which can be expected in these areas. These traffic volumes are shown generally in Table 15-18. Specific trip generation results may be found in the Institute of Traffic Engineers Trip Generation Manual and the 1995 update.

Amendment to the Comprehensive Plan map designations within any of the urban unincorporated areas could effect the proposed circulation plan for that area. The adequacy or appropriateness of the circulation plan for an area should be considered as part of any proposed plan amendment within it. As appropriate, an amendment to the circulation plan should accompany an adopted land use change.

An effort was made to locate future streets on existing property lines. By so doing, the cost of street dedication and improvement could be borne by two or more property owners rather than just one. Also by locating future streets on property lines, the flexibility of property owners to divide their property as they see fit is affected less than if the streets cut through the middle of their property.

TABLE 15-18. TRAFFIC GENERATION BY LAND USE TYPE.

<u>Land Use</u>	<u>Weekday, One-way Trip Generation</u>	
Single Family Residential	9.7	Trips per dwelling unit
Multi Family Residential	5.9	Trips per dwelling unit
Neighborhood Shopping Center	786.7	Trips per acre
Industrial (various types)	70	Trips per net acre
Schools	1.02	Trips per Elementary student
	1.38	Trips per High School student

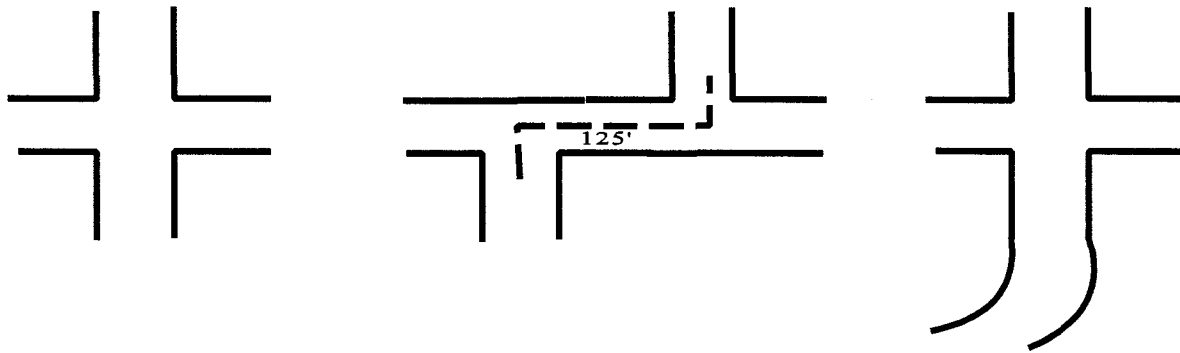
Another factor considered in locating future collector and arterial streets was street grade. Generally speaking, the higher the street classification the lower the acceptable street grade. Arterial streets, for example, should generally be restricted to grades of less than 8%, collector streets to grades less than 10% and local streets less than 22%.

The horizontal alignment of all new intersections created by the circulation plans are proposed to be 90 degrees. Such intersections are safer and more land efficient than acute angle intersections. Acute angle intersections, particularly those of less than 70 or 80 degrees, create sight distance problems for vehicles and result in corner parcels which are uneconomical to develop.

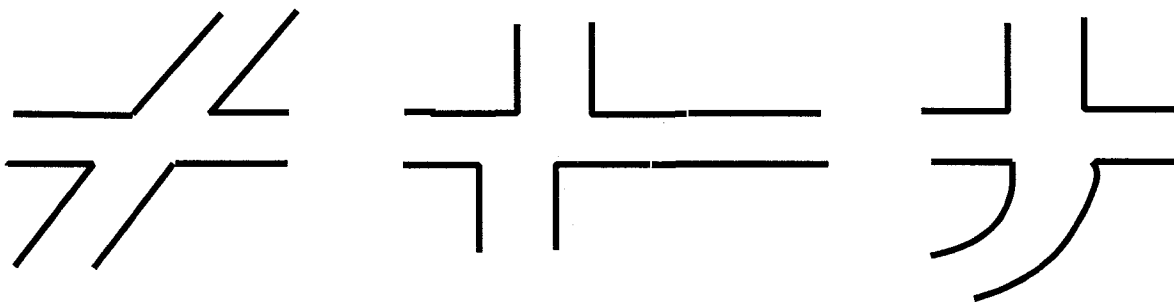
Another concern regarding intersection design is slight jogs or offsets of intersecting streets. Two streets which intersect the same street (at T - intersections) which are offset less than 125 feet from centerline to centerline create hazardous situations for vehicular movement through the intersection. These situations are depicted on the following illustrations.

FIGURE 15-2. INTERSECTION DESIGN.

Desirable



Undesirable



All streets should serve to connect streets of equal or lower classification to streets of equal or higher classification. For example, Local Streets should connect other local streets or cul-de-sacs to local or collector streets. Local streets should not serve as a through connection between collector streets. This connection of lower classification to streets of higher classification ensures the maintenance of proper vehicular circulation and traffic safety.

CIRCULATION PLAN IMPLEMENTATION

It is intended that all future land use actions involving properties affected by this plan be consistent with the plan. Division of private property should occur in such a manner that specific streets designated by this plan may be realized. Public installation or improvement of streets should also be made consistent with their designations and standards for improvement.

Street Locations

The locations of the streets designated by the circulation plans vary from precise to schematic. Those designated streets which are restricted in their location are those which follow existing rights of way or easements or straddle property lines (for reasons discussed previously). Also, those segments of proposed streets which are shown connecting with the ends of, or opposite, existing streets or easements are restricted in their location as they must connect at fixed points.

It is not within the scope of this plan to determine the precise alignments of the streets designated on the circulation plan maps. As a result, it shall be assumed that the ultimate alignment of existing streets which

do not presently conform to their designated standard shall require equal widening from both sides of the street. In locations where it is doubtful that the ultimate alignment of a designated street will follow the existing alignment, specific alignment studies should be conducted.

In locating proposed streets where there is no existing right-of-way and where connections to existing streets is not critical, greater flexibility exists. It is intended that the proposed streets enter the affected properties in the general location shown on the plan maps. The alignment of proposed streets through vacant properties is not significant as long as the route is reasonably direct and is continuous (meaning that the designated route should consist of a single street and meet County alignment standards).

Although the alignment of proposed streets in many cases is not critical, there is a need to ensure that these future routes may be constructed as planned. The need exists to ensure that structures are not unnecessarily located within these future street corridors thereby prohibiting or greatly increasing the cost of construction of these future streets. To accomplish this corridor protection, building or mobile home placement permits should not be issued within an adopted street corridor or setback area unless an acceptable alternative alignment for the future street can be identified.

There are several locations within the plan areas where proposed streets or street extensions may significantly effect a number of small properties and may involve County purchase of needed rights of way. Due to the relatively small parcel sizes at these locations, the schematic depiction of the proposed streets of the Circulation Plan maps creates uncertainty as to the ultimate effect of the street on the parcels. In such areas, the effect of the actual street location on a given parcel could vary. The County should define precise alignments of the future streets to eliminate the uncertainty of future impacts and to identify those areas where acquisition may be necessary.

The circulation plan maps contained in the policy section of this document are of such a scale that, in some locations, it is difficult to determine which properties are affected by the designated streets. Larger scale maps which clearly indicate the location of the designated streets are available at the Planning Department office.

As discussed previously, the streets designated by the circulation plans are intended to provide safe and convenient vehicular access and movement. As such, all of the streets shown have community-wide value or importance. To ensure that these designated streets are available for public use they all should be public streets. Also, these streets should be constructed or improved to meet County standards such that they could be included within the County road maintenance system.

Street Improvement In Connection With Property Division

Many of the street improvements envisioned by the circulation plans are proposed to be made through the property division process. The division of private property and creation of new parcels frequently requires the construction of new streets or extension of existing ones to provide access to the newly created parcels. Also, traffic generated by the uses established on the new parcels often results in a need to upgrade existing streets. Thus, it is the division of property which creates the need for new or improved streets. Generally speaking, if property is not divided and thus no new parcels require street access, no additional traffic is generated. If traffic volumes do not increase, the existing street system in each area will adequately meet its circulation needs. It is the additional traffic generated by development of parcels created through the land division process that creates the need for new streets and improvement of existing streets. As such, it is appropriate that the property division process be a major tool in realizing the improvements proposed by these plans.

The extent to which the dedication and/or improvement of streets designated by these plans is required as a condition of division of property varies according to the legal and physical status of the streets. The street requirement and/or improvements which are a condition of property divisions which are adjacent to County roads or local access roads, as designated by these plans, could include dedication, offer to dedicate or offer to sell one-half of the additional right of way width needed for the adjacent designated route

to reach ultimate width. Exceptions to this may be necessary in instances where the future alignment would not follow the existing alignment precisely. Also required is improvement of the right of way to local street standards for a full or half street (as circumstances warrant) for the length of the street necessary to serve the lots or parcels being created. Under certain circumstances an agreement to participate in a future local improvement district may be allowed in lieu of street improvements at the time of property division. Specifically, this means that the division of a property adjacent to a street designated by this plan must adhere to two conditions: 1) if the width of the right of way of the subject street (which has been designated by one of the plan maps) is not as wide as specified by the Land Use and Development Ordinance, then one-half of the additional right of way width needed for conformity to the plan shall be dedicated, offered for dedication or offered for sale along the frontage of the property to be divided unless the specific street alignment would dictate an alternate dedication, offer to dedicate or offer to sell; and 2) if the construction of the subject street (street width, surfacing material, thickness of material, etc.) is not as specified by the Land Use and Development Ordinance for its classification (local, minor collector, arterial, etc.) then the property divider shall improve the portion of the street needed for property access to the standard specified in the Land Use and Development Ordinance or agree to participate in a local improvement district should one be formed in the future, to improve the street.

The acquisition of additional street right of way mentioned above and setback requirements will ensure that development does not occur in areas which will be needed for street improvements in the future. Acquisition of only one half of the required additional right of way assumes that street widening will occur equally on both sides of the street. This is generally considered to be the most equitable arrangement when street widening is necessary.

The requirement for street improvements is based on the premise that all public streets in the plan areas should meet the County standards and that the property divider should be responsible for improvement of the street adjacent to his property. The standard to which a property divider is responsible for street improvements is dependent on the classification of the street. If the street is classified as a local or minor collector street, it is intended that the cost of street improvements be borne by the adjacent property dividers. If the subject street is designated as a major collector street or as a street of a higher classification, it clearly serves a community or County interest. In recognition of this County interest, it is intended that the difference between the cost of improving the subject street to the local or minor collector street standard and the standard for its designation (major collector, arterial, etc.) be borne by the County. Thus, if a local improvement district is formed to improve a street, adjacent property owners would be responsible for the cost of improving the street to local or minor collector standards and the County would be responsible for the additional costs to improve the street to the designated higher standard.

There are circumstances under which the installation of street improvements at the time of property division may be deferred. These circumstances include situations where the division is adjacent to a public street, a local access road or a County road and would involve only a land partitioning (not involving a public street) providing that the division would not extend an existing public street which meets appropriate County standards. Conversely, the creation of subdivisions or land partitionings (involving public streets) adjacent to such rights of way should include improvement of the right of way (for a full or half street, as circumstances warrant) to County standards at the time of division. Also, any division involving street improvements which would result in extension (for either a full or half street) of a street which meets County road standards, whether it be County maintained or not, should include the installation of these improvements at the time of property division.

The street dedication and improvement requirements for the division of properties which are adjacent to easements, undeveloped rights of way and routes where access has not been established (as designated by this plan) include dedication, offering to dedicate or offering to sell of the necessary rights of way and improvement of the streets to local or minor collector street standards. These requirements are the same as detailed previously for County roads and local access roads regarding dedication, offer to dedicate or offer to sell right-of-way. The requirements for improvement are also the same except as they pertain to the timing of improvements. As with County and local access roads, a property divider would be responsible for improvement of the street only to local or, as applicable, minor collector street standards with County

responsibility for improvement costs in excess of those standards. Under most circumstances, however, the improvement of designated easements, undeveloped rights of way and routes where access does not exist would be required at the time of property division. Deferred improvement would not generally be possible as these streets will, most often, be needed for access to the parcels being created. Instances may arise, however, in which proposed property divisions could not use streets designated by any one of the plans due to physical characteristics of the property or due to a "missing link" in the designated route. Under circumstances where the designated street could not be incorporated into development design and provide access to the lots or parcels created, only an irrevocable offer to sell the designated street right of way should be a requirement of the division. Improvement of the designated route should be the responsibility of the County. Under circumstances where the designated street could not be used due to "missing links" in the street's development, both an irrevocable offer to sell the designated street right of way and an agreement to participate in any local improvement district formed to improve the designated street would be a requirement of the division.

In Glide, emergency vehicle access to the Bar L Ranch Subdivision has been proposed. This access is discussed in the Circulation findings specific to Glide. Although not proposed as a local street for public use, this emergency vehicle access should be established as an easement and improved for all weather use as a condition of division of the property through which it would pass.

Street Improvement Without Property Division

The dedication and acquisition of right-of-way and improvement of streets as conditions of property division are commonly used and effective tools for the development of circulation systems. However, it should be recognized that the use of these tools will not realize all of the improvement included within the circulation plans.

There are certain existing County and local access roads designated by the plans which will be difficult to improve through property division or the use of local improvement districts. Property adjacent to these streets has, generally, been divided to the maximum density permitted by the Comprehensive Plan. Without further division, there is no mechanism available to the County to ensure participation of adjacent property owners in future local improvement districts to improve these streets. Examples of such streets are Austin Road in Green, Walnut Street in Tri City and Pike Street in Glide. Responsibility for the improvement of these and other similar streets to the standards indicated by this circulation plan will likely fall under the County's responsibility.

In addition to the type of street mentioned above, there are a number of specific street improvements envisioned by these plans which cannot be accomplished by normal street dedication and improvement. These improvements, which are identified below, will require County and State participation.

In Glide, there are two designated routes which may involve the County in their implementation. The minor collector between Glide Loop Road and the North Umpqua Highway is located on school district property and thus under jurisdiction of that agency. Discussions with district officials indicate that future dedication of that gravel road for public use may be possible. However, the responsibility for improvement of that road to minor collector standards has not been determined. The other route which may involve County participation is the minor collector connection between the North Umpqua Highway and Upper Terrace Drive. The southernmost section of this route would cross a property which may have no practical use for it. As a result, County improvement of this section of the route may be necessary.

In Green, there are two bridge crossings which should include County participation. The minor collector street crossing of Roberts Creek and its connection to Carnes Road will benefit the entire Little Valley area. However, this connection will likely be expensive due to the construction costs of the bridge and potential condemnation of the property between the bridge and Carnes Road. The cost and area wide benefit of this improvement will probably require County involvement. The other bridge crossing in Green involves the Austin Road crossing of the Southern Pacific rail lines. As with the Roberts Creek crossing, this bridge offers community-wide benefit and its construction could not reasonably be made a condition of property division.

Other street improvements in Green envisioned by the Plan which will likely involve public participation include segments of the extension of Rolling Hills Road between Austin Road and Happy Valley Road, and construction of the minor collector connection between Highway 42 and Grange Road. Portions of the segment of Rolling Hills Road between Austin and Happy Valley Roads also may not benefit adjacent properties either on one or both sides of this minor collector. Such portions may require County participation in their construction.

In Tri City, six improvements are of such a nature that they appear to require County and/or State participation. Three of these involve the foothill collector street which roughly parallels Old Pacific Highway. Completion of this route could require condemnation of one of the homes in the Woodcrest subdivision and property between it and Aker Drive. A culvert crossing of a creek between Indian Lane and Aker Drive will also be required. Also involving this collector is the probable need for the acquisition of right of way for the extension of Valley Drive in the vicinity of Gale Lane. As several parcels through which this street would pass have limited potential for division, right-of-way acquisition as a condition of property division is unlikely.

Another improvement in Tri City which may involve County participation is the connection of Taylor Street with Old Pacific Highway. Presently there is a grade differential at this intersection which will require the lowering of Taylor Street to connect with the Highway. The fifth Tri City improvement consists of the connection between Old Pacific Highway and I-5 at the Weaver Road interchange. This route would benefit much of the Tri City and Myrtle Creek areas by reducing the traffic volumes on Old Pacific Highway. This route involves a major bridge crossing of the South Umpqua River. Due to the expense involved, this connection would likely require the financial participation of various levels of government. The sixth improvement involves the construction of a continuous left turn lane on Old Pacific Highway. (Revised 11/12/86)

GARDINER FINDINGS

TRANSPORTATION

Traffic Circulation

35. All roads in Gardiner, with the exception of Highway 101, are defined as local streets.
36. A study by the County Public Works Department determined that the number of street right-of-ways in Gardiner and their present widths are adequate to accommodate both the existing and projected traffic volumes through the planning period.
37. According to the Traffic Division of the Oregon Department of Transportation, the alignment, grade, width and striping of U.S. 101 through Gardiner is quite good, allowing for safe access into and out of Gardiner via seven side streets.

Roadway Conditions

38. Existing roads in Gardiner total 1.25 miles in length of which approximately one-half are paved and County maintained, one-third are paved but not County maintained, and the remaining one-sixth are gravel surfaced.
39. Those roads which are County maintained are, generally, in good condition with smooth wearing surfaces. Paved streets which are not County maintained vary in condition from good to poor.
40. There exists approximately one mile of undeveloped street right-of-way in Gardiner. These undeveloped streets are predominantly located in areas of steep slopes where no property development has occurred.
41. With increased pressure for development, aggregation and replatting of the existing parcels in this area will be necessary. As part of this replatting, the County should cooperate through vacation, trade or sale and viable right-of-ways should be obtained to facilitate efficient land utilization in this area.
42. As additional development occurs in areas served by existing streets (gravel or paved) which do not meet minimum County standards for maintenance, these right-of-ways should be upgraded so that they may be County maintained. Adherence to County maintenance standards will ensure the ability of these streets to accommodate the anticipated traffic volumes and facilitate emergency vehicle access to all developed areas of Gardiner.

GLIDE FINDINGS

TRANSPORTATION

Roadway System

64. The main highway in the North Umpqua region is Highway 138. It is the major arterial for east-west traffic.

Road Conditions

65. The central Glide area does not have an efficient transportation network. Most of the streets do not meet County standards and are often impassable to normal traffic during winter conditions.

Traffic Circulation

66. In the past, large-lot partitionings in designated residential areas legally avoided road dedication and surfacing standards. This became a problem as pressure for small-lot development increased.
67. A circulation plan with adequate through access provisions should be considered for all designated residential areas.

Bicycle and Pedestrian Transportation

68. Within the urban service area there is an improved bikeway facility. That facility (about 1/2 mile in length) is in the central Glide area adjacent to Highway 138 and is used primarily for bicycling and walking. Additional bikeway facilities, paralleling Highway 138, are needed.

GLIDE CIRCULATION PLAN

69. Outside of the core area there are four existing roads which are to be included as part of the overall circulation system for the Glide Urban Unincorporated Area (UUA). These four streets include the following:
- * North Umpqua Highway - This route is a Principal Highway for its full length within the UUA.
 - * Wild River Drive - This route is a minor collector for its full length within the UUA.
 - * North Bank Road - This route is a major collector for its full length within the UUA.
 - * Lone Rock Road - This route is a minor collector for its full length within the UUA.
70. There are no new streets outside of the core area which are proposed for incorporation into this plan.
71. Little River Road and Glide Loop Road are recognized as major and minor collector streets, respectively, by this plan.
72. The existing street which connects Glide Loop Road to the North Umpqua Highway across the Glide Elementary School property has been designated as a minor collector street. Although open to public use, this street is under school district ownership and its use could be restricted by action of that agency. The intent of the minor collector designation is to promote the dedication of this street to ensure its future availability for public use. This street provides relatively direct, convenient access between the elementary school and future high school site and the residential area south of the North Umpqua Highway. The dedication of this street for public use opens the possibility of its use by industrial traffic from the mill which is located adjacent to and east of it. This could, in turn, reduce or eliminate the amount of industrial traffic on the Loop Road west of the minor collector -a situation which has been characterized as hazardous by the school board and residents of the area.
73. A minor collector street is proposed to connect the Terrace Drive/Upper Terrace Drive intersection to the North Umpqua Highway through the 73+/- acre property west of the Bar L Ranch Subdivision.

This street is intended to serve as a primary access to the 73 acre property through which it passes and to provide a second means of access to the Upper Terrace Drive and southern Terrace Drive areas. Without this connection, Terrace Drive would be the only means of access to an area with the potential for development of up to 40 homes.

74. The necessary local streets designated are intended to provide a second point of access and looping circulation through areas which have the potential for substantial development (20 or more homes) and which presently have only a single point of access.
75. There are two areas within the Glide UUA which have a single access, cannot reasonably be provided with a second point of access and which have the potential for the construction of 20 or more homes. These areas include Lone Rock Road and Bar L Ranch Road.
76. Improvement of the existing "cat" road between Overlook Road and the proposed necessary local street to the north of it or development of an alternate connection between Bar L Ranch Road and Terrace Drive to allow one-way emergency vehicle access in all weather is proposed to ensure that, in the event of a blockage of Bar L Ranch Road north of Overlook Road, an alternate means of access would be available to all properties south of the blockage.
77. The necessary local street which connects the North Umpqua Highway with Catherine Street passes through an area south of and adjacent to the Highway which has been identified by the Comprehensive Plan as consisting of unstable soils (see the Glide Circulation Plan Map). Discussions with the County Engineer's office indicates that construction of a street through this unstable area following the alignment of the existing "cat" road is an acceptable solution for circulation through the area.
78. A number of the platted streets in the core area of Glide, including Pike, Park, Abbott and West Estell a have rights of way that are 50 feet wide. As properties on both sides of these streets have been divided to the maximum density permitted by the Comprehensive Plan and no further property division is possible, the only means of acquiring the additional right of way needed to meet County standards would be through voluntary dedication or condemnation by the County.
79. Due to the suburban and rural densities planned for Glide, the required installation of urban streets as a condition of property division may have the effect of discouraging property division. As a means of facilitating realization of the Comprehensive Plan for this area, the County should consider relaxation of street improvement standards within the Glide UUA. Utilization of the County's rural public roadway standards would seem appropriate in that unique setting. For major and minor - collector streets, 42 and 34 foot roadbeds should, respectively, be used. For local streets, 28 foot roadbeds and 56 foot rights of way should be considered adequate.
80. Outside of the Glide core area, much of the Idleld Park area was divided into one and five acre parcels by the North Umpqua Homes subdivision. This 80+ acre subdivision included the dedication of public rights of way to access all of the lots created. Although divided, most of this subdivision remains under a single ownership. Access to the few lots which have been developed in the subdivision does not follow the dedicated rights of way but rather traverses a number of lots in it. And most, if not all, of the one acre lots in the subdivision may be partitioned as they are located in an area planned for half acre density. The County should coordinate with property owners in this area in an effort to realign existing rights of way and develop a circulation plan which is consistent with the Comprehensive Plan designation in the area and provides logical and safe access to properties in the area.

GREEN FINDINGS

TRANSPORTATION

Road Conditions

57. Currently, there is no specific rating system for road conditions of the roads maintained by Douglas County. Such a rating system is necessary to determine and prioritize road maintenance and improvement needs.
58. The major road improvements within the Green UUA are primarily centered around the need to widen and pave many of the local streets west of I-5 and Highway 42. (Revised 7/22/97)

Alternate Transportation

59. Current public transportation available to the Green area consists of taxi.
60. Pedestrian movement is hazardous as no protected sidewalks or walkways exist in the area. This problem is especially apparent in the areas around Green and Sunnyslope schools where there are high concentrations of children.
61. Currently, only one bikeway exists in the area. This is located along Oregon State Highway 42 and runs to Winston. Bicycles must use existing streets and highways for transportation anywhere else in the area. Bicycle movement between Green and Roseburg is extremely restricted because of the narrow, constricted corridor of Oregon State Highway 99 north of Shady Point and because of the danger of traveling on Interstate 5.

GREEN CIRCULATION PLAN

62. The circulation plan for Green recognizes the roles which the major streets through the area presently play: I-5 and Highway 42 as principal highways; Highway 99 as an arterial; part of Carnes Road, Roberts Creek Road, and Happy Valley Road as major collectors; and, Austin Road, part of Little Valley Road, part of Carnes Road, Stella, Green Avenue, Green Siding Road, Landers Lane, Rolling Hills Road, Industrial Drive, and Grant Smith Road (southeast from Highway 42), as minor collectors. All other developed streets within the UUA are classed as local streets. (Revised 7/22/97)
63. The Oregon Department of Transportation has relocated the intersection of Carnes Road and Highway 99. The new point of intersection is approximately midway between I-5 and Highway 42 on Highway 99. The County participated in this project by constructing a connection from Austin Road to the new roadway, thus greatly improving east-west traffic circulation. Following the completion of this project : 1) Carnes Road was closed at the Central Oregon Pacific railroad tracks; 2) the functional downgrading to a local street was completed for Carnes Road northeasterly from its intersection with the new southeasterly roadway; 3) the functional downgrading to a minor collector was completed for Austin Road west of Carnes (as Austin will ultimately become a secondary connection to Highway 99); and 4) Happy Valley Road was extended to the east as a major collector. The Happy Valley Road extension followed a small intermittent drainage way (that flows east to west into Roberts Creek) and connected at a new lighted intersection on Hwy. 99. (Revised 7/22/97)
64. Although Happy Valley Road (from the UUA east to Carnes Road), Roberts Creek Road, and part of Carnes Road (between Linnell and Happy Valley Road) will serve as major collector streets, it is not anticipated that traffic volumes along these routes will result in the need for four moving traffic lanes. As such, these streets should be developed to the lesser standard for major collector streets utilizing a 74 foot right-of-way. The 84 foot major collector standard should be applied to Carnes Road (between Highway 42 and Linnell) and to the extension of Happy Valley Road (from Carnes Road east to Highway 99). (Revised 7-22-97)

65. When fully developed, the vacant industrial property between Carnes Road and the Central Oregon Pacific Railroad lines could generate approximately 3,000 additional vehicle trips per day. One minor collector street is proposed to connect this area with Carnes Road: to the north of Happy Valley Road following an existing 40 foot right-of-way. The extension of Industrial Drive to connect with Linnell Street is completed. These minor collectors will provide access to the undeveloped properties in the industrial area, a looping circulation system through it and provide for truck access to the area which bypasses most of the residentially planned area on Carnes Road.
66. Up to 600 dwellings could be constructed in the Little Valley area, north of Happy Valley Road and west of Roberts Creek. At the present time the only access to this area is Little Valley Road via Happy Valley Road, a minor collector street. An alternate point of access is proposed due to the volume of traffic that will be generated by development of this area and as a solution to the potential blockage of access from Happy Valley Road during periods of flooding of a 100 year intensity. This alternate access is proposed to be a minor collector connecting Little Valley Road to Carnes Road opposite the proposed access to the industrial area east of Carnes. This minor collector will require a bridge crossing of Roberts Creek. It is likely that construction of this bridge and its connection to Carnes Road will require County participation due to the impact this street would have on the property through which it passes.
67. The existing streets which are designated as minor collector streets in the area south of Happy Valley Road, west of Carnes Road and north of Highway 42 include Stella Street, Landers Lane, Rolling Hills Road, Austin Road and Green Avenue.
68. Future collector streets in the area south of Happy Valley Road, west of Carnes Road and north of Highway 42 include Rolling Hills Road, and the northerly extension of Stella to Rolling Hills Road. It is intended that Rolling Hills Road be the primary collector of north and southbound traffic generated by development of the area through which it passes. It is not anticipated that a significant amount of traffic generated outside of the Rolling Hills corridor will use this street. The segment of Rolling Hills Road between Austin and Happy Valley Roads will improve circulation between these two streets and should reduce the amount of additional traffic on Austin Road generated by development of the western portion of the Green area. (Revised 5/29/96)

It is possible that with development of the western portion of the Green area that Rolling Hills Road may carry more traffic than Happy Valley Road. This possibility should be further studied and, if appropriate, the intersection of those two streets realigned (as a County project) to facilitate uninterrupted traffic movement onto and off of Rolling Hills Road.

A future street that runs east and west between Stella (near its intersection with Hebard Avenue) and Rolling Hills Road has been designated as a necessary local street. A local street midway between Austin and the Chandler/Melody extension would achieve the overall purpose of the Green Circulation Plan. This necessary local street takes advantage of an existing right-of-way and also provides a logical and efficient street connection between Rolling Hills Road and Stella Street.

69. The minor collector was planned for the area south of Highway 42 and west of Roberts Creek Road will provide access and connecting links through this hilly area. A planned development, the Highlands at Vista Ridge received approval for an amendment to the circulation plan removing the minor collectors in this area.

Landers Lane will focus turning movements onto and off of the Highway at a central location thereby promoting traffic safety. As part of the development of the new access point, the existing northeasterly intersection of Grange Road and Highway 42 will be closed. This existing access point is very close to the intersection of Highway 42 and Roberts Creek Road. Increased use of this existing access point in the future due to development of the hill area south of Highway 42 could create a hazardous situation.

70. The necessary local streets planned throughout the Green area are intended to provide for a looping circulation system, ensure that no properties or areas will develop with more than 20 dwellings off of a single access, and to provide for other logical street connections.
71. The Green Urban Growth Boundary is suitable for expansion eastward from I-5 to accommodate new commercial or industrial uses. Current access to the area is by way of Speedway Road to the north and Grant Smith Road to the South. Speedway Road would be much less desirable as commercial or industrial access due to its poor freeway access and a limited capacity underpass. Primary site access for commercial and industrial development east of I-5 should be by way of Grant Smith Road. With the completion of a new north south street, Ingram Drive, provides access to a new industrial area north of Grant Smith Road on the eastern side of I-5. The northern section to Speedway Road is completed, creating a new east west loop. This improvement addressed the height restrictions at the underpass for Speedway Road. (Revised 7-22-97)
72. Commercial or industrial developments east of I-5 could have significant impact on the transportation network serving the Green Area. The urban minor collector road classification is the minimum road standard which will ensure that Grant Smith Road within the Urban Unincorporated Area will be developed to a width and specification sufficient to handle commercial and industrial uses and accessory vehicles on the road and as additional development occurs east of I-5. (Revised 7/22/97)

TRI CITY FINDINGS

TRANSPORTATION

39. The transportation system in the Urban Area consists of arterial, collector and local streets and private roads with Old Pacific Highway serving as the major north-south spine for the area. The number of accesses to this arterial has been identified as creating a major traffic problem in the area.
40. Roadway conditions within the Urban Area vary from extremely rutted, narrow gravel lanes to paved and curbed streets. The unpaved roads, located throughout the area, seriously impair traffic circulation and create conflicts between residents living on these roads and through traffic.
41. The lack of an overall circulation plan for the area has resulted in a street system which does not move traffic efficiently and has resulted in certain streets serving as collectors which were not designed for such traffic loading.
42. Transportation issues have been addressed with policies restricting future accesses to Old Pacific Highway, encouraging development of an arterial connecting Old Pacific Highway and the Weaver Road interchange and placing restrictions on partitioning and subdividing in areas where street improvements are needed. Also, a schematic collector street plan has been proposed which provides a north-south collector parallel to Old Pacific Highway in the foothills and will aid in future street locations.

TRI CITY CIRCULATION PLAN

43. The circulation plan for Tri City recognizes the effect that the configuration of this area has on its traffic pattern. The two major north-south carriers through the area are I-5 and Old Pacific Highway. I-5 has been designated as a principal highway. Old Pacific Highway has been designated as an arterial street from Wecks Road north to Myrtle Creek, and a major collector south from Wecks Road to Pruner Road. Most of the existing streets which intersect Old Pacific Highway have been designated as minor collector streets. (Revised 11/12/86)
44. No undeveloped future streets are proposed to be designated as major collectors. This is due primarily to the proximity of Old Pacific Highway to all areas within the UGB. (Revised 11/12/86)
45. A minor collector is proposed through the foothills of Tri City. This route which would generally parallel Old Pacific Highway would collect traffic from east of it and funnel that traffic onto other minor collectors which intersect Old Pacific Highway. Also, it would provide an alternate access to a number of areas in Tri City which have significant development potential and, without such a connection, would have only a single point of access. This is particularly important for those areas which may be effected by flooding.
46. As a means of reducing traffic volumes on Old Pacific Highway, a connection is proposed between Old Pacific Highway and I-5 at the Weaver Road interchange. This arterial connection is proposed to intersect Old Pacific Highway opposite Wecks Road. (Revised 11/12/86)
47. All but two of the necessary local streets included in this Plan are intended to ensure a second point of access to areas with the potential for development of 20 or more homes. One of the exceptions to this is the local street shown extending north from Gale Lane to provide access to the rear portion of a commercially developed property which fronts on Old Pacific Highway. The other exception is located south of and parallel to Wecks Road. This street is intended to provide access to the rear portions of the contiguous deep parcels which front on Old Pacific Highway and Wecks Road.

48. Past parcelization in Tri City has resulted in the creation of many parcels with direct access onto Old Pacific Highway. This access, in turn, has resulted in a high incidence of rear end accidents resulting from left turn movements onto and off that street. While there is no practical way to restrict the access which has been previously granted, the number of additional access points to the Highway should be limited.
49. The other means proposed to addressing the hazardous situation which exists along Old Pacific Highway is to encourage the installation of a continuous left turn lane along that street. (Revised 11/12/86)
50. Pruner Road has been designated as a major collector street for its entire length, both inside and outside of the Tri City urban area. Within the UGB, the County anticipates this street to ultimately be developed to two travel lanes with a continuous left turn lane and curbs and gutters. Given the amount of traffic this street will carry, the urbanizing nature of Tri City, and anticipated commercial and industrial development on Pruner Road west of I-5, this standard is considered appropriate for that portion of Pruner Road which is within the UGB. The remainder of Pruner Road west of the UGB is within a rural area and, as such, would develop to rural standards. Rural major collector standards allow for two travel lanes and do not require curbs and gutters. (Revised 7/21/93)
51. The Briggs Acres and First through Fourth Additions to Briggs Acres subdivisions were platted with 50 foot wide right-of-ways. Many of the lots within these subdivisions have been developed in such a manner as to preclude their redivision. As a result, it is unlikely that much of the additional right-of-way necessary for these streets to meet County standards (56 feet for local streets) will be obtained through the property division process. However, it is possible to develop a street meeting all local street standards within a 50 foot right-of-way. To remove one impediment to their improvement, the County should accept local streets within these subdivisions into the County street maintenance system at their current right-of-way width assuming all other standards are met. The streets to which this would apply include Seely, Laura, Cornutt, Adams, Conrad, and a portion of Cook Street.
52. The Myrtle Creek Area Transportation Study has identified two concerns regarding the I-5 corridor and impacting Tri-City area. The Chadwick Road Overpass is too low for some trucks to go under, causing the use of downtown Myrtle Creek as a bypass. The study recommended raising the bridge and adding a traffic signal at Chadwick Lane/Myrtle Creek Highway. Riddle Interchange Overpass (Exit 103) is too low for some trucks to go under and is not designed as a typical diamond interchange. The study recommends ramp/intersection improvements to either raise bridge or provide an alternative routing via re-designed on/off ramps.

WINCHESTER BAY FINDINGS

TRANSPORTATION

Circulation

93. The existing circulation system in Winchester Bay utilizes the majority of public rights-of-way, although a few rights-of-way are unopened. Most roads and streets on the west side of Highway 101 are paved. Those on the east side of the highway are dirt and gravel.
94. State Highway 101 bisects Winchester Bay. Highway 101 is classified as a principal highway because of its function and traffic volume. Salmon Harbor Drive is classified as a major collector and connects with the highway along 9th Street. Beach Boulevard and 8th Street function as collectors and should be classified as minor collectors. Other developed County roads in Winchester Bay function as local roads and streets.
95. Traffic hazards exist at the oblique intersections of several streets with Highway 101 within a relatively short distance along the highway. Opportunities exist for improvement of highway access points with safer approaches and more attractive and functional connections into Winchester Bay. The intersections of Salmon Harbor Drive (9th Street) and 8th Street with the highway are the primary connections. Both of these intersections have redevelopment potential. Opportunities exist for alignment of highway access points on the east side of the highway with the Salmon Harbor Drive and 8th Street connections.
96. Scattered highway approaches for individual developments along Highway 101 east of the platted areas add to highway traffic hazards.
97. Potential for development of on-street parking exists on many of the streets. Broadway and 8th Streets have 80 foot wide rights-of-way, which will allow angle parking on both sides together with sidewalks, bike lanes and planting strips. A number of streets have 60 foot wide rights-of-way which will allow parallel parking on both sides along with sidewalks and other amenities.
98. The platted area from 5th Street north has some traffic congestion problems during the tourist season and offers little potential for on-street parking. Traffic in this area occurs largely in conjunction with the northeast harbor spit development, where congestion and circulation problems are also present.
99. Salmon Harbor's east basin development includes large areas of public parking. A parking deficiency exists in this area during the peak tourist season. This deficit has been estimated at 65 spaces. Potentially, redesign of parking areas and travel lanes in this area may alleviate some of the parking shortage.

Roadway Conditions

100. All roads in Winchester Bay are under public ownership.
101. With the exception of 4th and 5th streets, Sunset Drive, Pacific Heights Drive and a portion of Beach Boulevard, all paved streets are County Maintained.
102. Roads east of Highway 101 have gravel surfaces and vary in conditions from fair to poor.

Bicycle and Pedestrian Transportation

103. The recreational nature and small size of Winchester Bay is conducive to pedestrian and bicycle transportation.
104. A bicycle lane exists along Highway 101 to accommodate the recreational bicyclists along the Oregon coast.

LAND USE POLICIES

POLICIES COMMON TO ALL URBAN UNINCORPORATED AREAS

TRANSPORTATION

GOAL: To provide for and encourage a safe, convenient and economical transportation system throughout urban unincorporated areas.

POLICIES:

1. Consideration of the street design and area circulation shall be a part of the approval process for any partitioning or subdividing and appropriate conditions shall be applied as part of such an approval process.
2. Initiate a program for the paving of all unpaved streets in developed portions of urban unincorporated areas.
3. Conduct detailed studies of the circulation patterns within all urban unincorporated areas and adopt overall street plans including provisions for automobile, pedestrian and bicycle travel.
4. All future subdividing and partitioning in urban unincorporated areas shall include the installation of all necessary street improvements to meet County public street standards such that they may be incorporated into the County street maintenance program, thereby ensuring their adequacy for public and emergency vehicle access. Variance may be considered only in instances where it can be demonstrated that a proposed subdivision or partition could not be further partitioned or subdivided and where no adjacent properties would require access through the subject subdivision or partition.
5. Assist, as possible, in the establishment of local improvement districts for the installation of street improvements in urban unincorporated areas.
6. All arterial and collector street extensions into developing areas should be designed so as to be compatible with existing street networks and officially adopted circulation plans for the area.
7. Assess the need for undeveloped street rights-of-way in all urban unincorporated areas and consider disposition, through vacation or sale, of unneeded land to facilitate efficient land utilization in these areas.

CIRCULATION PLANNING

INTENT:

The Objectives and Policies listed below are intended to formalize the County's position regarding the circulation plans for the Glide, Green, and Tri City areas; provide guidance to ensure their proper implementation; and, to establish general standards for street development in all urban unincorporated areas. These objectives and policies should be used as a supplement to the existing policy direction and regulation contained within other sections of the Comprehensive Plan and Land Use and Development Ordinance regarding vehicular circulation through urban unincorporated areas.

GOAL: To provide for safe, convenient and efficient vehicular circulation through the urban unincorporated areas of the County.

OBJECTIVE E: To establish overall circulation patterns for the Glide, Green, and Tri City areas and promote the proper flow of traffic through all urban unincorporated areas.

POLICIES:

1. The division of all properties which are contiguous to streets designated by this plan shall incorporate within the development design, street alignments consistent with the objectives of this plan and property access utilizing those alignments.
2. In recognition of their community-wide significance, all streets designated by the plan maps shall be public streets and be constructed or improved to meet the County standards such that they will be incorporated into the County road maintenance system.
3. Direct property access onto principal highways and arterial streets shall be restricted.
4. Direct property access onto major collectors shall be discouraged.
5. The County shall investigate means whereby direct property access onto minor and major collector streets may be limited.
6. Looping local streets shall be encouraged.
7. The creation of cul-de-sac streets with the potential to serve 20 or more properties shall be discouraged.
8. "Through" traffic should be discouraged from using local streets.
9. All streets in the plan areas should serve to connect streets of equal or lower classification to streets of equal or higher classification.

OBJECTIVE F: To establish the necessary mechanisms to ensure proper implementation of the circulation plans for the urban unincorporated areas of the County.

POLICIES:

1. The evaluation of all proposed plan amendments within urban unincorporated areas should include an assessment of the effect of the amendments on circulation in and through the areas.
2. As a condition of approval of the division of properties adjacent to rights-of-way within the plan areas including public roads, local access roads or County roads, the property divider shall: (1) dedicate, irrevocably offer to dedicate or irrevocably offer to sell one-half of the additional right-of-way width needed for the adjacent designated route to reach its ultimate width (exceptions to this requirement may be necessary in instances where the planned future alignment would not follow the existing alignment precisely); and (2) improve the right-of-way to local or minor collector street standards, as appropriate, for a full or half street (as circumstances warrant) for the length of the street necessary to serve the lots or parcels being created. (Revised 11/29/95)
3. As a condition of approval of the division of property adjacent to or through which one or more of the streets designated by this plan, which is not dedicated or improved would pass, the property divider shall: (1) dedicate, irrevocably offer to dedicate or irrevocably offer to sell the rights-of-way necessary to develop the designated streets for their full length adjacent to or through the property to be divided; and (2) improve the rights-of-way to local or minor collector street standards, as appropriate, for the length of any street necessary to serve the lots or parcels being created. (Revised 11/29/95)
4. Any lot or parcel which is encumbered by an irrevocable offer to sell shall convert that offer to sell in to an irrevocable offer to dedicate as a condition of approval of a land division that has the net effect of subdividing the original parent parcel. (Added 11/29/95)
5. No building or mobile home placement permit shall be issued which would result in the location of a structure within the alignment right-of-way or required setback area of any street designated by the Plan. Exception to this provision may be granted if the permit applicant proposes an alternative alignment for the subject street which: a) has been prepared by a licensed engineer; b) which is found to meet County design standards and objectives of the circulation plan by the County Engineer and Planning Director; and c) does not increase the impact of the street alignment on any adjacent properties. The variance provisions of the Land Use and Development Ordinance may also be applicable to the issuance of permits under appropriate circumstances.

6. In instances where the improvement of streets within the plan areas is not practical at the time of property division, deed restrictions and other appropriate documents shall be recorded for all lots or parcels within the division committing the owners of those properties to participate in any local improvement district which may be formed to improve the streets adjacent to the division. Circumstances under which street improvements are not practical at the time of division include: partitionings (not involving a public street) providing such divisions would not extend an existing public street which now meets appropriate County standards. In all cases, either right-of-way dedication, offer to dedicate or offer to sell would be required. (Revised 11/29/95)
7. The cost of installation of street improvements to a standard higher than that for minor collector streets shall be borne by the County.
8. The County shall encourage and participate in the formation of local improvement districts as a means to improve the streets designated by this plan.
9. In instances where acquisition of rights-of-way through undeveloped property does not seem likely through the property division process the County should seek to protect these rights-of-way prior to property development as a means of minimizing the cost of plan implementation. (Revised 11/29/95)
10. Where local roads serve the function of higher classifications (i.e. collectors) the County may, as an interim measure and prior to upgrading, limit On street parking to ensure safe, efficient, and convenient circulation.
11. In areas where the specific location of streets proposed by this plan may significantly impact the properties through which they would pass, the County should determine precise alignments. Such determinations will help to define the extent of such impacts and, in cases where street dedication could not occur as part of the property division process, the need for County acquisition.
12. In recognition of the possibility that unique situations may exist which would warrant exception to the standards contained in the policies under Objective F, it is intended that the variance provisions of the Land Use and Development Ordinance apply to these policies.
13. The County shall adopt a modified standard for major collector streets in urban areas which allows for a 74 foot right-of-way, two travel lanes and a left turn lane in locations as specified by this plan.
14. The requirement for dedication of right-of-way must relate to the nature and extent of the impact of the proposed development and must be proportional to the impacts of the proposed development considering average daily traffic (ADT) in relation to planned densities, neighborhood circulation and the safe movement of people and traffic in urban areas. (Revised 11/29/95)

15. An irrevocable offer to sell right-of-way shall state the consideration to be paid by Douglas County for purchase of the right-of-way. The consideration shall be based on the market value, of that portion of the land to be purchased, as indicated by the tax assessment records for the year in which the preliminary land division was approved. Douglas County shall have the right at any time in perpetuity from the date the irrevocable offer to sell is made to accept the offer for the consideration identified in the offer to sell. Acceptance of the offer to sell shall not bind Douglas County to purchase the right-of-way. (Added 11/29/95)

GLIDE POLICIES

TRANSPORTATION

POLICIES:

1. New access points to Highway 138 shall provide for safe and orderly traffic movement.
2. Encourage the linking of roads to provide adequate "through" street access within the Glide Urban Unincorporated Area.

RECOMMENDATION:

1. The speed limit on Highway 138 should be monitored between the Lone Rock and Little River bridges to provide safe commercial and residential access in Glide.

GLIDE CIRCULATION PLAN

OBJECTIVE: To recognize and address the specific circulation problems which exist in the Glide area.

POLICIES:

1. In recognition of the suburban and rural land use designations in the Glide area and the accompanying low traffic volumes generated, the County shall adopt street standards for this area which are appropriate to its unique land use pattern.
2. In the cases of Pike, Abbott, Park and West Estella Streets located within the Glide core area, the standard for incorporation of streets into the County maintenance system should be lessened to accept the 50 foot rights-of-way which presently exist if proper safety and maintenance can be achieved.
3. In that area of Glide which is served by Lone Rock Road and that portion of Terrace Drive which is south of Upper Terrace, no increase in Comprehensive Plan density should be considered without the provision of an alternate access to the area.
4. The County should coordinate with property owners in the Idleyld Park area in an effort to realign existing rights-of-way and develop a circulation pattern which provides logical access to properties in the area and improves vehicular safety.
5. As a condition of approval of the division of the 73± acre property bounded by the North Umpqua Highway on the north and the Bar L Ranch subdivision on the east, the installation of an emergency vehicle access to serve the Bar L Ranch subdivision should be required. This access should consist of an established

nonexclusive easement improved for use by emergency vehicles under all weather conditions. This access should either connect Overlook Road to the necessary local street shown on the subject property or connect Bar L Ranch Road to Terrace Drive.

6. As a means of promoting vehicular safety, the County shall place a high priority on the improvement of Glide Loop Road to the minor collector standard due to the volume and type of traffic it carries and the location of school and other public facilities located along it.

LAND USE ELEMENT

GLIDE CIRCULATION PLAN

ADOPTED NOVEMBER 21, 1984

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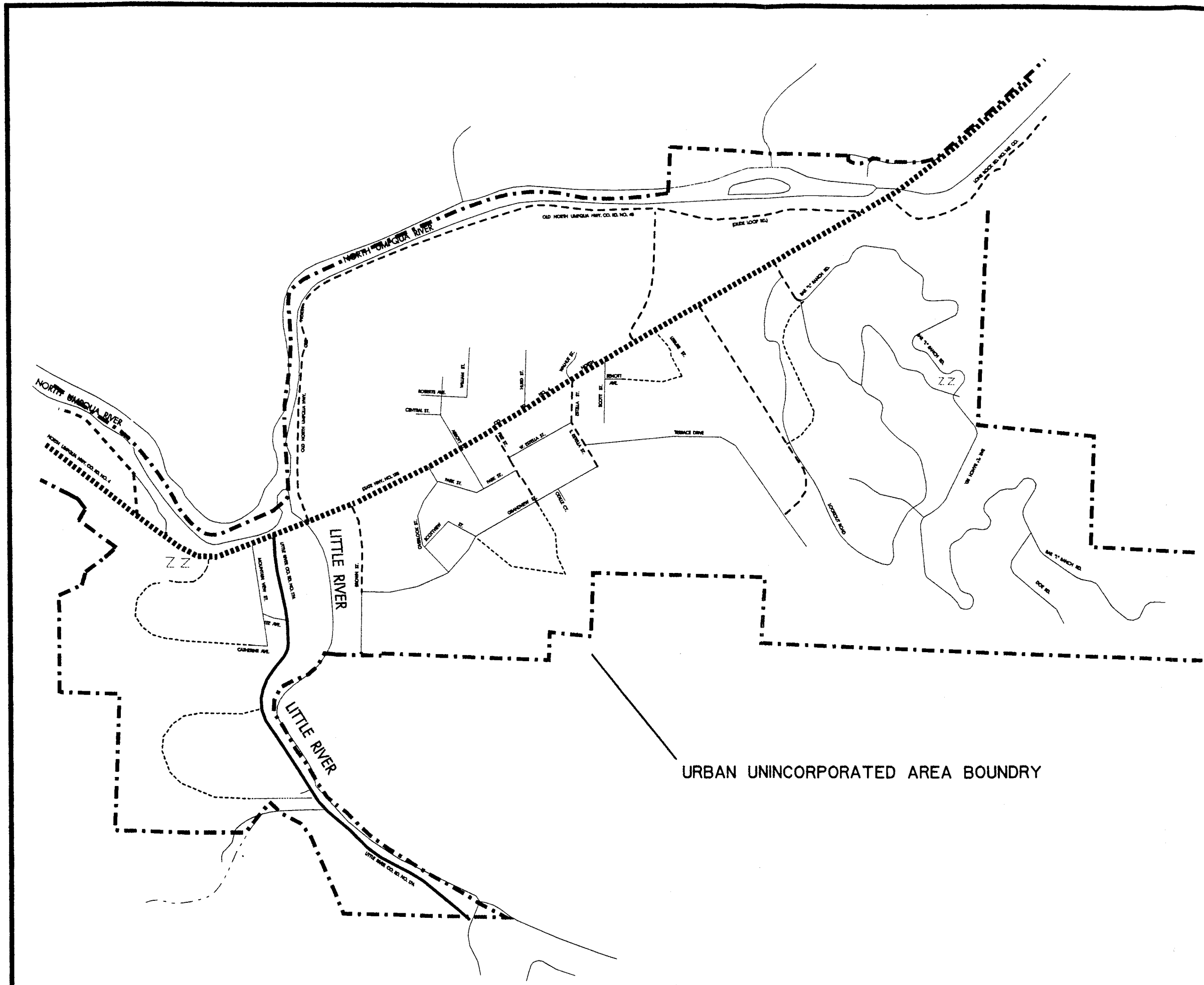
- ZZ GEOLOGIC HAZARD
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- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- NECESSARY LOCAL
- OTHER
- - - - - URBAN GROWTH BOUNDRY

URBAN UNINCORPORATED AREA BOUNDRY

DOUGLAS COUNTY
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GREEN POLICIES

TRANSPORTATION

POLICIES:

1. Encourage the development of sidewalks and pedestrian and bicycle paths throughout the Green Urban Area.
2. Encourage landscaping along arterial to enhance the visual appearance of the Green Urban area.

POLICY IMPLEMENTATION:

1. Priority should be given to construction of sidewalks and walkways to those areas most frequently used by pedestrians. These areas include Green and Sunnyslope schools and Carnes Road.

GREEN CIRCULATION PLAN

OBJECTIVE: To recognize and address the specific circulation problems which exist in the Green area.

POLICIES:

1. Happy Valley Road (west from Carnes Road), Roberts Creek Road, and Carnes Road (between Linnell Avenue and Happy Valley Road) shall be developed to the lesser standard for major collector streets utilizing a 74 foot right-of-way. The 84 foot major collector standard shall be applied to Carnes Road (between Highway 42 and Linnell Avenue) and to the Happy Valley Road extension (east from Carnes Road). (Revised 12-5-90)
2. Those portions of Green Avenue, Circle Drive, Hebard Avenue and Stella Street, which are designated as minor collector streets and which are improved to include pavement, curbs and gutters shall be recognized as meeting an adequate standard and no additional improvement to these streets and street segments shall be required. Parking restrictions or other limitations may be imposed along these streets or street

segments in the future, should traffic volumes warrant such action.

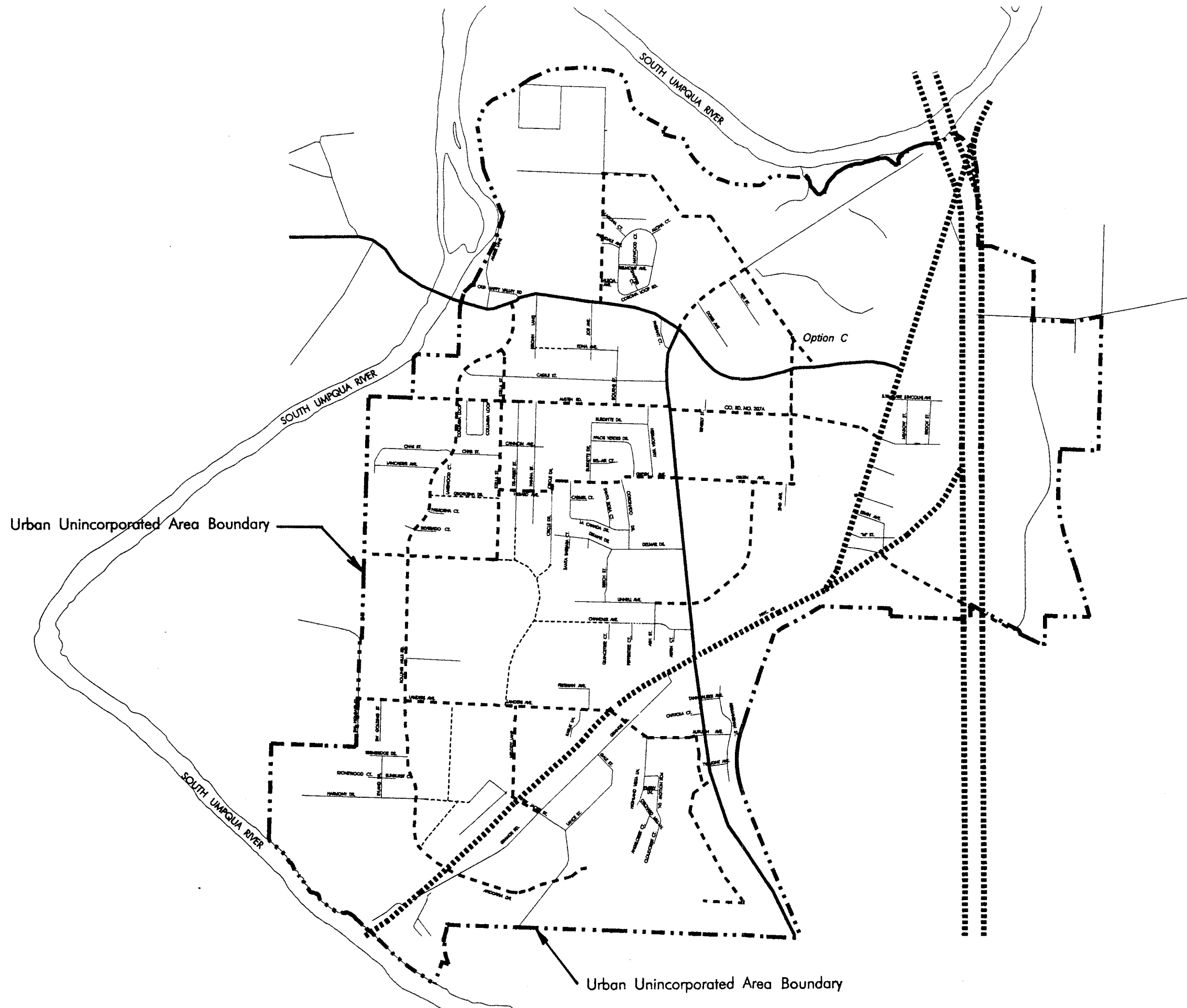
3. Primary access to the potential commercial or industrial sites east of I-5 should be either directly from the freeway or by way of Grant Smith Road. (Revised 8-17-89 QJ)
4. Speedway Road should only be considered for limited and secondary access to the potential commercial or industrial sites east of I-5. (Revised 8-17-89 QJ)

LAND USE ELEMENT

GREEN CIRCULATION PLAN

Adopted May 15, 1985
Revised July 1, 1996

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- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- - - - MINOR COLLECTORS
- - - - NECESSARY LOCAL
- OTHER
- . - . Urban Unincorporated Area Boundary

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440 - 4289

TRI CITY POLICIES

TRANSPORTATION

POLICIES:

1. Discourage direct vehicular access onto Old Pacific Highway and other arterial and collector streets when feasible.
2. Encourage the combining of accesses into commercial and industrial development from Old Pacific Highway wherever feasible.
3. Encourage the development of sidewalks or pedestrian paths and bicycle lanes along Old Pacific Highway and elsewhere in the Tri City Urban Area as appropriate.
4. Encourage signalization of the intersection of Chadwick Lane and Old Pacific Highway.

TRI CITY CIRCULATION PLAN

OBJECTIVE: To recognize and address the specific circulation problems which exist in the Tri City area.

POLICIES: (Revised 7/21/93)

1. In the Tri City UGB, additional points of access to Old Pacific Highway shall be restricted. In locations where property division requires access to Old Pacific Highway, that access shall be limited to a maximum of two points for properties which are currently vacant and one additional point for properties which have currently established access to the Highway.
2. Encourage the installation of a continuous left turn lane on Old Pacific Highway through Tri City. (Revised 11/12/86)
3. Promote the development of an arterial connection between Old Pacific Highway and Interstate 5 at the Weaver Road interchange.
4. The standard for incorporation of the following streets into the County street maintenance system shall be lessened to accept 50 foot rights-of-

way if proper safety and maintenance can be achieved: Seeley, Cornutt, Laura, Adams, and Conrad Streets and the portion of Cook Street which is part of the Briggs Acres Fourth Addition subdivision.

5. Chickering, Chadwick and Clark Streets shall be recognized as meeting an adequate standard for minor collector streets. No additional improvements to these streets shall be required. Parking restrictions or other limitations may be imposed along these streets in the future should traffic volumes warrant such action.
6. Due to topographic and developmental limitations, right-of-way width for the Old Pacific Highway arterial north of Wecks Road shall be 84 feet. Parking restrictions may be imposed when full development of this arterial roadway occurs. (Revised 11/12/86)

LAND USE ELEMENT

TRI CITY CIRCULATION PLAN

ADOPTED NOVEMBER 21, 1984
REVISED NOVEMBER 2, 1986

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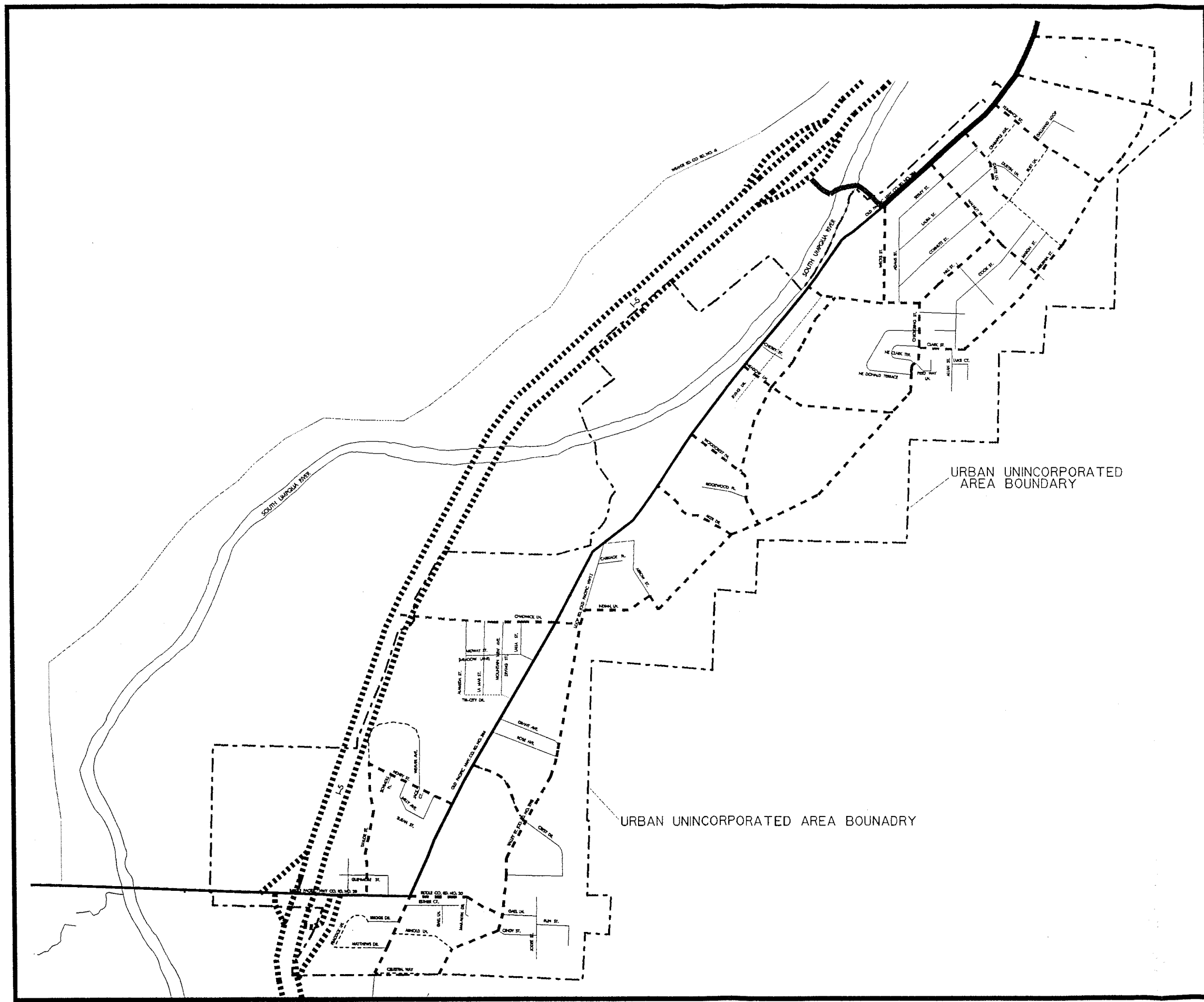
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- OTHER
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WINCHESTER BAY POLICIES

TRANSPORTATION

POLICIES:

Circulation

1. Douglas County should reduce County Road access to Highway 101 through the platted portion of Winchester Bay in order to improve traffic safety. Highway 101 access should be reduced to the following locations: 8th and 9th Streets on the highway's west side; 9th Street on the highway's east side (see Map No. 10). In closing the other access points, consideration should be given to the need to retain emergency service access in necessary locations.
2. The County should realign the intersections of 8th and 9th Streets with Highway 101 for safer access. Design of these projects should include planning for amenities which will identify and enhance these intersections as the gateways to Salmon Harbor. Two land parcels should be considered for public acquisition in undertaking these projects. These are identified on Map No. 10.
3. Beach Boulevard and 8th Street shall be classified as Minor Collectors. (Presently, Salmon Harbor Drive, including 9th Street, is classified as a Major Collector and Highway 101 is classified as a Principal Highway.)
4. The County should negotiate the acquisition of a private land parcel fronting the harbor at the location of Dock B in order to establish public access between 4th Street and Salmon Harbor land to the south. This parcel is shown on Map No. 10.
5. Douglas County should develop a Local Street System Plan for Winchester Bay. In this process, the Planning Department, Public Works Department, and Salmon Harbor Management Committee should cooperate in a parking and road plan for possible redesign of these facilities in the east harbor and middle peninsula areas. As part of this effort, consideration should be given to traffic circulation and parking in the northeast spit area. The appropriate agencies should consider, as part of this effort, the potential for public street parking in the platted areas of Winchester Bay; in particular, 8th Street and Broadway. Consideration should also be given to bike lanes, sidewalks, and other amenities as part of the overall Local Street System plan.
6. The County should continue working closely with the Oregon Department of Transportation in planning for development of properties to the east along Highway 101 to be consistent with highway access hazard limitations. Regardless of land use designation, uses of these lands will be determined largely by highway access safety considerations. The development potential of lands abutting the south side of the highway is largely contingent upon development of a frontage road or

common access points. The development potential of lands abutting the north side of the highway, including large areas of hillside and some bottomland areas, is subject to ODOT approval for common access permits. The number of access points should be minimized. Access points should be directly aligned with access on the opposite side of the highway whenever possible.

7. Douglas County should work with, and solicit the help of, the Oregon Department of Transportation in an effort to beautify the Highway 101 corridor through Winchester Bay and improve highway safety. ODOT should consider development of the corridor using a Parkway concept. Consideration should be given to the need for turn lanes, sidewalks, bike lanes and planting strips. Existing individual highway access permits from private properties should be renegotiated and diverted to common access points and, where possible, to County Road access points.

Relocation of Ork Rock Road

8. In order to provide adequate land area for existing and additional water-dependent and water-related uses along the east shore of the middle peninsula of Salmon Harbor, the County should relocate a portion of Ork Rock Road to the middle of the peninsula as illustrated by Map No. 10. Relocation of this portion of road may occur in phases as the need for these shorelands arises.

Bicycle Transportation

9. Bicycle lanes along Salmon Harbor Drive and Beach Boulevard should be installed to facilitate use of this mode of transportation.

CHAPTER 3: SUPPORT DOCUMENT TO THE TRANSPORTATION
ELEMENT

**SUPPORT DOCUMENT TO THE
TRANSPORTATION ELEMENT
OF THE
DOUGLAS COUNTY COMPREHENSIVE PLAN**

Adopted June 30, 1982
Ordinance 82-6-7

Revised November 21, 1984
Ordinance 84-11-3

Revised August 13, 1997
Ordinance 97-4-1

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INTRODUCTION

Transportation is the lifeblood of an area's economic and social health. A well-developed transportation system can encourage economic growth by creating ready access to markets and supplies and increase personal mobility thereby facilitating social interaction. In addition, an area's transportation system may significantly effect land use patters and environmental quality. As a result, the County's transportation plan is a critical aspect of its comprehensive planning effort.

Goal 12 of the Statewide Planning Goals calls for a provision and encouragement of a safe, convenient and economic transportation system. Specifically, Goal 12 states a transportation plan shall:

- + Consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian;
- + Be based upon an inventory of local, regional and state transportation needs;
- + Consider the differences in social consequences that would result from utilizing differing combinations of transportation modes;
- + Avoid principal reliance upon any one mode of transportation;
- + Minimize adverse social, economic and environmental impacts and costs;
- + Conserve energy;
- + Meet the needs of the transportation disadvantaged by improving transportation services;
- + Facilitate the flow of goods and services so as to strengthen the local and regional economy; and
- + Conform with the local and regional comprehensive land use plans.

Each plan shall include a provision for transportation as a key facility.

To this end, the Goals require that each jurisdiction prepare a transportation plan which amongst other things: addresses all modes of transportation; is based on an inventory of local, regional and state transportation needs; and conforms with local and regional comprehensive land use plans.

It is the intent of this Transportation Element to provide the basic inventory and assessment needs prerequisite to a sound, county-wide transportation policy. As roads and highways are the transportation mode over which the County has greatest jurisdiction, they have been dealt with in the greatest detail. Other modes over which the County has little jurisdiction, such as rail, pipeline and air, have been covered to include a description of the existing facilities of each mode and an assessment of the future needs for each. The assessments of future need for these other modes which are included have been determined by the agencies which have primary responsibility for them. The following elements of the Statewide Transportation Plan were used to supplement the highway, water, rail, pipeline and air transportation modes: "1991 Oregon Highway Plan", "1994 Oregon Rail Freight Plan", "Southwest Oregon Freight Movement Study", "1996 Oregon

Public Transportation Plan" and the Airport Master Plans for Roseburg Regional Airport and Myrtle Creek Municipal Airport.

While interrelationships exist between all elements of the Comprehensive Plan, the relationship of the Transportation Element to the Land Use Element is particularly strong. The development of an area consistent with its land use designations will require the establishment of appropriate transportation facilities to serve that development. Conversely, the existence of major transportation facilities is a major factor in assignment of land use designations to an undeveloped area. Numerous findings and policies in both the Transportation and Land Use Elements of the Comprehensive Plan are relevant to both land use and transportation decision-making processes. As such, both elements should be consulted for information regarding either topic.

In the 1984-85 fiscal year, circulation plans were developed for the urban unincorporated areas of Glide, Green and the Tri City portion of the Myrtle Creek Urban Growth Boundary. As these plans have a direct relationship to the property development process and are specific to small areas of the County, they have been included within the Urban Unincorporated Section of the Land Use Element. Only general reference to these plans have been included with this Element.

ROADS AND HIGHWAYS

Due to its rural nature and mountainous terrain, roads and highways are the most important element of the Douglas County transportation system. The vast majority of the people in the County rely on its roadway system to travel to jobs, shopping and recreational sites. The wood products industry is dependent on the roadway and rail systems to transport logs to mills for processing and for shipping its finished products. Businesses rely on the roadway system to bring goods into the County for retail sale and to facilitate the delivery of services. In spite of developing technologies and increasing fuel costs, it is likely that most people will continue to rely on the roadway system for their transportation needs.

Most roadways within the County are under the jurisdiction of various agencies including Douglas County, the State Department of Transportation, the U.S. Bureau of Land Management and Forest Service, cities within the county and special road districts. In addition to these, there are numerous roads which are dedicated to public use which are not the maintenance responsibility of any unit of government.

COUNTY ROADS

County roads include all roads which are part of the County road maintenance system. Generally speaking, the roads which make up this system serve countywide (as opposed to local) traffic and/or meet county construction standards.

Facilities

In 1995 there were 1165 miles of road within the County road system. Table 1 lists the road mileage within the County system according to surface types. The general surface types listed have been consolidated from the more detailed classification system of the Oregon Department of Transportation. The Unimproved category includes routes with no imported surface material although they may be graded and drained. Gravel roads have been surfaced with imported material to allow all weather use and include roads treated with an oil mat. The Paved category includes those roads consisting of high bituminous asphalt or concrete pavement.

TABLE 1
COUNTY MAINTAINED ROAD MILEAGE¹

<u>Location</u>	<u>Unimproved</u>	<u>Graded</u>	<u>Gravel</u>	<u>Oil Mat</u>	<u>Asphalt</u>	<u>Concrete</u>	<u>Miles</u>
<u>County</u>	<u>0.69</u>	<u>4.32</u>	<u>184.61</u>	<u>152.92</u>	<u>766.54</u>	<u>1.95</u>	<u>1111.03</u>
<u>Inside City</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1.6</u>	<u>12.83</u>	<u>.2</u>	<u>14.63</u>
	<u>0.69</u>	<u>4.32</u>	<u>184.61</u>	<u>154.52</u>	<u>779.37</u>	<u>2.15</u>	<u>1125.66</u>

Douglas County uses a four part classification system to describe the function (either existing or future) of the roads under its jurisdiction as well as the State highways within the County. This classification system includes Principal Highways, Arterials, Collectors and Local roads. The Collector classification is further refined to distinguish between Major and Minor Collectors. The purpose of this system is to establish construction standards and standards for access for all County and State roads based upon projected traffic volumes and the type of traffic (through versus local) each road is expected to carry. Following is a general description of each of these classifications.

Principal Highway

Principal Highways fall under state jurisdiction and the management of these facilities is outlined in the Oregon Highway Plan.

Arterial

The Arterial network will provide through traffic movement (including public transportation and its distribution from Principal Highways on to the Collector and Local Streets network. As with Principal Highways, Arterials provide connection between major communities in the County. Arterials are subject to regulation and control of parking, turning movements, entrances, exits, and curb uses. Access control and on-street parking are a function of the number of lanes, lane and shoulder width, design speed, traffic volumes, and land use. Traffic volumes on major arterial streets can reach up to 30,000 vehicles per day.

¹ Oregon Department of Transportation, State Mileage Report, 1995. Note: The State Mileage report total for Douglas County differs from actual road mileage (1165).

Collectors

Major Collector: Major collectors provide for the connection of major residential and activity centers. Such roads primarily accommodate through traffic and channel traffic from local and minor collectors onto streets of higher classification. Access to adjacent properties may be limited. In urban areas, major collectors should help to establish neighborhood identity and define land use patterns. In rural areas, major collectors connect minor rural communities, provide secondary access between major communities and provide access to major employment, recreational and rural residential areas. Traffic volumes on major collector streets generally range can up to 10,000 vehicles per day.

Minor Collector: Minor collectors are intended to distribute local traffic onto other minor collector, major collector or arterial streets. Property access onto minor collectors is often allowed. In urban areas, minor collectors should border neighborhoods thereby helping to establish neighborhood identity. In rural areas, minor collectors also connect rural residential areas. Traffic volumes generally can range from up to 5,000 vehicles per day.

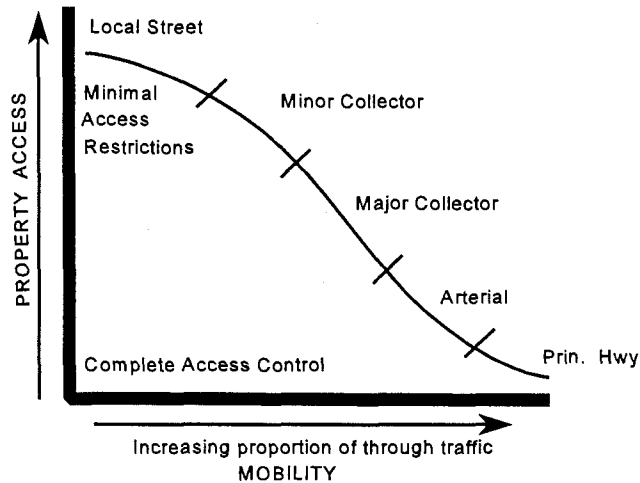
In addition, in rural areas minor collectors provide a connection between resource areas having high economic impact on the community and the markets for these products. These resource collectors are generally rural in nature and provide interface with agriculture, forest service, and Bureau of Land Management (BLM) roadways. Traffic volumes range from 250 to 4,000 vehicles per day.

Local Roads

Rural roads and local streets provide direct access to abutting property and move traffic from its origin to the major road network. Careful planning of the street layout will discourage the through movement of traffic. Street closures or traffic diverters can convert existing local street grid patterns to preserve neighborhood integrity. When properly planned and designed, traffic control devices will not be necessary at intersecting local streets. Traffic volumes on local roads are generally less than 1,500 ADT.

As indicated above in the description of the road classifications, the major function of local roads is to provide direct access to adjacent properties. These streets are not intended to be used by through traffic. Principal highways and Arterials, on the other hand, are primarily intended to move traffic through an area, covering greater distances at higher speeds than local roads. Collector roads have the characteristics of roads of both higher and lower classifications. Collectors are used both for property access and through traffic. The following Figure depicts the relationship between property access and traffic movement and the County road classifications.

FIGURE 1
PROPERTY ACCESS AND TRAFFIC MOBILITY



The County road classification system has designated most of the State highways within the County as either principal highways or arterial roads. The roads within the County system which have been designated as arterials generally provide access from the I-5/Highway 99 corridor to outlying unincorporated communities and resource areas. Typical arterial roads include a portion of Hwy 99, parts of Lookingglass Road, Pruner Road, Sutherlin-Umpqua Road and Dixonville Road. The roads within the system which have been designated as major, minor and resource collectors generally carry less traffic and serve smaller areas than the designated arterials and principal highways.

The principal highways, arterials and major collectors of the County road system and the County classification of State Highways are shown on the maps within Chapter One - Transportation Element. These maps depict all such roads except those major collectors located within the Roseburg Urban Growth Boundary. Those major collectors are shown on a map in the Appendix of this chapter.

With the exceptions of those roads within the Glide, Green and Tri City UGBs, minor collectors and local roads with the County maintenance system have not been differentiated. (For information regarding road classifications within the Glide, Green and Tri City UGBs, the Circulation Plans for those three areas should be consulted.) The County should pursue designation of those roads not defined as principal highways, arterials or major collectors as either minor collectors or local roads. As there are different improvement standards for these two road types, their differentiation will ensure their improvement to the standard appropriate for their ultimate function.

As indicated on the preceding table, there are approximately fifteen miles of County maintained roads within eight of the cities in the County. Half of this total mileage is located within Roseburg. Some of the roads which make up this mileage carry significant amounts of through traffic and connect County roads together or connect County roads to

the State Highway system. The County recognizes that such roads serve more than city needs, that they should remain in the County system and that the County should coordinate the improvement of these roads with the effected cities. Other County roads within city limits, however, only provide access to adjacent properties and do not carry significant volumes of through traffic. The County would like to surrender jurisdiction of this second type of road to the cities within which they are located. State statute, ORS 373.270 specifies the procedures to be followed for transfer of jurisdiction including the requirement that requests for such transfer must be initiated by the cities. The effected cities have been reluctant to initiate transfer, in most cases, due to the condition of the County roads. In 1993, agreement was reached with the County and various cities regarding transfer of jurisdiction. If county road status is removed from a road within an urban growth boundary, upon annexation of the area in which the road is located, responsibility for maintenance of the road will pass to the city. If county road status is not removed, the County cannot transfer jurisdiction over a road to a city after annexation unless the city agrees to accept jurisdiction pursuant to ORS 373.270. The Board of Commissioners signed an order on July 28, 1993 withdrawing county road status for a specific list of roads.

Maintenance

The Douglas County Road Department is responsible for maintenance of the 1,165 miles of roads within the County road maintenance system. Using a transportation management plan developed jointly by the Road and Engineering Departments, these two Departments schedule improvement projects designed to minimize traffic accidents and improve traffic movement and roadway conditions. The management plan utilized in this process involves problem identification, assessment of alternative solutions, determination of cost effectiveness, rating the project and scheduling the improvements.

It is presently the policy of the County to maintain those County roads which can function adequately with proper maintenance and to rebuild, as funds are available, those County roads which cannot function adequately with maintenance alone. In the 1983-84 fiscal year approximately eleven million dollars were spent on maintenance and improvement of the County road system. In the 1995-96 fiscal year approximately fourteen million dollars were spent on maintenance and improvement of the County road system. If revenues from outside sources continue to decline, it is expected that the Road Department will use an increasing percentage of its resources on maintaining the existing road system.

The maintenance of road system is tracked by IRIS computer program. This program was developed by the Oregon Association of County Engineers and Surveyors. The computer system development is a joint effort of the Association of Oregon Counties and the Oregon Department Of Transportation. The program is expected to be fully operational in June of 1998 and will track pavement management, accident locations and frequency. The data is shared by all agencies using the program and thus supports compliance with agency coordination requirements found in the transportation planning rule.

System Users

Over the past 30 years, the use of the automobile as a means of transportation in the County has increased steadily. The number of annual miles traveled per capita over this period has increased from approximately 2,900 in 1950 to 6,900 in 1982 and to 9,500 in 1990. This is due, in part, to the major capital investment made in the road and highway system in the nation, the flexibility it offers in terms of trip origins and destinations and its relative efficiency of operation, in terms of time and cost, for trips of less than 100 miles.²

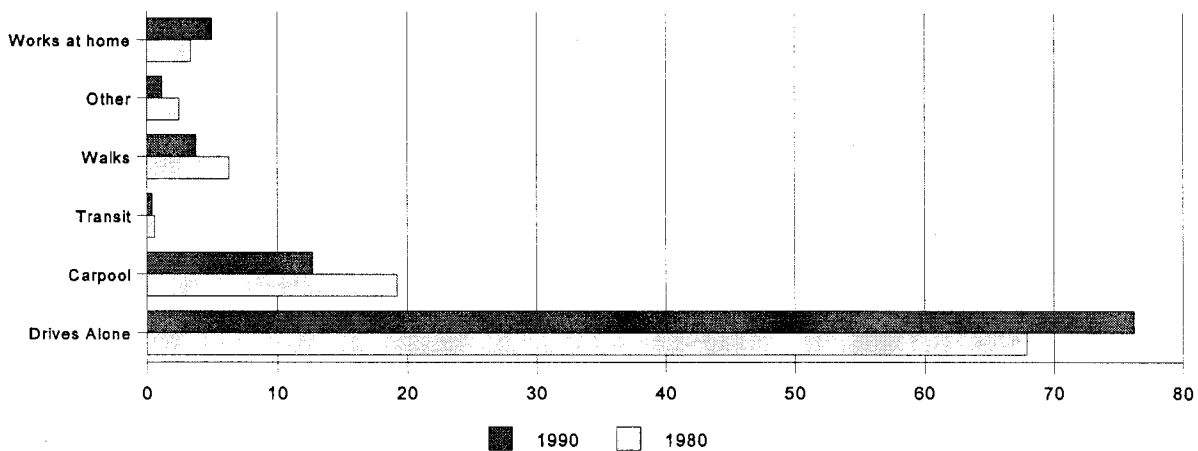
In 1994³ Eighty-nine percent of the workers in the County traveled to work by private automobile. Seventy-six percent of the workers drove alone while thirteen percent carpooled. This is comparable to Statewide averages of seventy-three percent of workers driving alone and thirteen percent carpooling. The means of travel to work of Douglas County residents is shown of Figure 2.

²Oregon Department of Transportation, Statewide Transportation Plan, Volume 1: Overview, p. 40.

³Demographic, Housing & Socioeconomic Characteristics of Oregon and its Counties, Center for Population Research and Census, School of Urban and Public Affairs, Portland State University: 1990, Page 17.

FIGURE 2
 PRINCIPAL MEANS OF TRANSPORTATION TO WORK - BY HOUSEHOLD
 DOUGLAS COUNTY, 1980 and 1990⁴

The average number of persons per private vehicle used for commuting to work in Douglas



County in 1980 was 1.14, as compared with 1.13 for the State and in 1990 was 1.09 for the County, as compared with 1.09 for the State, overall. The mean travel time to work in the County and State was approximately the same, as well 18.7⁵ minutes in the County and 19.6 minutes for the State. In 1980, approximately 94 percent of the County's households, had at least one motor vehicle available for their use, 66 percent had two vehicles available and 28 percent had three or more available⁶. In 1990, approximately 96.9 percent of the County's households, had at least one motor vehicle available for their use, 76.1 percent had two vehicles available and 20.5 percent had three or more available⁷. This is slightly higher than the Statewide averages (96.3 percent of the State households had at least one motor vehicle available for their use, 75.5 percent had two vehicles available and 18.8 percent had three or more).

In addition to the number of miles traveled per capita and means of travel to work, the number of vehicle trips generated by various land uses is also an indicator of vehicle use.

⁴1990 Census of Population Social and Economic Characteristic, Oregon, US Department of Commerce, Table 143 Geographic Mobility, Commuting, and Veteran Status: 1990

⁵1994 - County and City Data Book: 12th Edition, US Department of Commerce, Table B, p. 459

⁶Bureau of the Census, General Social and Economic Characteristics, Oregon 1980 Census of Population, U.S. Department of Commerce, Washington, D.C., 1983, Tables

⁷Demographic, Housing and Socioeconomic Characteristics of Oregon and its Counties, Center for Population Research and Census 1990, p48.

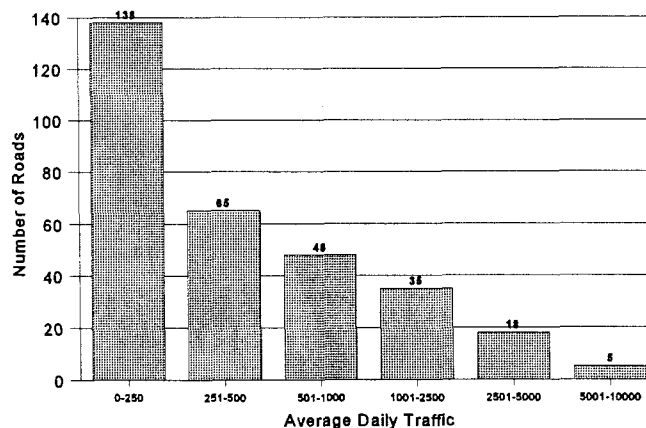
Studies have shown that trip generation characteristics are similar for comparable types of land uses. Thus this type of data is useful in analyzing existing traffic patterns and estimating future traffic volumes. The following table lists the average daily traffic generation rates for several common land uses.

TABLE 2
VEHICLE TRIP GENERATION BY LAND USE TYPE⁸

Land Use		Weekday One-way Trip Generation
Single Family residential	9.73	trips per dwelling unit
Multi family residential	5.93	trips per dwelling unit
Neighborhood shopping center	786.72	tips per net acre
Office commercial	14.81	trips per 1,000 sq. ft. of floor area
Industrial (various types)	70	trips per net acre
Schools	1.02	trips per Elementary student
	1.38	trips per High School student

The last year that average daily traffic (ADT) was recorded for all roads within the County was 1995. During that year traffic volumes varied from a low of 8 ADT (Crouch Road) and a high of 15,100 ADT (South Stephens Street) on County roads. As can be seen on Figure 3, approximately 65 percent of the roads in the County system had volumes of less than 500 ADT during that year.

FIGURE 3 TRAFFIC VOLUMES ON COUNTY ROADS, 1995



Traffic volumes in 1978 were, for many County roads, the highest of any year recorded. Since that time ADT have declined and within the last few years begun to increase again. In 1995 the County road with the highest traffic volume was South Stephens Street with 15,100 ADT.

⁸Trip Generation Manual, Fifth Edition, Institute of Transportation Engineers, Washington, D.C., 1991 and 1995 Fifth Edition Update.

Future Projections

Total employment in Douglas County is expected to increase by 12.9 percent in the ten year period from 1995 to 2005. That rate is far less than the projected increase for the state (22.2 percent) and among the slowest rates for all counties in Oregon. In comparison to historical growth in employment, the forecasted 1.3 percent average annual increase in employment is on the slower side. The slower than average growth rate is due to a weakening manufacturing sector which is forecasted to lose jobs through the end of the forecast period. Within the manufacturing sector, the movement away from resource-based industries will accelerate. Lumber and wood products manufacturers will still employ thousands and account for the greater bulk of manufacturing employment in Douglas County for years to come, but the industry will continue to decline as timber supply problems adversely affect the competitiveness of local firms and world markets. Projected population increases are also behind many of the forecasted job gains in the non-manufacturing and government sectors. But other trends such as the sub-contracting of specialized services by business, increased consumption of health and personal services by households in general, and the increased number of retirement aged persons in the county are also pushing employment in the service sector up⁹.

The Oregon Department of Transportation completed a Employment Forecast to the Year 2015. This projection provides a long term estimate of employment potential with one limitation; it does not include coastal Douglas County.

POPULATION AND EMPLOYMENT PROJECTIONS

	1995	2000	2005	2010	2015
¹⁰ Total Population -Low	97,700	106,963	115,639	123,754	130,237
¹¹ Total Population -High	97,700	111,677	124,827	137,174	147,650
¹² Total Employment	34,648	37,976	39,992	42,008	44,024

This projection identifies a 1.35% annual increase in employment or a 27% increase over the study period. The twenty year projection is consistent with the ten year projection compiled by the Oregon Employment Division. These projections are also consistent with the projections utilized in the determination of transportation needs for the six system studies. These studies supported the projects identified in the existing Comprehensive Plan.

Since 1991, six transportation system studies were completed in Douglas County. These

⁹Oregon Employment Division 1996: Regional Economic Profile Region 6 Douglas County
State of Oregon, Employment Division

¹⁰Douglas County Comprehensive Plan Population Element

¹¹Douglas County Comprehensive Plan Population Element/Note: The 1996 Bureau of the Census, USA Counties 1996 CD-ROM - revealed Douglas County Population is 99,906

¹²Greater Roseburg Area Transportation Study; Table E-6, Kittleson & Associates: 1996

studies reviewed most populated areas along the Hwy 38, 42 and I-5 Corridor and provided the inventory updates and projection analysis needed to update the Transportation Element. These six system supported many conceptual projects for future consideration. These conceptual projects did not mitigate needs identified in the studies, but had individual merit worthy of future consideration. These projects have no funding sources identified and are listed as "A Compilation of Preferred Alternatives" in the appendix by urban or rural and by geographic area. The diversification and growth of the Douglas County economy will be reflected by growth in both passenger and freight transportation demands. To the extent that the County follows these projections for the state overall, it should experience similar growth in transportation demand.

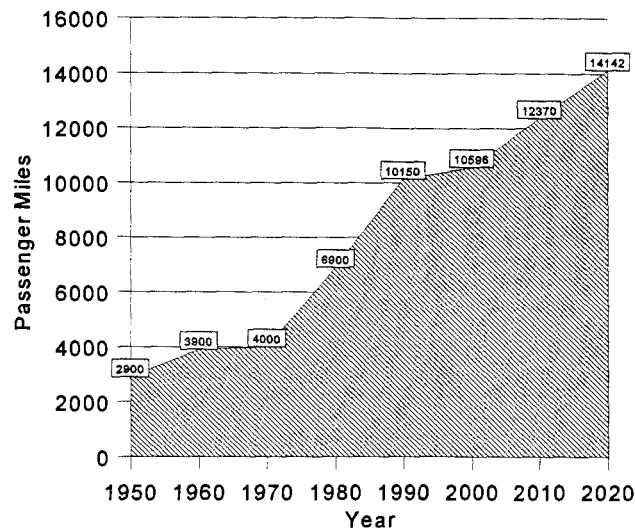
A second analysis tool was created to review the level of service of arterial and major collector routes in the County. This analysis considered weighted the existing average daily traffic of the route against the rated capacity. An the Level of Service was determined by listing LOS "A" for routes at 50% capacity, "B" for routes at 60% capacity, "C" for routes at 70% capacity, "D" for routes at 80% capacity, "E" for routes at 90% capacity and "F" for routes at 100% capacity.

The Level of Service Table found in the appendix identifies only three routes that do not have an "A" Level of Service. Two of the three routes have a "C" Level of Service. The remaining route has a "D" Level of service and is impacted by many factors; an existing industrial site, interchange commercial development and access for the City of Riddle. It should be noted this LOS "D" applies only to the portion adjacent to the interchange. The Public Works Department uses LOS to determine capital improvement needs and not to exclude the use of the facility. Based upon the analysis provided in the six system studies and the Transportation Element, the existing road network generally is adequate to serve future needs. The Comprehensive Plan identifies specific routes required to service future needs. With the exception of these new routes no additional improvements are required.

The number of passenger miles traveled by automobile in the United States has increased every year since 1950 with the exception of the two periods of energy crises in the 1970s. Also, the total per capita miles traveled by automobile has more than doubled over the period (approximately 2,900 miles in 1950 and approximately 6,900 miles in 1982) of 1950 - 1982. The 1992 average annual vehicle miles of travel per vehicle is 11,063 or 10,150 passenger miles per capita¹³. This trend, which is shown of Figure 4, is expected to continue past the year 2000.

¹³Transportation Statistics - 1994 Annual Report, Bureau of Transportation Statistics: Table 3-4, p. 64 (Miles per vehicle ÷ Passenger per vehicle = Miles per capita: 11,063 ÷ 1.09 = 10,150)

FIGURE 4
NATIONAL PASSENGER MILES PER CAPITA



In addition to passenger miles of travel, population per automobile is a good measure of long-term demand for auto travel. Between 1980 and 1995 the number of persons per automobile in the State declined from approximately 1.8 persons per auto to approximately 0.9 persons per auto. This is similar to the trend for the nation, overall. This decline is also an indicator of increased demand for automobile travel. The number of persons per auto is expected to continue to decline over the next two decades further substantiating the future demand for automobile travel.

Between 1970 and 1978 traffic volumes on the principal highways and arterials within the County system increased by an average of 91 percent. Between 1970 and 1995 traffic volumes on the principal highways and arterials within the County system increased by an average of 36%. Over the same period the County population grew by 36%. This growth in ADT equals the rate of population growth.

In 1980, Douglas County contracted with the firm Transportation Planning and Management (TPM) to prepare a number of studies dealing with transportation issues. Among these studies were assessments of the future roadway needs of the County. Due to the varying nature of different types of areas within the County, the estimation of future traffic volumes on County roads and the assessment of the adequacy of the existing County road system to accommodate future growth were treated in three different manners. The future road system needs of the five urban unincorporated areas within the County (Glide, Green, Tri City, Winchester Bay and Gardiner) were assessed individually as part of the land use plans prepared for those five areas and the specific circulation plans prepared for Glide, Green and Tri City. (These plans should be consulted for information regarding any of those five areas.) The extent and density of development anticipated within the Roseburg urban growth boundary and the extent to which County roads intertie

with Roseburg streets warranted an independent assessment of future needs within and in the vicinity of that boundary. All other unincorporated areas of the County were considered as part of a third assessment. A description of the latter of these assessments is found in the following sections.

Since 1991, the Oregon Department of Transportation has funded six transportation studies in Douglas County. The majority of populated areas within Douglas County were reviewed in one of the six transportation system studies.

- The Reedsport Area Transportation Study reviewed the area from Gardiner to Winchester Bay.
- The Oregon Coast Highway Corridor Master Plan reviewed the entire Oregon coastline including Coastal Douglas County.
- The Highway 38/42 Corridor Study reviewed the Highway 38 and 42 corridors including the Cities of Reedsport, Elkton, Drain and Winston.
- The Sutherlin Area transportation Study reviewed the area within the Urban Growth Boundary.
- The Greater Roseburg Area Transportation Study reviewed the area from Wilbur to Winston and Dixonville to Charter Oaks.
- The Myrtle Creek Area Transportation Study reviewed the area from northern city limits south to Pruner Road.

These six studies provided the support information, transportation alternative analysis and future needs analysis used to update the Douglas County Transportation System Plan.

In addition to these studies, Douglas County Public Works has various documents that inventory and analyze the County Road system. One document "Average Daily Traffic Volumes, 1996 Edition" was used to tabulate Average Daily Traffic (ADT) for major collectors and arterials. This data was collected during a seventy two hour weekday period. The listed ADT at various milepoints along the roadways include vehicle totals in both directions of travel. With the exception of three roads (Pruner Road at I-5, Old Hwy 99S at Exit 103, and Carnes Road at Hwy 42) all roads are operating at LOS "A". The LOS information and the analysis provided in the six system studies, identify that adequate capacity exists on County Roadways.

The following pages identify proposed routes that were identified in the acknowledged plan and system enhancements proposed in the six system studies. These system enhancements are provided to provide a reference to this research and to support future analysis.

Rural Projections

The estimate of year 2016 traffic volumes on rural roads within the County system was based on the projected rural population growth of the County to the year 2016. To determine year 2016 ADT, the percent growth of rural population was calculated for the period of 1996-2016. This increase is projected to be 58 percent. The year 1995 was

used as a base in that it is the last year for which traffic volume data is available for all County roads. This percent increase was then multiplied by a factor of 1.31 to reflect the trend of increased travel per capita and applied to 1995 traffic counts. That factor, which represents an increase of 31 percent in vehicle miles traveled per capita by the year 2016 was derived from projections developed by the Oregon Department of Transportation and is shown on the proceeding figure. The resultant percentage growth in ADT which was used to calculate year 2020 ADT was 41 percent.

The result of application of this percentage increase is a straight line projection of year 2016 traffic volumes on rural roads. The purpose of this estimate was to determine the adequacy of the existing road system to accommodate future traffic volumes. The year 2016 results are considered to be liberal as they may overestimate volumes in that year. This is due to the use of 1978 (a year in which traffic volumes on many roads reached record levels), and the use of national passenger miles per capita factor for increased vehicular use per capita. Either unanticipated increases in fuel costs or adjustments in travel due to energy shortages could easily result in a slower growth rate of miles traveled per capita.

Most rural roads within the County maintenance system are paved with two 12 foot wide travel lanes. Given standard engineering criteria, the traffic capacity of these roads generally falls within the range of 2,000 ADT to 6,000 ADT¹⁴. By assignment of the 10 percent growth rate to the 1995 ADT on rural roads it was determined that the capacity of all of the existing rural roads which have been designated as local roads or minor collectors (requiring two travel lanes) is adequate to carry year 2020 traffic volumes. All of those rural roads which are projected to carry in excess of 10,000 ADT are designated as major collectors, arterials or principal highways.

Most of the improvements that will be required on rural roads are those which will allow their traffic capacity to be realized. Many roads with 12 foot paved travel lanes have narrow, if any, shoulders. Increased shoulder width on these roads is necessary for safe emergency use. Site distance on many roads does not meet left turn lanes, are needed on many County roads to ensure safe turning movements.

In addition to the assessment of rural road capacities, rural areas of the County were surveyed by TPM for locations where new routes or route improvements appeared to be warranted. Following is a listing of the new routes determined to be required.

¹⁴American Association of State Highway and Transportation Officials, 1985, A Policy on Geometric Design of Rural Highways and Streets, Washington, D.C., and the Highway Capacity Manual, Special Report #209, 1985.

PROPOSED RURAL PROJECTS

Three routes proposed in previous versions of the plan have been dropped from consideration. The Melrose to Coos Bay route was proposed to provide a direct means of transportation to the coast. However, due to the proximity of two existing state facilities (Hwy. 38 & 42), construction of a third route was deemed inappropriate. The Berry Creek Dam Access was proposed to provide safe travel to a recreational site. An existing minor collector street provides access to this facility. An alternative route to the Berry Creek Dam is not required. The improvements to the Freeway Interchange at Umpqua Community College were completed. These improvements were needed to provide a better and safer access to the college.

1. Bypass from the North Umpqua Highway near Dixonville to I-5 (Conceptual - no funding identified). This route would serve as a bypass for southbound and westbound traffic thus relieving congestion in downtown Roseburg. Existing roadways will be utilized wherever possible and other portions may need realignment. The Greater Roseburg Area Transportation study included a recommendation for a truck route from Dixonville to Kelly's Corner. The study identified a measurable benefit by removing trucks from downtown Roseburg via this route. Two major issues must be addressed prior to implementation of this bypass. This route diverts truck traffic an extensive distance on winding roads to Dixonville. A second and substantial issue is the cost to pave the existing gravel roads may be cost prohibitive. The 1996 GRATS (Table 5-14) estimated the construction cost of this project at 25.5 million dollars. This estimate does not include the purchase of additional right-of-way. Additional analysis of the route selected and the construction cost is recommended.
2. Southerly Bypass of Central Avenue in Sutherlin. In conjunction with the City of Sutherlin, coordinate the planning and development of a southerly bypass road to relieve congestion on Central Avenue. The Sutherlin Area Transportation Study supported a southerly bypass route for Central Avenue using Calapooya Street or Comstock Road. The dogleg corners on the Calapooya Street route should be re-aligned.

Roseburg Area Projections

Due to the amount and density of future development expected within the Roseburg UGB and the extent to which County roads intertwine with roads within the city limits, a more sophisticated approach was utilized by TPM to determine future circulation needs within this area. This methodology was expanded upon in the Greater Roseburg Area Transportation Study (GRATS). Detailed modeling of the area was provided by GRATS using the EMME/2 transportation modeling software. This model uses specific traffic analysis zones (TAZ's) within the Roseburg and Winston area.

The TPM travel forecasting methodologies were established to determine the future roadway impacts created by expected growth. Due to the rate of expected growth, a procedure was adopted which would incorporate actual forecasting techniques in the definition of a transportation network. This procedure incorporates the use of projected population figures, land use planning, zonal assignment, trip generation, distribution, and traffic assignment. After generated trips were assigned to the network, new corridors were tested. Decisions were made regarding trip generation characteristics, directional distribution, i.e. percentages of trips destined in various directions, and trip assignment. With the procedures identified, assumptions of land use, population, and other related criteria were made. During this process, the County and City staffs were involved. Other sources such as the Council of Governments and various private industries were contacted. Collectively, the data obtained was used as a basis for development of the Transportation Network. The GRATS duplicated this effort using the EMME² transportation modeling software. Similar to the TPM analysis, this software considered trip distribution, trip assignment, zoning and other land use planning issues. Adjustments to this model were completed to project transportation impacts to the year 2015.

The TPM Model analyzed the year 2000 traffic volumes on the existing transportation network, it was apparent that several existing facilities were inadequate. Various new corridors were tested and analyzed to investigate their impact on the existing roadway network. The network created by the TPM Model was updated using the six transportation studies conducted in Douglas County (Hwy. 101, Hwy. 38/42, RATS, SATS, GRATS and MCATS). These studies included an evaluation that supported the eleven corridors identified by the TPM Model and the Roseburg Major Street Traffic Safety Program which is part of the Roseburg Urban Area Comprehensive Plan. As the County has adopted the Roseburg Plan as the County plan for unincorporated areas within the Roseburg UGB, the five corridors previously identified are already part of the County plan and will not be further discussed in this document. Of the remaining six corridors identified, the interchange at Stewart Parkway near Broad Street was recently completed and will be removed from the list of proposed routes. The remaining corridors identified as being needed by the TPM study and previously incorporated into the County Comprehensive Plan are as follows:

Proposed Urban Corridors

1. Extension of Rifle Range Road to Highway 99 (Conceptual - no funding identified). This corridor should serve as a bypass for southbound traffic as well as relieving congestion at the Harvard Avenue Interchange by more effectively utilizing the Portland Avenue Interchange. This extension should consider the timing and financial constraints on the construction of an alternate truck route at the Roberts Creek Dixonville Bypass between the North Umpqua Highway and Highway 42 at Kellys Corner.
2. Extension of Rifle Range Road North to Alameda Road (Conceptual - no funding identified). Would serve the developing area as well as provide another access to east Roseburg.

3. Extension of Harvard Avenue from the existing city limits to Garden Valley Boulevard (Conceptual - no funding identified). This extension would include a bridge across the South Umpqua River and give the Calkins Road area another access. The intersection at Garden Valley Boulevard would provide another access to Roseburg from the west.
4. Extension of Portland Avenue to Highway 99 (Conceptual - no funding identified). This proposed arterial would provide another river crossing and more effectively utilize the Portland Avenue Interchange.
5. Connection from Sunshine Road to North Bank Road (Conceptual - no funding identified). This connection will provide a needed linkage from the North side of the North Umpqua River via a bridge to the Roseburg Area. It will serve as a rural collector.

The location of the future major road corridors throughout the County are shown on maps in Chapter 1 and Chapter 2 of this document.

The transportation issues identified previously will not be addressed solely by the creation of new routes. During the period of 1992-1995, six transportation studies were completed in Douglas County. Four of the six studies (RATS, SATS, GRATS and MCATS) analyzed the issues and evaluated possible alternatives. From the developed alternatives, a preferred alternative was selected. A compilation "Preferred Alternatives" for Rural and urban areas identified in the preferred alternative section of the six system studies can be found in the appendix. This listing is based on needs analysis and doesn't reflect financially constrained or prioritized projects and is included to provide supportive documentation for future route analysis.

Aside from the new corridors identified as proposed projects above and the minor improvements required on existing roads, future efforts will need to focus on maintenance of the entire road system. Increasing traffic volumes on existing roads and the incorporation of new roads into the County system will test the County's ability to maintain County roads to the same standards as achieved in past years.

Implementation

Construction Standards

County standards for development of new roads differ between urban and rural areas. Within the County's five urban unincorporated areas, construction of new roads which serve or have the potential of serving more than three separate properties are required to meet County construction standards such that they may be incorporated into the county road maintenance system. These rural standards apply to new roads which have the potential of serving more than 50 parcels. In both areas, new roads which would serve fewer than the specified number of properties must be private roads and may meet lesser construction standards which allow gravel surfacing. However, roads developed to these

lesser standards must be private roads and are not eligible to become part of the County road system. Maintenance of these private roads is required contractually of the properties which the new road serves.

Any land division adjacent to existing public non-maintained roads is permitted only when the public road meets certain minimum width and surfacing standards. The specified standards are not adequate to qualify the road for incorporation into the County system but do ensure that certain minimum standards for safety are met. Minimum width and surfacing standards for public non-maintained roads have been established to provide direction for road improvements that are required as part of land division approvals adjacent to these roads. The minimum right-of-way necessary for the safe and efficient development or redevelopment of rural public maintained County roads is generally sixty (60) feet. The County will continue to consider reduction of standards related to pavement width and right-of-way for local streets.

Many County maintained roads are located within city urban growth boundaries, intertie with city streets or continue into or through cities. This situation creates a need to coordinate road classifications and construction standards with the effected cities. In the first two instances, coordination is necessary to ensure that the County roads are designated consistent with the type of development anticipated within the UGB and that city streets which intertie with County roads are planned to accommodate the amount and type of traffic anticipated from inside as well as outside the UGB. In the last instance, coordination is necessary to ensure that land use regulation of city properties adjacent to County roads will facilitate the installation of future necessary road improvements. The County should coordinate its circulation planning efforts with the cities within its limits to ensure these needs are satisfied.

Local Improvement Districts

One mechanism used for the upgrading of public roads so that they can be included in the County system is the use of local improvement districts pursuant to ORS 371.605 to 371.660. This statute establishes a procedure whereby road improvements may be made and property owners benefiting from the improvements assessed for their installation. A petition of 60 percent or more of the landowners representing 60 percent or more of the land abutting the proposed improvement is needed to form such a district. The County Engineer estimates the cost, recommends a method of assessment, and his report is mailed to the affected landowners. Unless more than 50 percent of the landowners object, the project proceeds. When improvements are complete the total costs are computed. After the road is accepted into the County Road System maintenance expenditures are paid for by the County.

Revenue Sources

Funds for County road maintenance and construction activities come from three main sources: National Forest Revenues, the State Highway Trust Fund, and Surface Transportation Program - Rural Funds (formerly Federal Aid Secondary funds).

National Forest Revenues are received by the County as a result of timber harvesting on Forest Service lands within the County. Twenty-five percent of the revenues received by the federal government are distributed to the County with the requirement that 75 percent of that amount be used for road maintenance or improvement and the remaining amount to be distributed to school districts within the County. In the 1983-84 fiscal year, 3.7 million dollars were received by the County from this source. In the 1994-95 fiscal year, 11 million dollars were received by the County from this source. (O&C funds received by the County are deposited into the general fund.) The State Highway Trust Fund is collected primarily through motor vehicle registrations. Twenty percent of this fund is allocated annually among the counties in the State based on motor vehicle and trailer registration in each county. In the 1983-84 fiscal year, the County received approximately 1.3 million dollars from this fund. In the 1994-95 fiscal year, the County received approximately 5 million dollars from this fund.

The Federal Highway Administration, through its, Surface Transportation Program- Rural (STP-Rural) distributes monies to counties for construction or maintenance of county roads and bridges which have been designated as major collectors. This program, which is administered through the State Highway Division, requires that the County and State each pay 6 percent of the cost of funded projects with the remaining 88 percent being federally funded. In the 1983-84 fiscal year, the County received \$755,000 from the federal government under the FAD-C program.

In addition to these revenue sources which are directly tied to road construction and maintenance, the County used general fund money for road purposes. In the 1983-84 fiscal year, the amount allocated to roads was approximately 5.25 million dollars. General Fund monies are typically not used for any road maintenance or improvements.

Special Road Districts

Since 1982, the County has promoted special road districts as a means for local property owners to maintain public roads which do not meet County standards and therefore are not maintained by the County. Each established district includes publicly owned roads which are not part of the County Road Maintenance System. Special road districts which are authorized by ORS 371.305 - 371.385 are statutorily limited in the amount they can levy in a given year to one-quarter of one percent of the assessed valuation of the district. In most cases, this fiscal limitation will restrict the extent of road maintenance performed and effectively preclude improvement of any road such that it could be incorporated into the County Road Maintenance System. These districts offer the benefit of providing the mechanism whereby residents may establish for themselves appropriate standards for road maintenance in their area.

While Special Road Districts serve as a valuable tool for addressing localized public road problems, care needs to be exercised in their application. Establishment of a district which includes (or may include in the future) roads which carry traffic through the district may

raised issues of restricting the through traffic or solicitation of County participation in maintenance of district roads. Also, the establishment of another governmental agency having certain authorities and responsibilities over an area may further complicate the coordination of governmental activity in that area.

Transportation Management Plan

In 1980, the County Engineering Department adopted a Transportation Management Plan to implement the activities outlined in the Transportation Element of the Comprehensive Plan. That Plan is intended to provide for efficient utilization of time and money to accomplish stated goals and objectives.

In order to implement the policies of the Transportation Element, several data collection and analysis tasks are necessary on a regular basis to assure an effective and continuing program. Therefore, a Roadway and Traffic Engineering Work Program is encouraged that lists and schedules the tasks to be performed to keep the Transportation Plan up to date. The proposed work program schedules the work performed each year and estimates the number of man-hours needed to conduct each task. The budget cost estimate represents the combination of staff necessary to perform each task. A model work program was developed that performs this function and implements the Comprehensive Plan.

Transportation Financing Analysis

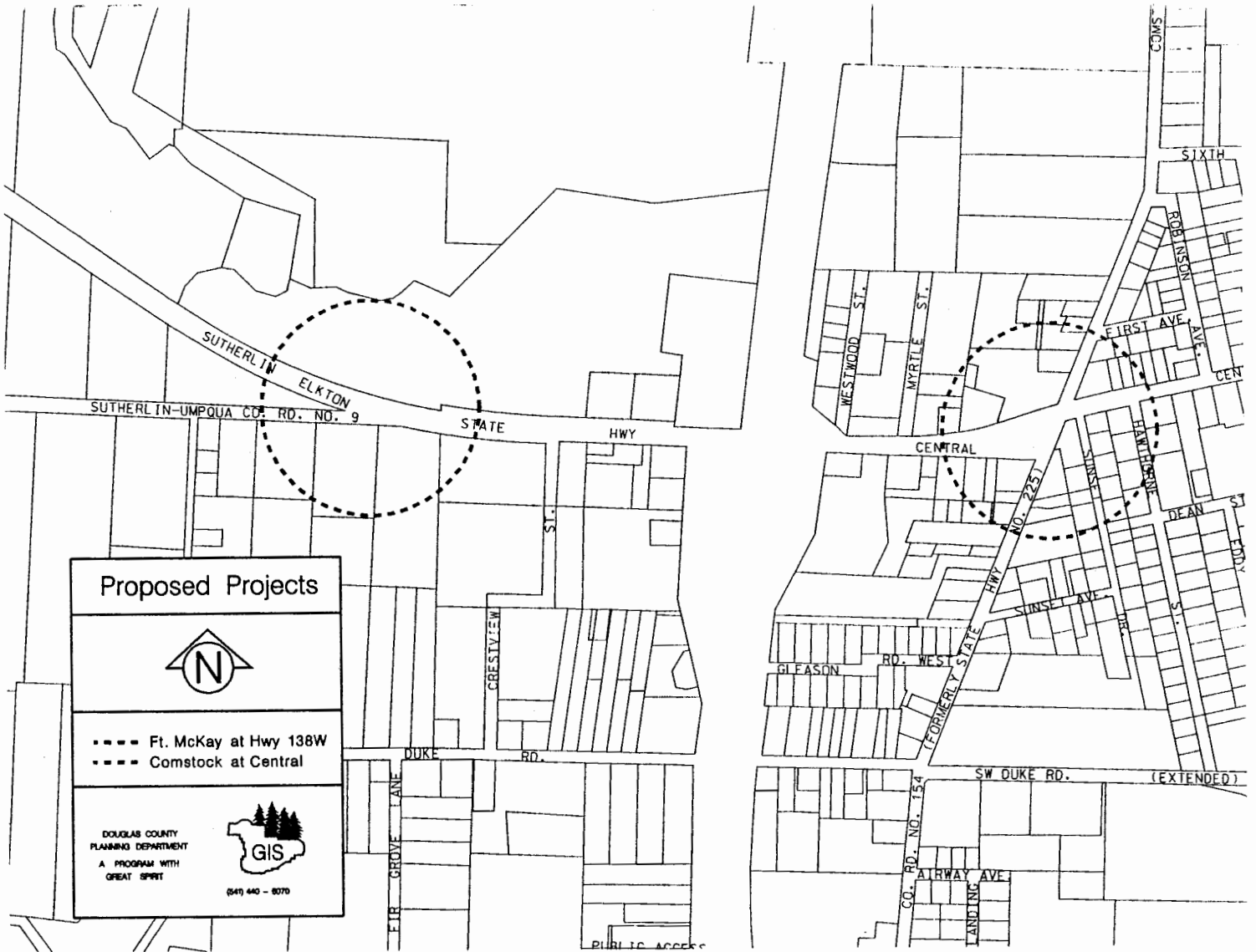
In 1996, Public Works Engineering Departments reviewed the six transportation studies conducted in Douglas County and evaluated to identify system needs and prioritize projects based on a weighted measure of need and available funding. The purpose of this review was to determine if Public Work budget analysis was required to identify future projects. The analysis considered proposed timing of the project, the source of the funding, the extent of the project proposed (maintenance, new construction, or safety). In addition, the financing program source of the construction funds. Many of the projects listed in these documents involved work within specific cities. The County would not be involved in these projects. However, some projects were on county roadways. Seven of the remaining projects are on the County Five year improvement list.

TRANSPORTATION FINANCIAL ANALYSIS

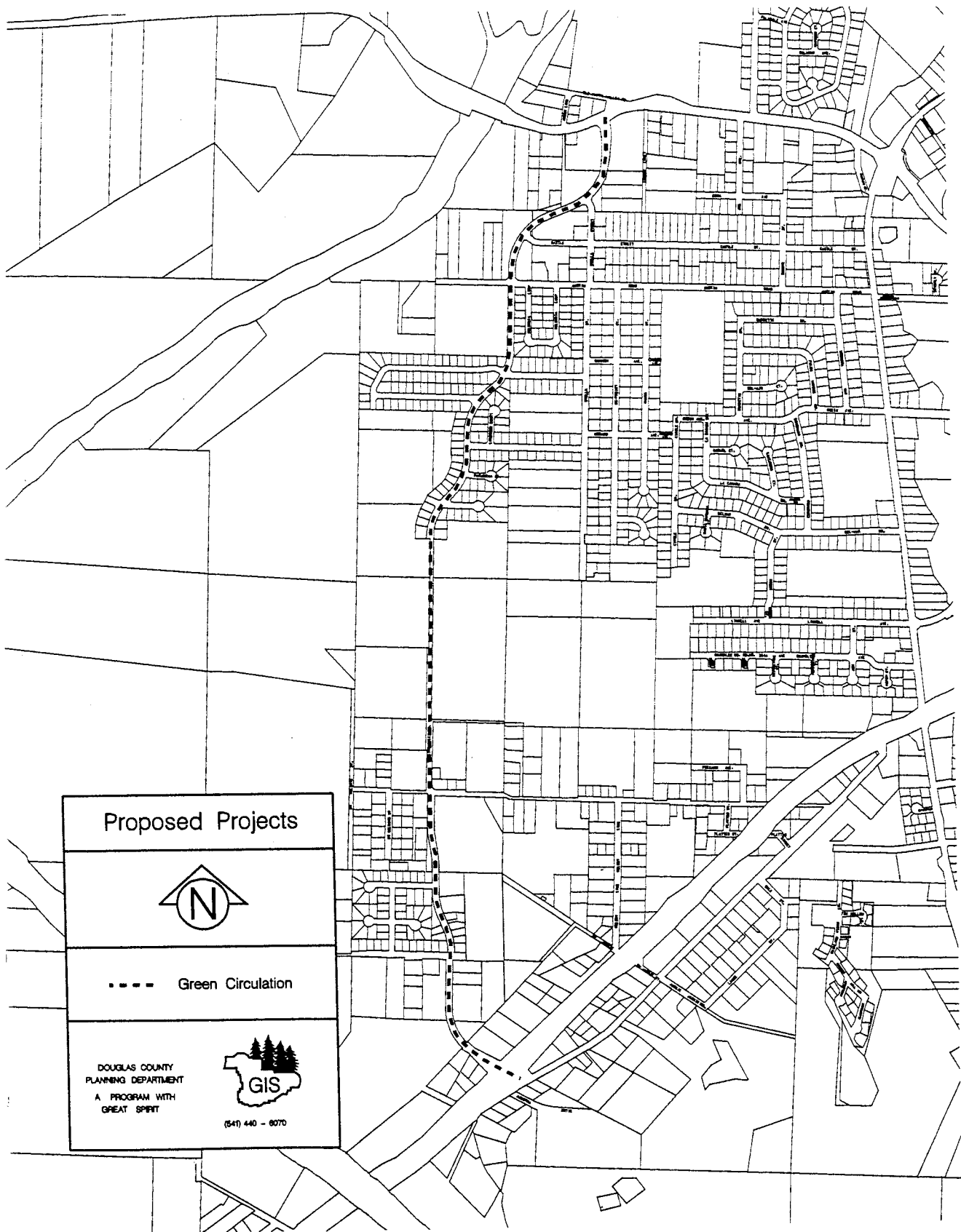
Identified in Proposed Routes Table 13-1 in the Comprehensive Plan

Project	Description	Cost	Anticipated Timing	
1	Weaver Road Connection	Weaver Road to I-5	\$ 60,000	Study only - contract within two years Funding - County
2	Myrtle Creek Hwy	North End (Widen 3 Lanes)	\$ 2,000,000	Construction Year 1999 Funding County
3	Myrtle Creek Hwy	South End (Widen to 3 Lanes)	\$ 750,000	Construction Year 2002 Funding County
			\$ 2,810,000	
4	Green Circulation	Completion of Rolling Hills Road	\$ 1,250,000	Construction through year 2002 Funding - County
5	Roberts Creek - Dixonville connection	Improve existing roadway alignment and width	Unknown	Under evaluation by County
			\$ 1,250,000	
6	Ft. McKay @ Hwy 138W	Realign Intersection	\$ 85,000	Construction Year 1998 Joint funding - County & ODOT
7	Comstock at Central	Realign intersection and signal	\$ 100,000	Joint funding - City, ODOT & County
			\$ 185,000	
8	Troost Street	Widen street		Past public hearings showed no support to complete this project
9	Harvard Blvd.	Bridge to Charter Oaks		Past public hearings showed no support to complete this project.
		Grand Total	\$ 3,495,000	

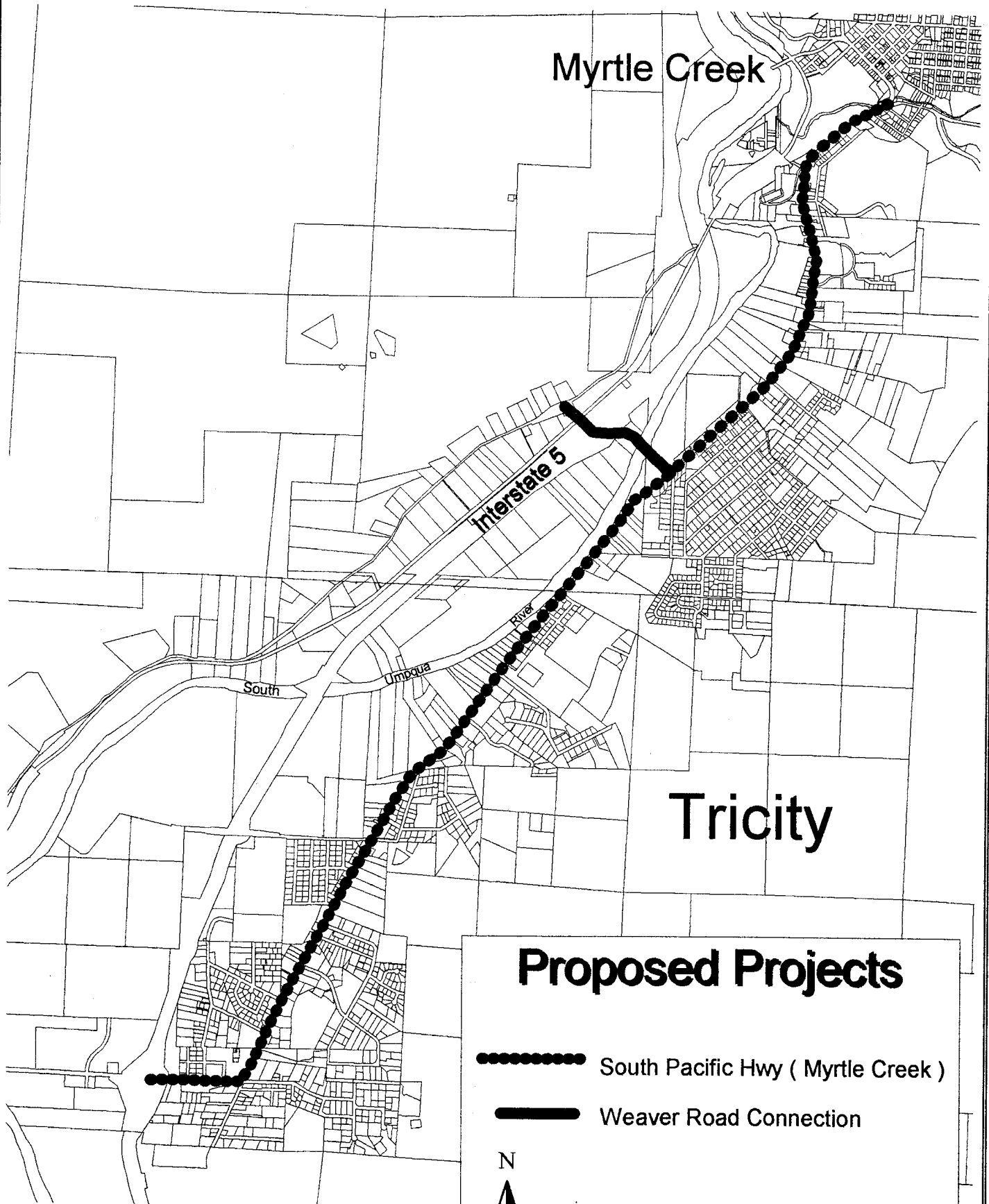
PROPOSED PROJECTS (SUTHERLIN AREA)



PROPOSED PROJECTS (GREEN AREA)



Proposed Projects (Myrtle Creek Area)



Proposed Projects

- South Pacific Hwy (Myrtle Creek)
- Weaver Road Connection



Douglas County Planning Department

POTENTIAL DEVELOPMENT IMPACT AREA ANALYSIS

The following information is a summary of the historical development of rural communities and unincorporated areas. More detailed analysis is contained in the acknowledged Douglas County Comprehensive Plan.

The study of committed lands in Douglas County was undertaken to delineate areas that are committed to a use other than agriculture or forestry. Non-resource designations applied to committed areas not only avoids the problems associated with non-conforming use status, but also gives economic and social validity to prior development that is currently being used intensively for nonresource purposes.

This Committed Lands study included analysis of parcel size, adjacent ownership, inventoried dwellings, predominant land use, physical development, services and access needs.

A separate Exceptions study was conducted for interior Douglas County and Upland Coastal Douglas County. The exceptions were specific to Agriculture and Forestry Goals. Besides the policies and concepts which have influenced the development of its plan, Douglas County has provided general and specific findings which, when considered in total, satisfactorily justified the acknowledged exceptions.

In justifying the exception, the four questions were answered: Why is it necessary to provide for the use(s)?, What alternative locations within the area could be used for the proposed use(s)?, What are the long-term environmental, economic, social and energy consequences to the locality, region or state of not applying the goal or permitting the use(s)? and Is the proposed use(s) compatible with other uses?

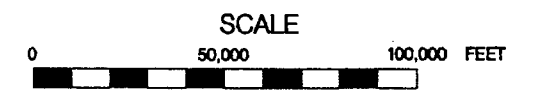
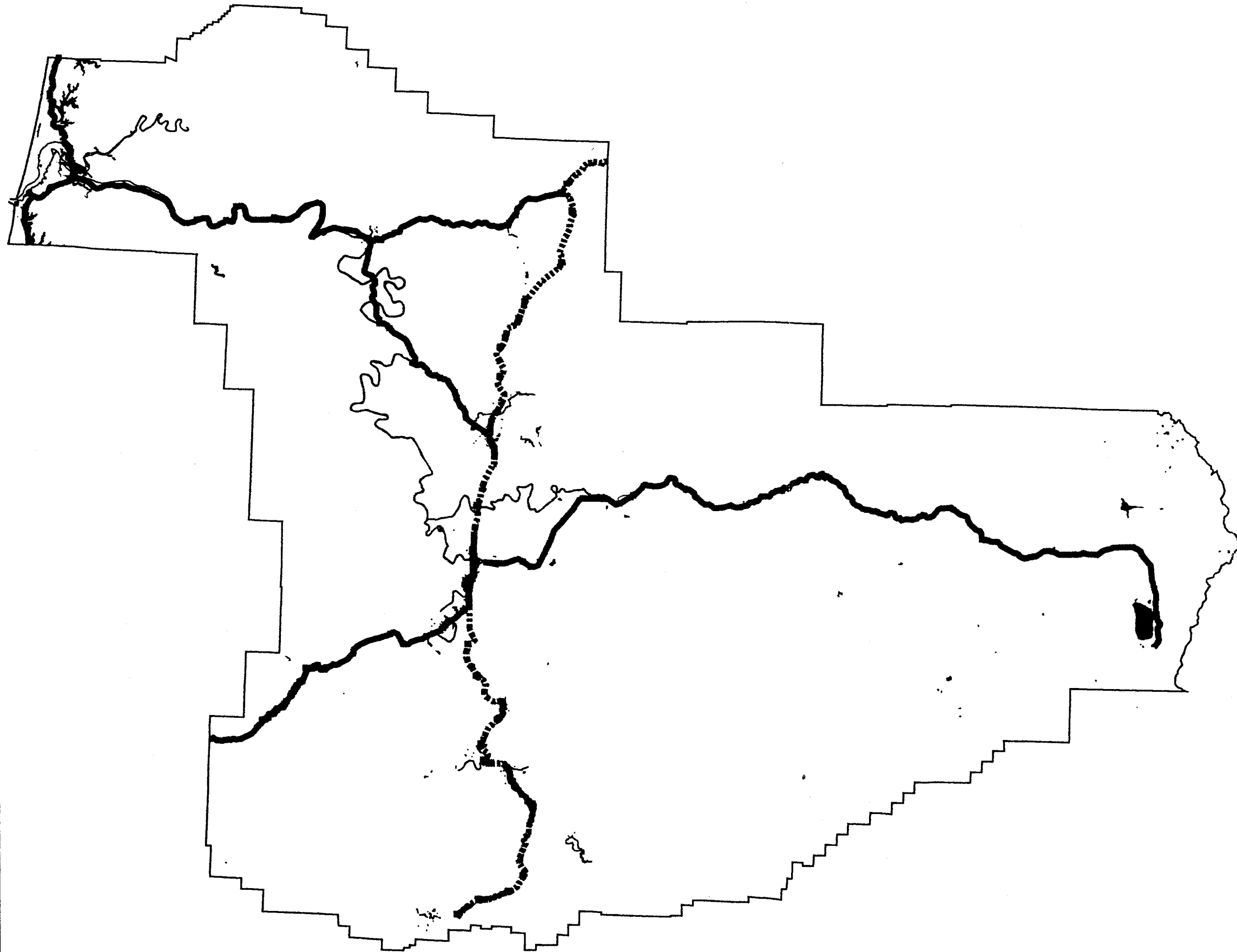
Douglas County Comprehensive Plan connects this data via the Land Use Element and Transportation Element. The development of the Comprehensive Plan considered specific density criteria that including (but was not limited to), access and energy needs. The development of functional classifications in the Transportation Element were based upon future demand created by these areas. Updates to this linked system were created considering identified committed land sites, Urban Unincorporated Areas, Rural Communities and Rural Service Centers.

The Douglas County Transportation Element was developed using a process that identified transportation needs relevant to the County, and addressed State, regional, and local transportation needs. This Element also addresses the needs of the transportation disadvantaged, movement of goods and services to support industrial and commercial development planned,

An update of the Transportation Element was completed in 1997. Oregon Department of Transportation completed a Potential Development Impact Area mapping and analysis. This methodology was developed by inventorying and analyzing rural areas for possible impacts on the regional and statewide transportation network. The Planning Department requested and received the PDIA Analysis map for Douglas County. Using the ODOT PDIA Map the county inventoried each site by Township Range and Section and found only 3 of the 162 sites that were not contained within an inventoried Urban Unincorporated Area, Rural Committed Land Site, Rural Community, or Rural Service Center. The analysis completed in the development of the Comprehensive Plan included the development impact of these sites.

TRANSPORTATION
ELEMENT
SUPPORT DOCUMENT

STATE HIGHWAY
SYSTEM



- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS

DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT



(541) 440 - 6070

STATE HIGHWAYS

Facilities

The Oregon Department of Transportation (ODOT) is the agency responsible for administration of the State Highway System. This System which totals 7,482¹⁵ miles of roadway throughout the State includes 338 miles within Douglas County.

The roads within the State Highway System have been classified as interstate, primary and secondary roads depending on their functional usage and traffic volume. A general descriptions of these types of highways follows:

- Interstate Highways: Serve as direct connections between the nation's principal cities. Serve high traffic volumes and long-haul traffic at high speeds.
- Primary Highways: Serve high speed, through traffic but with greater access to adjacent areas. Traffic volumes tend to be less than an interstate.
- Secondary Roads: Link smaller towns and rural cities to the primary system. Serve local, short haul traffic with maximum access to surrounding areas.

¹⁵1995 Oregon Mileage Report, Oregon Department of Transportation, July 1996

The classification and mileage of State Highways are shown on Table 3 and Map 1.

TABLE 3
STATE HIGHWAY SYSTEM IN DOUGLAS COUNTY

<u>Highway</u>	<u>Classification</u>	<u>Length (miles)</u>	<u>Range of ADT (1995)</u>
I-5	Interstate	97	16,600 - 37,000
38	Primary	57	1,800 - 10,000
42	Primary	31	2,600 - 19,300
99	Secondary	87	6,200 - 27,200
101	Primary	21	4,600 - 13,500
138	Secondary	25	880 - 18,800
200	Secondary	05	300
227	Secondary	42	170 - 1,300
230	Secondary	18	620 - 1,200

The condition of the State highway system was rated in 1996 by ODOT using a 5-step rating system ranging from Very Good to Very Poor. That rating found twenty two percent of the 8177 mile State system to be in Poor or Very Poor condition. In Douglas County most highways were found to be in Fair, Good or Very Good condition. The only areas rated as being in Poor or Very Poor condition are located on I-5 from Myrtle Creek to Canyonville, I-5 from Roberts Creek to the Fairgrounds, Highway 99 between I-5 and Drain, Hwy 42 near Slater Creek, Highway 227 between Days Creek and the Jackson County line and Highways 230 and 138 in the area south of Diamond Lake¹⁶.

INTERCHANGE ANALYSIS

At the request of the Oregon Department of Transportation, the Planning Department conducted an inventory and review of the portion of Interstate-5 within Douglas County. The length of Interstate-5 within Douglas County is 87.7 miles. Over the 87.7 miles, Interstate-5 provides three rest stops for the traveling public and 39 exits to serve the communities along the corridor. The Transportation Element identifies Interstate-5 as the interconnecting route to Urban Unincorporated Areas, Rural Communities and Incorporated Cities located along the corridor. Many interchanges are the sole access to rural communities or rural service centers via frontage roads or collector streets. The Oregon Highway Plan discourages the use of Interstate-5 for the purpose of local travel.

The table found entitled "Douglas County Planning Department Interchange Analysis" in the appendix is an inventory of each interchange, the land use designation, approximate area reviewed and summary conclusions. By this reference, the document entitled "Interchange Analysis Atlas." is incorporated into this plan.

¹⁶Oregon Department of Transportation, State Highway System Preservation Report, State of Oregon Salem, Oregon, January, 1983.

Due to the completeness of the State Highway System, the reductions in the revenues received from gas taxes, and its overall condition, the 1991 Oregon Highway Plan adopted policies which established maintenance and preservation of the State Highway System as a high priority concern.

Presently, the highways in Oregon are wearing out faster than they are being rebuilt. The rate of deterioration varies, but even new roads and bridges are continuously subject to weathering and traffic loads. The number of heavy trucks on the arterial highways has more than doubled in the past decade. Continued growth in the total vehicle miles traveled and greater use of heavy trucks will require increased efforts and costs for preventive maintenance and system preservation.

In addition to those roads within the state highway system, there are approximately 70 miles of roads under state jurisdiction which are located in Elliott State Forest. These roads, which are predominantly gravel surfaced, are intended primarily for access to areas for timber harvesting.

Users

Traffic volumes, as measured by average daily traffic (ADT) on the State highways vary from a low of 170 ADT on Highway 230 Tiller Trail Hwy near the Douglas Jackson County Line) to a high of 37,000+ ADT on I-5 near Garden Valley Road and 27,200 Highway 99 through Roseburg (1995 counts and 1995 GRATS counts). The range of ADT on each of these routes results primarily from the volume of local (as compared with through) traffic.

Truck freight traffic accounts for approximately 10 percent of all traffic on the State highways in the County. Approximately 75 percent of this traffic consists of five axle combinations or greater. An increase in truck traffic, primarily in the five axle group over the past few years is indicative of the trend toward larger commercial vehicles with greater load carrying capabilities. State highways 101 carried 7,267,797 tons per mile, State Highway 38 carried 6,683,797 tons per mile, State Highway 42 carried 7,573,058 and I-5 carried approximately 38,483,693 tons per mile in the same year. The average for all highways was 21,021,551 tons per mile.

Future Plans

In December 1991, Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA) that made transportation funding more flexible, but required states to prepare transportation plans. The Oregon Transportation Plan incorporates most of the federal requirements for statewide planning. The Oregon Transportation plan identifies three routes of statewide significance in Douglas County: Interstate 5, Highway 38 and Highway 42. The Oregon Department of Transportation has developed and regularly updates a Six-Year Highway Improvement Program. This is a list of highway projects scheduled for construction during the ending six years. The Program includes projects over which the State has complete responsibility and projects by local governments for which federal or state funding has been approved. Projects are prioritized within each category and

selected for inclusion in the Highway Improvement Program after such things as OTC and ODOT policies, legislative directives, availability of funds, and local and regional plans are balanced.

FEDERAL ROADS

Two agencies are responsible for the construction and maintenance of most federal roads within the County. These are the Bureau of Land Management (BLM) and the U.S. Forest Service. The Bureau of Land Management's jurisdiction extends primarily over O&C and Coos Bay Wagon Road lands. The U.S. Forest Service is responsible for its lands within the Umpqua and Siuslaw National Forests.

Facilities

The BLM, through its Roseburg and Coos Bay Districts, has jurisdiction over approximately 748,000 acres of land which is scattered throughout the County. The vast majority of this land is in timber production. Within these areas there are 4475 miles of road which are the maintenance responsibility of BLM. A breakdown of these roads by type of construction is indicated on Table 4 which follows:

TABLE 4
BLM ROAD MILEAGE¹⁷ (by Surface Type)

<u>General Surface Type</u>	<u>Mileage</u>
unimproved	191
gravel	3,818
paved	466
Total	4,475 ¹⁸

The Forest Service, through the Umpqua and Siuslaw National Forests, has jurisdiction over approximately 1,049 miles of roads in the County. The Forest Service classifies its roads as Arterial, Collector or Local roads. Arterial roads which generally access large land areas (20,000+ acres), connect with state or county roads and/or provide for maximum mobility and multi-purpose use make up 6 percent of this mileage. Collector roads generally access areas less than 20,000 acres, connect with forest arterial or public roads and serve both travel efficiency and multi-purpose use. These roads make up 14 percent of the Forest Service roads mileage. Local roads which are generally single purpose roads intended for timber harvest or recreational use make up the remaining 80 percent of the Forest Service road mileage. As indicated on Table 5, most of these roads are gravel surfaced.

¹⁷Oregon Department of Transportation, Planning Section, State Mileage Report, 1983, Oregon Department of Transportation, Salem, Oregon, 1984.

¹⁸In previous reports the BLM included a broad classification of roads. Over the past five years, the Oregon Department of Transportation in coordination with the BLM have clarified the road types to be included in the Oregon Mileage Report. This clarification has led to a reduction in miles reported by the BLM.

TABLE 5
 FOREST SERVICE ROAD MILEAGE¹⁹
 (by Surface Type)

<u>General Surface Type</u>	<u>Mileage</u>
Unimproved	5
gravel	847
paved	137
Total	1,049 ²⁰

Other federally maintained roads within the County include those under the jurisdiction of the Bonneville Power Administration, Veteran's Administration and the Dunes National Recreational Area. These three agencies are responsible for a total of 96.7 miles of road most of which is either unimproved or graveled.

Users

BLM and Forest Service roads are multi-purpose roads which serve timber harvesting, recreational and residential users. While serving all of these user groups, most BLM and Forest Service roads were constructed to access areas where timber sales have occurred. This is particularly true of those roads with gravel surfaces. Those roads under BLM jurisdiction which are Class I (two lane) roads and those Forest Service roads which are Arterial and Collector roads are generally those which are intended for multi-purpose use. Roads within the Dunes NRA and on VA grounds are intended to provide public access to those facilities. Bonneville Power roads have been developed to provide access for servicing transmission facilities in the County.

Future Plans

None of the federal agencies with road within the County have plans for major road projects, either improvements or new construction, in area sunder their jurisdiction in the foreseeable future.

CITIES

In 1996 there were 223 miles of roads within the 12 cities in Douglas County (excluding State and County maintained roads). The number of miles in each city varied widely from a low of 2 miles in Elkton to a high of 106 miles in Roseburg. The following table depicts the breakdown of this mileage by surface type using the same descriptive headings as used for County roads.

¹⁹1995 Oregon State Mileage Report, Oregon Department of Transportation

²⁰The Forest Service closed 40,000 miles of road to the public in the late 1980's. This reduction in mileage represents the change in status from open to closed to the public.

TABLE 6
CITY ROAD MILEAGE²¹
(by Surface Type)

<u>City</u>	<u>Unimproved</u>	<u>Gravel</u>	<u>Paved</u>	<u>Total</u>
Canyonville	1.16	1.1	5.3	7.56
Drain	0	2.28	6.42	8.7
Elkton	0	0.3	1.7	2
Glendale	0	0.2	5.7	5.9
Myrtle Creek	0.5	0.07	13.53	14.1
Oakland	1.28	1.21	5.69	8.18
Reedsport	0	0.1	18.65	18.75
Riddle	0.87	0.46	2.87	4.20
Roseburg	1.19	2.95	101.75	105.89
Sutherlin	3.60	6.23	18.08	27.91
Winston	0.47	1.17	12.79	14.43
Yoncalla	<u>0</u>	<u>0</u>	<u>5.41</u>	<u>5.41</u>
Total	9.07	14.54	199.42	223.03

The city road mileages, cited above, which do not include roads within the County or State road systems, service primarily local needs. These roads, would be defined as local, collector or arterial roads which tie into the County or State systems.

City standards generally require new roads to be paved and in many cities require the installation of curbs, gutters and sidewalks.

OTHER

There are two other types of roads in the County, public and private. Public roads as defined herein includes only those roads in unincorporated areas which have been dedicated, are open for public use and which are not publicly maintained. These public roads have not been included within the County maintenance system in almost all cases because of inadequacies in right-of-way or roadway width or insufficient base or surface material. Private roads include road easements accessing residential development and private roads owned by timber or other private companies which are used to access their property or facilities.

Public

There are approximately 335²² miles of public roads within the County. These roads are generally unimproved or graveled as most roads which are paved have been included within the County road system. The following table lists the mileages of Public roads using the same definitions for surfacing as used for the County maintained system.

²¹Ibid.

²²1995 Oregon Mileage Report, ODOT July 1996; p. 117.

TABLE 7
PUBLIC ROAD MILEAGES
(by Surface Type)

<u>General Surface Type</u>	<u>Mileage</u>
unimproved	89.67
gravel	235.11
paved	<u>10.50</u>
Total	335.38

Most Public roads are either maintained by the individual or group efforts of property owners adjacent to the roads or are not maintained at all. Since 1982 the County has required as a condition of approval of the partitioning of all properties adjacent to public roads that the partitioners or future property owners agree to participate in private maintenance programs for maintenance of those public roads. In addition, the partitioners are required to agree to participate in any local improvement districts which may be formed to improve the public roads to County road standards.

Another means of maintaining public roads which has been instituted for certain areas of the County is Special Road Districts. This mechanism is explained within the County Roads Section of this Element.

Private

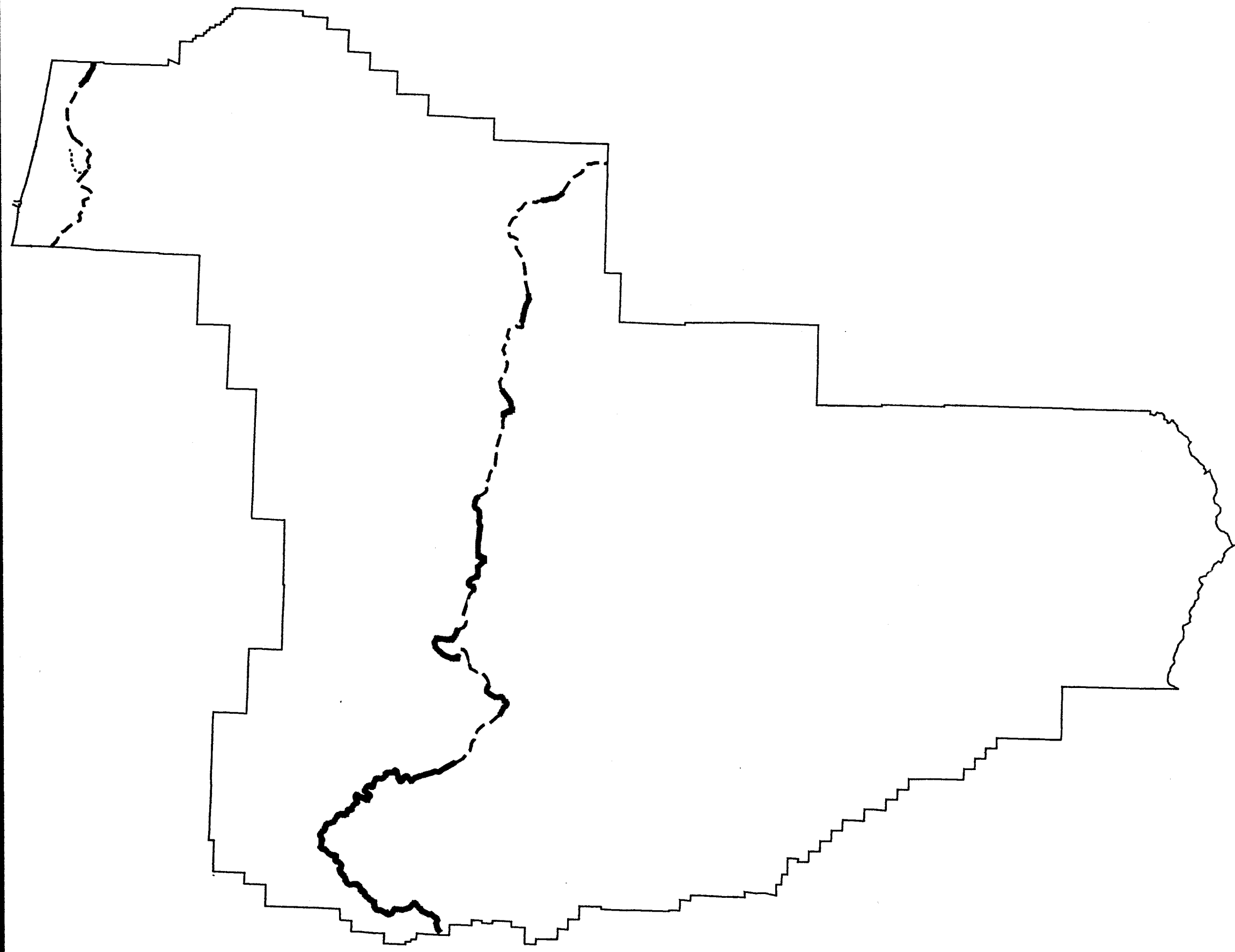
As indicated previously, private roads include those roads in the County which have not been dedicated to the public. These roads are all located on private property. Many roads of this type are located on easements are used to access residential development. Such roads are often open to public use and appear to be public roads. Other private roads are not located on easements are intended to serve a single user and are not generally open to public use. Most of the private roads in the County are owned by timber companies and are used to transport logs to mills for processing. No figures are available regarding the mileage or condition of private roads in the County.

Undeveloped Rights-of-way

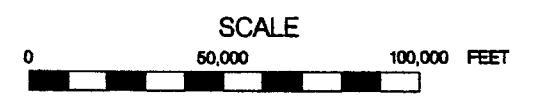
In the early 1900's, numerous subdivisions were platted in Douglas County. These subdivisions, which include many of the home orchard tracts and other smaller lot subdivisions such as Gardiner, Winchester Bay and Dillard, were often platted in a rectilinear form without consideration being given to any topographic constraints which might restrict their development. The result of this is that there are numerous dedicated rights-of-way which could never be developed as roads to serve adjacent property due to the steepness of the terrain or other constraints. As interest arises in development of properties which would require access by such undeveloped rights-of-way, the County should determine the most appropriate means of access and, through vacation, trade or sale eliminate unusable rights-of-way and acquire appropriate access to allow efficient land utilization in these areas.

TRANSPORTATION
ELEMENT
SUPPORT DOCUMENT

RAILWAYS



- CLASS 1
- CLASS 2
- - - - CLASS 3



DOUGLAS COUNTY
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RAIL TRANSPORTATION

Railroads are an important part of the Douglas County freight transportation system carrying local goods to markets across the country and goods needed in the County from markets elsewhere.

Facilities

Rail service to the County is provided by the Central Oregon Pacific Railroad (COPR). Central Oregon Pacific operates two branch lines which run through the County. One of these lines is located on the coast running north from Myrtle Point in Coos County to Florence in Lane County where it turns inland to Eugene. The other line generally follows Highway 99 from the northern County limits to Myrtle Creek where it follows Cow Creek to Glendale and passes into Josephine County. The length of the coastal line in Douglas County is 22 miles while that line which travels the central County is approximately 125 miles in length. In addition to the two Central Oregon Pacific coastal line to the International Paper facilities in Gardiner. RailTex is the operator of the local branch line which provides rail support to the Reedsport Area. The rail service is deemed important to the region and provides a lower cost option for freight shipments. These railroad lines are shown on Map 2.

The Oregon Public Utility Commission through its track inspection program provides an indication of the condition of rail track throughout the State. Using the Federal Railroad Administration track class system, track condition is used to establish maximum allowable speeds for all lines in the State²³. These classes and maximum speeds are shown on the following table and Map 2.

TABLE 8
FRA TRACK CLASSES AND MAXIMUM SPEEDS

<u>Class</u>	<u>Maximum Speed for Freight Trains (in mph)</u>
Class 1	10
Class 2	25
Class 3	40
Class 4	60
Class 5	80
Class 6	110

The highest track class in the State is Class 5. Segments of each of the Central Oregon Pacific lines in the County are Class 2 and 3. No sections of the track are rated higher than Class 3.

²³1994 Oregon Rail Freight Plan, An Element of the Oregon Transportation Plan, ODOT; p. 1-7

In addition to the speed restrictions, the interior Central Oregon Pacific line between Riddle and the Southern County line is restricted in the size of car it can accommodate. Due to low vertical clearance, this section of track is not able to accommodate "AAR plate F cars". This type of car has a maximum height of 17 feet above the rails, and is approximately the size of a large wood chip car²⁴. In addition, narrow tunnels restrict the use of various types of equipment such as the AAR Plate F cars which are used primarily to haul wood chips, over the entire route.²⁵

Users The shipment of goods to and from the County by rail totals 1,214,000 tons. In 1992, Central Oregon Pacific traffic originating and terminating in Douglas County was lumber or wood products, fiberboard, paperboard or pulp board. The total originating and terminating tonnage originating in Douglas County is 3.6 percent of the state total.²⁶

The Reedsport Area Transportation study recommended the rail system and service provided to the Southern Oregon Coastal Region be evaluated for its economic viability and contribution to the vitality of the region. The study determined that passenger services were not warranted due to the insufficient population base. Adequate service is provided at the inland railway terminal in Eugene. The study did propose a Southern Oregon Coastal Region freight/passenger rail connection to the proposed future high speed rail terminal in Eugene to promote the alternative mode and supplement the attractiveness of high speed rail.

The Sutherlin Area Transportation Study identified that freight services are provided by CORP, or its successor. The study indicated that the City of Sutherlin should continue to work with prospective business tenants and CORP to develop rail service on an as needed basis. Sutherlin crossings may require some upgrading if increased rail traffic is proposed.

All six transportation studies recognized that passenger service is not directly available to Douglas County. As the county grows, the opportunity exists for bus-based rail link service between Eugene and Roseburg.

The Oregon Transportation Plan calls for the Port of Coos Bay to have multi-modal connections, and access to rail freight services. Rail service is currently provided by an independent carrier. The plan indicates that increased reliance should be placed on rail transportation for bulk freight movements between rail access points. The need for making roadway capacity improvements could be postponed if shipments are diverted away from

²⁴Ibid.

²⁵1994 Oregon Rail Freight Plan, An Element of the Oregon Transportation Plan; ODOT, p. 1-13

²⁶1994 Oregon Rail Freight Plan, An Element of the Oregon Transportation Plan; ODOT: Table 1-4, p. 1-37.

the highway and onto rail. The Highway 38 and 42 corridors are considered a critical link in the state and regional freight transportation system.

The Federal Railroad Administration categorizes rail lines according to the gross tonnage carried by a given line in a given year. The categories used in this system are shown on Table 9.

TABLE 9
FRA RAIL CATEGORIES

<u>Category</u>	<u>Line Density</u>
"B" - Branchline	0 - 1.0 million gross tons
"A" - Branchline	1.0 - 5.0 million gross tons
"B" - Mainline	5.0 - 20.0 million gross tons
"A" - Mainline	Over 20.0 million gross tons

By this system only one of the Central Oregon Pacific lines in Douglas County is classified as "A" Branch lines. The Coos Bay Branch of the COPR is a "B: Branchline. The only "A" Mainlines in the State are the Central Oregon Pacific line from Oregon City through Klamath Falls to California and the Union Pacific line between Portland and Ontario²⁷.

Serious car shortages from time to time have helped erode the railroads' share of freight shipments in Oregon. Shifts in the location of demand for Pacific Northwest forest products have also had an impact. Recent growth in the west and south and the fact that a larger share of the lumber and plywood markets is being met by production in the southeastern states brings the markets for western wood products closer to home where there is more reliance on trucks.

The railroads are more energy-efficient than trucks over the same routes, although trucks can achieve much wider area coverage and greater flexibility because the highway network is so much more extensive than the railway network. Ironically, rising energy costs can favor either rail or truck freight depending on shipper's needs. More expensive fuel is a disadvantage for trucking freight, but the overall inflationary impact of higher oil prices has also raised the cost of borrowing money and maintaining an inventory. Therefore, many businesses find it more economical to order truckload lots which are one-third to one-half the size of a fully-loaded rail car.

Projections

Projections in the OTP establish rail freight growth at 2.5 percent per year (the same as for truck). At this rate, rail traffic would grow by 60 percent in 20 years. The difficulty in predicting freight movements is that so many outside factors influence traffic movements. Originating traffic in lumber and wood products, is cyclical due to changes in production

²⁷1994 Oregon Rail Freight Plan, An Element of the Oregon Transportation Plan; ODOT: Table 1-4, p. 1-6.

and demand associated with construction activities. Assuming that trends continue as described in the Oregon Transportation Plan (Pages 1-37 to 1-41) and that commodity movements not mentioned grow at an average rate of 2.5 percent annually as forecast in the OTP, total originating and terminating rail tonnage would be 43 million short tons in the year 2000. This represents a 27 percent increase over 1992.

To increase their business, railroads will have to be flexible. The car shortages hurt the ability to retain customers as does the continual rate increases. Regulatory procedures and labor rules hinder the ability of railroads to compete with aggressive and unregulated truck and waterway operators. They also hinder the attractiveness of railroads as an investment while the public has contributed to the building of state-owned highways and federally-operated waterways.

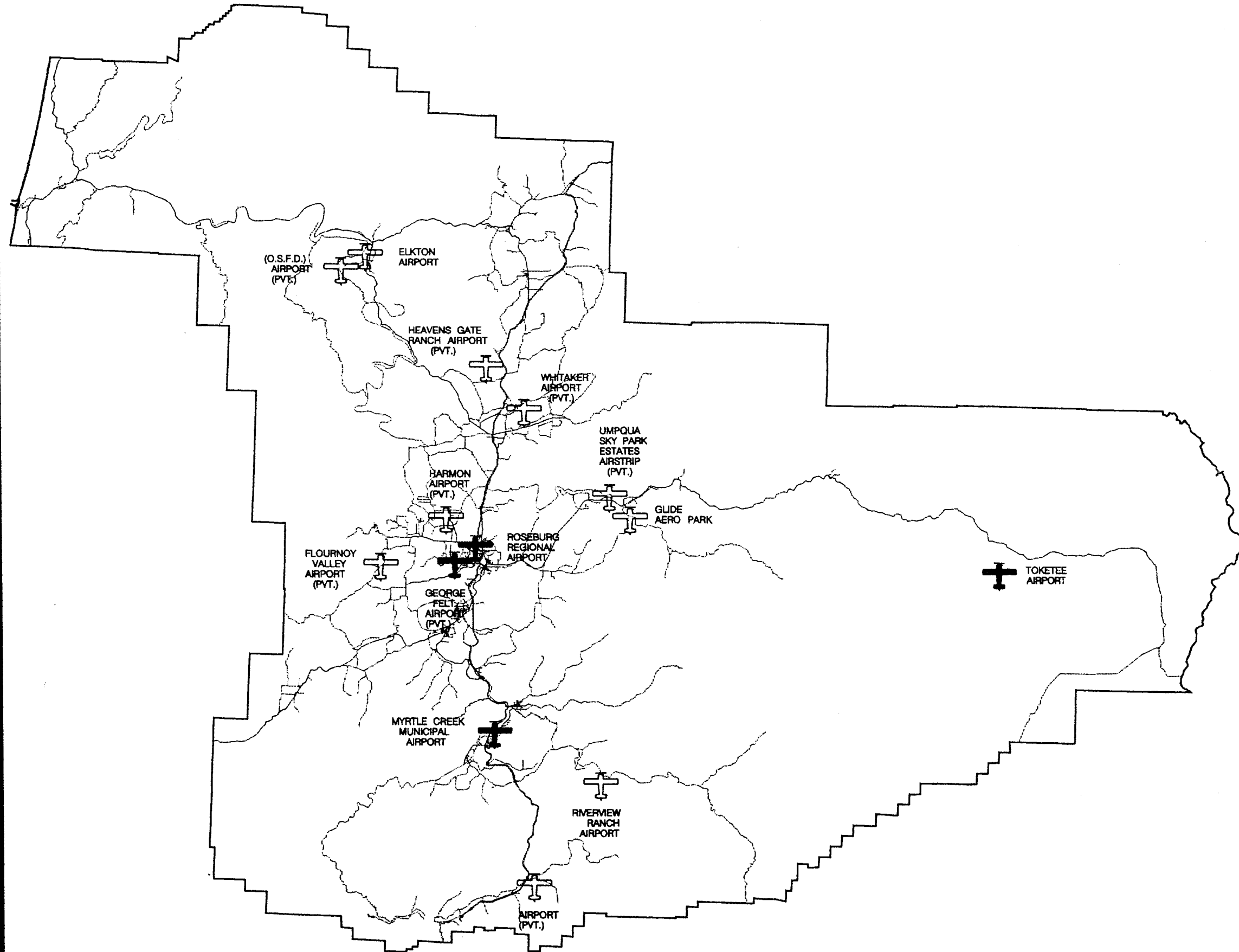
The Greater Roseburg Area Transportation Study supported relocating the rail switching yards from downtown Roseburg to Green. A detailed study should be conducted to determine the economic, environmental, and transportation related impacts and benefits of relocating the switching yard to Green or to another location outside Roseburg.



Overall, under present circumstances, the railroad tonnages may continue to increase as the Oregon economy grows, and international trade increases. However, the railroads' relative share of the transportation market will probably continue to decline.

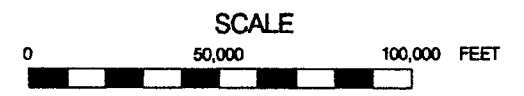
More substantial increases in demand for rail service, however, will depend on changes from current trends in both commodities and mode choice. To change this trend, the railroads would need to improve service to closer markets, thereby, reversing trends toward greater use of trucks. The railroads have a potential advantage in that they can provide more labor and energy efficient transportation than their competitors.

TRANSPORTATION
ELEMENT
SUPPORT DOCUMENT

AIRPORTS



-  PUBLIC
-  OTHER - PRIVATE



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AIR TRANSPORTATION

The role of aviation in the County's overall transportation system is becoming increasingly important as the advantages of this form of transportation become recognized. The speed of traveling by air makes it especially attractive to businesses which place a high value on time. The flexibility of routes and destinations make small planes and helicopters valuable tools for emergency and resource management purposes. And the experience of flying, itself, and the accessibility it provides to remote areas favor the recreational use of airplanes. The major aviation uses in Douglas County are related to these business, emergency, resource management and recreational uses. The County's private aviation transportation system, includes airport (Glide Aero Airpark, Roseburg - Lookingglass Airpark and Umpqua Sky Park Airpark).

Facilities

There are seven existing airports which lease three or more airplanes in Douglas County including three private use airports

- Glide Aero,
- Roseburg-Lookingglass,
- Umpqua Skypark,

and four public use airports

- Roseburg Regional,
- Myrtle Creek Municipal,
- George Felt Field (Roseburg) and
- the USFS Toketee State Airfield²⁸.

These airports are shown on Map 3.

Oregon Aviation System Plan

The Oregon Aviation System Plan (OASP) includes 165 existing or proposed airports as part of its system. In the evaluation of the appropriateness of a given airport for inclusion within the system, safety, ground access, environmental impacts and cost factors were considered. Inclusion within the OASP makes these facilities eligible for state financial assistance for airport improvements.

National Airport System Plan

In addition to the Oregon Aviation System Plan, the federal government has established the National Airport System Plan (NASP). Two airports in Douglas County, Roseburg Regional, and Myrtle Creek Municipal are part of this national system. To qualify for incorporation into the (NASP) an airport must meet the criteria established for any one of four service levels. These service levels, which are based upon the type of service provided, include Major Air Carrier Airports, Commuter Service Airports, Reliever Airports,

²⁸Oregon Aviation System Plan, Volume 1, Inventory, p. 12

Reliever Airports and General Aviation Airports. Both of the County airports within the national system have been classified as General Aviation Airports as they each meet criterion Number 3 for such facilities which states:

An existing airport may be included if it is in an accepted state or regional airport system plan, has at least 10 based aircraft (or engines), and serves a community 30 minutes or more ground travel time from the nearest existing or proposed NASP facility.

A proposed facility to serve such a community will be included if there is evidence that at least 10 aircraft (engines) will be based there within the first year of its operation²⁹.

The NASP also rates airports within its system according to their operational capacity. Using a seven system, the

Myrtle Creek Municipal airport is rated as a Basic Utility airport which is defined in the NASP as follows:

Basic Utility. this type of airport accommodates about 95 percent of the general aviation propeller fleet under 12,500 pounds. There is no special activity criterion required for this type of airport other than being eligible for inclusion in the NASP.

The Roseburg Regional airport is rated as a General Utility airport which is defined by NASP as follows:

General Utility. This type of airport accommodates substantially all general aviation propeller aircraft under 12,500 pounds. the justification for a GU airport must indicate at least 500 (existing or forecast) itinerant operations by aircraft between 6,000 and 12,500 pounds maximum gross weight (MGW).

In addition to establishing existing levels of service, the NASP has projected service levels and operation capacities for all airports in its system to the year 2014. The Myrtle Creek Municipal Airport is projected to remain at the general Aviation - Basic Utility service and operational levels. The service and operational levels at the Roseburg Regional Airport are projected to increase by 2014. The NASP has projected service levels and operation capacities for all airports in its system to the year 2014. The Myrtle Creek airport is projected to remain at their General Aviation - Basic Utility service and operational levels. The service and operational levels at the Roseburg Regional Airport are General Utility Stage I, Airport Reference Code (ARC)B-II airport. Should commercial air service be initiated, the dimensional design standards for the airport are not expected to change.

²⁹ibid.

Airports which meet this service level must meet the following three criteria:

1. The airport is not regularly served by a major air carrier.
2. The airport is regularly served by one or more commuter air carriers (not including cargo-only or mail-only carriers).
3. The airport enplaned not less than 2,500 passengers during the preceding calendar year on air carriers operating under a Section 401(a) exemption (these may include air taxi operators).

The operational capacity level of the Roseburg Airport is also projected to increase to the Basic Transport level. This level is defined in the NASP as follows:

Basic Transport. These airports accommodate all general aviation aircraft up to 50,000 pounds (MGW), including propeller transports and business or executive jets. The justification for this airport type must show that it has at least 500 annual itinerant operations by transport type aircraft between 12,500 and 60,000.

The following table summarizes the state and federal status of airports in Douglas County.

TABLE 10
COUNTY AIRPORT SITES

Airport	Use	Ownership	Status	Included in OASP	NASP Class 89
Roseburg Regional	Open to Public	Municipal	Non-exempt	Yes	CS/BT
Myrtle Creek Municipal	Open to Public	Municipal	Non-exempt	Yes	GA/BU
George Felt	Open to Public	Private	Non-exempt	Yes	None
Toketee State	Open to Public	State	Exempt	Yes	None
Glide Aero	Personal Use	Private	Non-exempt	Yes	
Umpqua Sky Park	Personal Use	Private	Non-exempt	Yes	
Roseburg Lookingglass	Personal Use	Private	Non-exempt	Yes	

GA = General Aviation
BU = Basic Utility
BT = Basic Transport

GU = General Utility
CS = Commuter Service

Roseburg Municipal Airport

The Roseburg Municipal Airport is located on a 184 acre site in the northern portion of the city between the I-5 Freeway and Central Oregon Pacific Railway line. This facility has a 4,600 foot long 100 foot wide asphalt runway with medium intensity lighting system that includes medium intensity taxiway lighting. Fuel sales, instruction, aircraft sales and rental, and air taxi service are available. A total of 108 general aviation aircraft were based at the airport in 1994. Annual operations in 1994 totaled 30,794 including both based and itinerant use.

In 1994, the Roseburg Airport Commission authorized the development of an Airport Master Plan which would analyze the existing facility, project future needs and evaluate various alternatives. Analysis conducted in the course of the Master Plan study confirmed that the airport's present location, particularly its weather and topography, limits the airport's potential for development and restricts aircraft operations into and out of Roseburg. The mountainous terrain surrounding the area obstructs air navigation even

during visual (good weather) flying conditions. During adverse weather, the terrain limits aircraft operations even further.

Over a year's time, the airport is closed at least eight percent of the time because of weather restrictions. To increase the amount of time the airport is open would require a more sophisticated instrument landing system. However, such a system is not feasible because the surrounding terrain would not accommodate the necessary clear approach paths based on current Federal development standards.

The Greater Roseburg Area Transportation Study recommended the airport obtain a Differential Global Positioning System and limit land uses adjacent to the airport to reduce conflicts. Eugene provides direct or connector service to most major domestic airports. Roseburg Regional Airport has updated their master plan and may provide commuter service if a carrier is interested.

The City of Roseburg retained W&H Pacific Inc and Scudder and Associates to prepare the Master Plan for the Roseburg Regional Airport in August 1994³⁰. The study concluded that the potential benefits obtainable from any other site in Douglas County are considered insignificant compared to the costs and social impacts which would result from the development of another site, and therefore, it was recommended that the City of Roseburg adopt the philosophy that the existing Roseburg Municipal Airport is the best site to serve and continue to serve the public need for aviation services in Douglas County³¹.

The Roseburg Regional Airport Master Plan projects that in the year 2014 there will be 150 aircraft based at that facility and that annual operations for that year will total 45,884³². The airport has the capacity for up to 230,000 annual operations, more than double the number of projected operations. Facility improvements are itemized by Oregon Aeronautics System Plan and the Airport Master Plan as being required to accommodate the projected increased activity including tie-downs, hangars, expansion of aprons and removal of obstructions.

Sutherlin

Sutherlin had a municipal airport between 1946 and 1990; it was closed in 1991. Closure was based on the realization that the airport could not be expanded for commercial aviation use. It served primarily as a crop dusting base and had a variable level of based

³⁰W&H Pacific Inc, Roseburg Regional Airport Master Plan Update 1995 - 2014, January 1996

³¹City of Roseburg, Roseburg Urban Area Comprehensive Plan, Technical Support Document, March, 1982.

³²Roseburg Regional Airport Master Plan Update, p.3-24.

aircraft. The city realized it could gain more economic benefit by using the land for its underlying zoning designation. Air passenger facilities are available at Roseburg and Eugene. The City has designated the former airport park area as an industrial park. There are three tenants in the industrial park, and further development is anticipated. There are no plans to re-open the Sutherlin airport in the future.

Myrtle Creek Municipal airport

The Myrtle Creek Municipal airport has been in aeronautical use since 1968 and was originally owned and operated by State of Oregon Department of Transportation - Aeronautics. The state transferred ownership to the City of Myrtle Creek in 1989. The name of the airport was changed from Tri-City State Airport to Myrtle Creek Municipal Airport following transfer to the City. It is situated on a 80.6 acre site located between the I-5 Freeway and South Umpqua River southwest of Myrtle Creek. this facility has a 2,600 foot and 50 foot wide asphalt runway with no lighting.

Fuel sales, aircraft rental and construction are available. Eleven aircraft were based at the airport in 1995. There was a total of 2,200 local itinerant operations at that facility in the same year.

In 1995, the City of Myrtle Creek and State of Oregon - Department of Transportation Aeronautics completed the Airport Layout Plan report in order to examine the existing configuration of the airport and to provide direction for future airport development. The development of the Airport Layout Plan Report reflects recognition by the City of Myrtle Creek of a need to improve basic airfield facilities, operational efficiency and safety while providing opportunities for private investment in aviation facilities.

Myrtle Creek is located in the western foothills of the Cascade Range, which parallels the coast and the Coast Range to the west. The effects of the Pacific Ocean and the forced ascent of moist air masses from the Pacific due to these mountains is a primary influence on the climate at Myrtle Creek. The area surrounding the airport is reported to have less ground fog than Roseburg. The Myrtle Creek Municipal Airport plan projects that by the year 2013 the number of based aircraft at Myrtle Creek will total 31 planes and the number of annual operations will reach 6,250. The annual capacity for this airport is 54,800³³ annual operations. Identified improvements needed to accommodate future demand involve predominantly runway extension to an ultimate length of 3,600 feet, taxiway, addition of medium intensity runway lighting and apron improvements and acquisition of 15 acres for clear zone approach.

Reedsport

Prior planning analysis proposed a Reedsport airport to be located on a 40 acre site approximately 3 miles east of Reedsport adjacent to Highway 38 (Dean's Creek Elk

³³SFC Engineering Company, Airport Layout Plan Report for the Myrtle Creek Municipal Airport, Myrtle Creek, Oregon, February 1995, p. 3-14

Viewing Area). This project was unacceptable because of natural resources and the proximity of other airports. The nearest public air transportation facility is located in Lakeside, approximately 15 miles to the south. This facility provides daily corporate services to Portland International Airport. Regional freight and passenger service is available in North Bend, approximately 30 miles to the south. National and international passenger and freight service is provided from Eugene (75 miles to the northeast) and Portland (180 miles to the northeast). The continued use of these facilities for air service is recommended. A link via public services to these facilities should be supported

Toketee Airfield

Toketee Airfield is located within the Umpqua National Forest. The airfield which is operated by the U.S. Forest Service via a special agreement with ODOT to provide an emergency airstrip. The Oregon Department of Transportation completes the maintenance of this facility. The facility consists of a 6,000 foot dirt runway. No aircraft are based at the airfields and no services are available. The airfield is used predominantly by the Forest Service for emergency and administrative purposes. The number of operations occurring at the airfield in 1979 was 600. The OASP does not project any increase in annual operations in the future.

Felt Field

Felt Field is the only privately owned public use airport in the County. It is located on 76 acre site one-half mile west of Roseburg adjacent to the South Umpqua River. The facility includes a 2,375 foot long turf runway with no lighting. Only fuel service is available at the site. In 1991, seventeen aircraft were based at the airport and annual operations in 1979 totaled 3,700. There are no records for the number of operations occurring at the airfield in 1996.

No master plan has been prepared for Felt Field. The OASP projects that by the year 2000 the number of based aircraft at the airport will total 32 planes and the number of operations will reach 5,900. The annual capacity of this facility is calculated by OASP to be 60,000.

Roseburg Lookingglass Airpark

The privately owned and operated airpark is located 9 miles southwest of Roseburg. The facility consists of a 2,600 by 90 foot asphalt and dirt runway. Three aircraft are based at the airfield and no services are available. The airfield is used predominantly by the owners. There are no records for the number of operations occurring at the airfield in 1996. The OASP does not project any increase in annual operations in the future.

Glide Aero Airpark

The privately owned and operated airpark is located 2.5 miles south of Glide. The facility consists of a 2,300 by 100 foot turf runway. Three aircraft are based at the airfield and no services are available. The airfield is used predominantly by the owners. There are no records for the number of operations occurring at the airfield in 1996. The OASP does not

project any increase in annual operations in the future.

Umpqua Sky Park

The privately owned and operated airpark is located 1.5 miles west of Glide. The facility consists of a 1,840 by 100 foot turf runway. Eight aircraft are based at the airfield and no services are available. The airfield is used predominantly by the owners. There are no records for the number of operations occurring at the airfield in 1996. The OASP does not project any increase in annual operations in the future.

Users

There is no scheduled commercial air passenger service available in Douglas County. The closest airports offering such services are located at Eugene's Mahlon Sweet Field and at the Medford-Jackson County Airport. Each of these facilities is located approximately eighty miles from Roseburg.

The Oregon Transportation Plan has defined a minimum level of service for commercial airports. For Roseburg, Air service connections between Portland or other West Coast hubs, and other areas of Oregon should be provided whenever commercially viable (three round trip planes per day of 19 passengers as a minimum measure of commercial viability) or whenever intercity air connections are more economic than providing operating assistance to other modes.³⁴

It is estimated by the State Aeronautics Division that, in 1979, there were 449 active pilots in Douglas County³⁵. Projections by that Division indicate that number should increase to 622 by the year 2000. This represents a 39 percent increase over this time period. Over the same time period it is projected that the number of active pilots in Oregon overall will increase by 62 percent. The lesser increase in Douglas County is predicated on projections of population and employment growth for the county, prepared by Bonneville Power Administration, which are lower than those for the State over the same time period.

The number of active general aviation based aircraft at existing airports in Douglas County in 1979 was estimated to be 150 by the State Aeronautics Division³⁶. By the year 2014, this number is projected to increase to 228, a 51 percent increase. The overall increase in the number of based aircraft in the County compares with an 89 percent for the State over the same period.

³⁴Oregon Transportation Plan, Oregon Transportation Commission, September 1992; p. 91

³⁵Oregon Study Team, Oregon Aviation System Plan, Volume II, Forecasts, Oregon Department of Transportation, Aeronautics Division, 1981, p. 25.

³⁶Ibid p. 40.

Airport Compatibility

A number of factors must be considered to assure land use compatibility around airports: 1) the nature of aircraft operations; 2) airport design and location; 3) airport demand and utilization; and 4) control of the growth or encroachment of incompatible uses near the airport. These factors encompass both the noise impacts and safety issues that are the possible sources of conflict between airports and surrounding land uses.

Aviation safety has long been recognized as a land use concern near airports. There are carefully defined "imaginary surfaces: which identify areas where fixed objects would obstruct navigable airspace above airports pursuant to FAA Regulations. The land under the approach surface to a runway should not impair a pilot's visibility, cause electrical interference with navigational signals, or create bird strike hazards. Clear zones, the areas at the runway ends where the "imaginary surface" nears the ground, should be kept clear of all objects. Mishaps occur more frequently in this area, and clear land can prevent a major accident. It is to the benefit of both air travelers and people on the ground to have navigable airspace free of obstructions.

Noise problems near airports have intensified in recent years because noise sensitive uses (primarily residential areas) have moved closer to airports and air traffic volumes have increased. The significant impacts that aircraft noise can have on communities led to the issuance of an Aviation Noise Abatement Policy by the FAA in 1976. In accord with this policy the Federal government sets aircraft noise emission standards and requires airport improvement projects receiving federal funds to be consistent with local plans. State and local governments are responsible for ensuring land uses near airports are compatible with present and projected noise exposure. Sound insulation is urged and notice should be given to prospective residents and purchasers of real estate concerning airport noise exposure.

Compatible land uses that avoid safety and noise conflicts may be achieved through either existing zoning districts or by establishing a special airport overlay zone that would modify the ordinary zoning districts in the vicinity of the airports. The use of overlay zones, including an airport development zone for aviation related uses, offers the most flexibility

while providing a mechanism to monitor potential airport hazards and incompatible land uses.

The Airport Zoning Act (ORS 492.510 to 492.710) authorizes every political subdivision in Oregon having an airport hazard area to adopt, administer, and enforce airport zoning regulations. The Act also provides for airport zoning boards, whose function could be filled by an existing planning commission. Airport zoning may be incorporated in a more comprehensive zoning ordinance. The circumstances under which easements or air rights should be acquired are specified in ORS 492.710.

The nature of a safety/noise overlay zone varies with the level of existing and forecasted

airport operations as well as the planned land uses in the airport vicinity. As many as five elements could be included in an overlay zone for a large airport: 1) a height obstruction zone; 2) an approach safety zone; 3) a clear zone; 4) a noise corridor zone; and 5) an airport development zone. The mapping of these areas must be tailored to each airport based on applicable aviation and environmental regulations and any special local circumstances.

The most effective way of assuring land uses are compatible with aviation activities is to establish suitable controls on surrounding land uses as soon as a new airport begins operation. This can enable the development of mutually supportive land uses and avoid conflicts. The placement of an overlay zone to protect airport sites requires thorough documentation of aviation needs.

WATERWAYS TRANSPORTATION

Water transportation is a very efficient method for the movement of goods and raw materials. The average 1979 rate per ton-mile for water transported freight was less than one cent. This compares with over two cents by rail, and twelve cents by motor carriers³⁷. Shipping costs for grain down the Columbia River from the Lewiston/Clarkston area range as follows (dollars per ton of grain): \$5.55 - barge, \$10.15 train, \$25.00 - truck. The average 1995 freight revenue rate per ton-mile for water transported freight was \$0.0073. This compares with \$0.025 by rail and \$0.2508 by truck. The economy of this form of transportation in conjunction with the types of goods and raw materials which require movement in this area have resulted in the Port of Umpqua being the third largest tonnage handling port on the Oregon coast³⁸.

Portions of these rivers in Douglas County are navigable for freight transportation; the Umpqua River, Smith River and Schofield Creek. The Umpqua River has been authorized by Congress as a navigable channel for 122.0 miles upstream. However, only 11.9 miles of this total has been funded for maintenance by the Corps of Engineers. A channel depth of 26 feet is maintained at the river's mouth. The Corps of Engineers maintains the Umpqua River to a depth of 22 feet is maintained for the remainder of the 12± mile funded length to Reedsport including a 22 foot deep side channel to Gardiner. The Umpqua River (Hwy. 101) Bridge and the Central Oregon & Pacific Railroad Bridge are both swing span bridges with passible openings in excess of 100 feet. The Umpqua and Smith Rivers and Schofield Creek are navigable waterways which provide connections to other communities as well as the Pacific Ocean. The Smith River has an authorized navigable length of 21.0 miles. In the past, one mile of this total was funded for maintenance to a depth of 6 feet. However, this portion is no longer dredged by the Army Corps of Engineers due to the lack of commercial tonnage transported on the channel. Schofield Creek is navigable for 6.0 miles with a channel depth of 6 feet. This waterway has not been funded for Corps maintenance.

Further inland, the South Umpqua River is used primarily for fishing and recreational boating. In Roseburg, the portion of the South Umpqua River upstream from the Stewart Parkway bridge the river is considered non-navigable. The South Umpqua River meets the North Umpqua River at a location approximately four miles to the northwest of Roseburg and at that point forms the mainstem Umpqua River. The North Umpqua River is considered Non-navigable above the Winchester Dam. Only the mainstem of the Umpqua River is used for limited shipments of raw timber.

Facilities

³⁷Oregon Department of Transportation, Statewide Transportation Plan, Volume 1: Overview, 1984.

³⁸Port of Umpqua records

Port facilities in coastal Douglas County are under both public and private ownership. Salmon Harbor is a marina located near the mouth of the Umpqua River. This facility is jointly managed by Douglas County and the Port of Umpqua. The harbor presently has moorage capacity for ± 900 boats with an ultimate capacity of approximately 1,300 boats.

This facility is used primarily for recreational purposes. A complete discussion of Salmon Harbor may be found in the Winchester Bay Comprehensive Plan and the Park and Recreation Element of the Douglas County Comprehensive Plan. The only other publicly owned docking ability is located in Reedsport and under the jurisdiction of the Port of Umpqua. This facility is used primarily for commercial and industrial vessels including ship building and repair.

Privately owned dock facilities in the estuary include Umpqua River Navigation sand and gravel receiving and shipment station in Reedsport, Willamette Industries Bolon Island dock and International Paper's wood chip unloading wharf in Gardiner.

The Oregon Transportation Plan supports providing sufficient port capacity including water and land facilities to provide safe access to open seas for commercial fishing, recreation, and commerce³⁹.

Users

Industrial Users

In 1980 a total of 1,010,646 and in 1995 a total of 268,874 short tons were shipped using port facilities in coastal Douglas County. This represents 2.5 (1980) and 0.44 (1995) percent of Oregon's total tonnage for that year ranked and Douglas County as the third largest shipping port (by tonnage) on the Oregon Coast. The majority of the materials shipped included sand, gravel, crushed rock and wood products. The remainder of the shipments were comprised of fuel oil and fish. This total shipment compares with 908,342 short tons in 1965, 827,313 in 1970, 599,929 in 1975⁴⁰, and 33,561 in 1990.

Plans and Projections

No projections are available relative to the future of waterborne shipping in coastal Douglas County. Past volumes shipped in the County do not lend themselves to extrapolation of future trends. As the variety of goods shipped in the County is limited primarily to sand and gravel and wood products, the future of waterborne freight transportation is tied closely to the market for these materials and the efforts at diversification of the coastal economy.

The Port of Umpqua, in March 1996 approved a list of goals for 1996-1997 and long term goals to diversify and strengthen the economy of the Port District.

³⁹Oregon Transportation Plan, Oregon Transportation Commission, September 1992; p. 92.

⁴⁰Martin, Michael, An Environmental and Socio-Economic Description of Coastal Douglas County, Umpqua Regional Council Governments, Roseburg, Oregon, 1978.

The Port of Umpqua is in the process of preparing a new strategic business plan to address implementation of their goals. These goals are reviewed and updated on a regular basis. For the 1996-1997 fiscal year the major themes are:

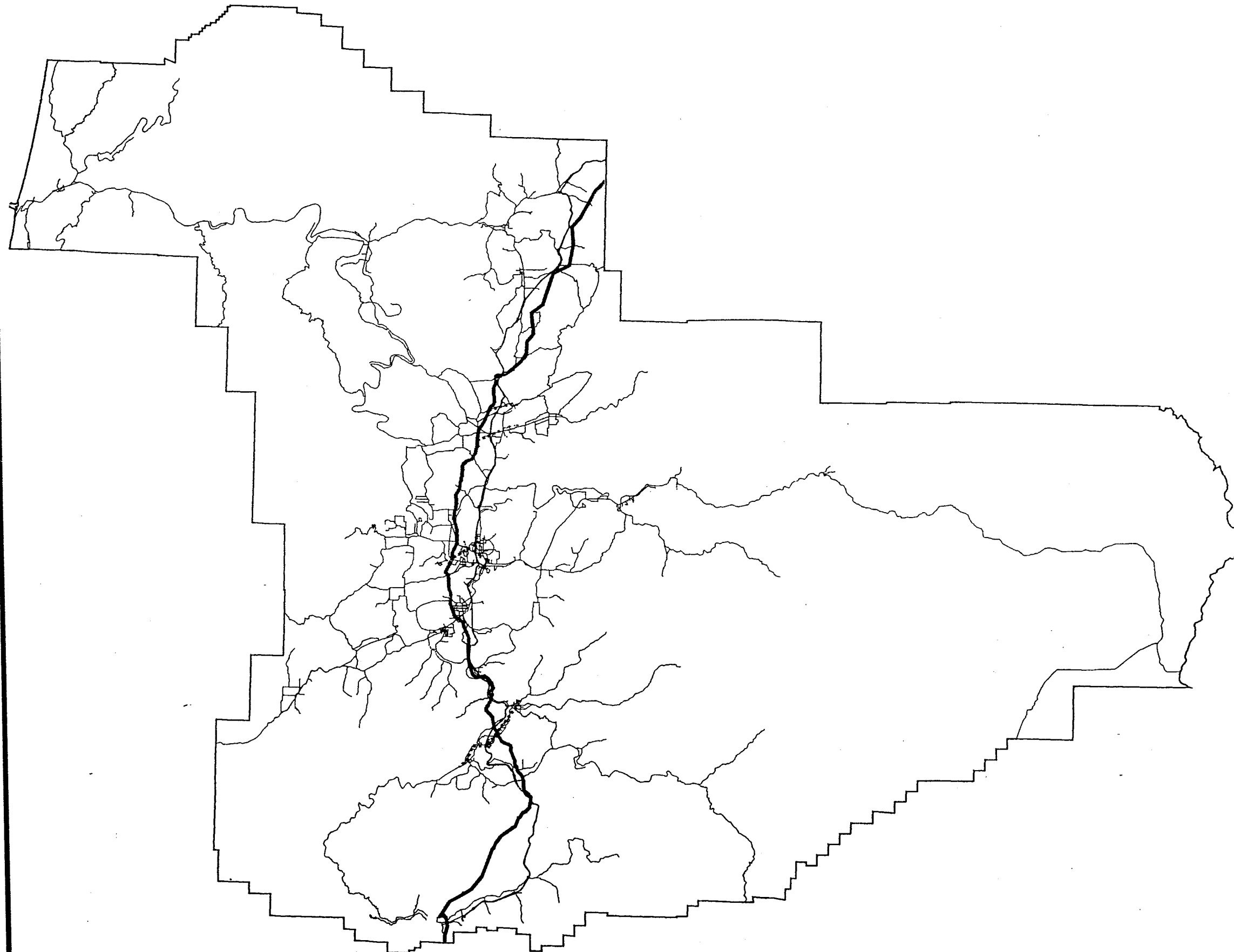
- Support activities to broaden the economic base, including increased tourism, of the Port District and specifically to continue development of Salmon Harbor Marina including the West Spit.
- Continue support of Federal funding for maintenance dredging of shallow draft Ports
- Construction of an artificial reef generally located south of the south jetty approximately one half mile out to sea.

Private Uses

Some homes on the north side of the Umpqua River do not have direct road access. These property owners obtain access via boat to Highway 38. The ongoing access needs of these property owners should be addressed when highway improvements are proposed.

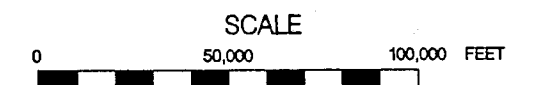
TRANSPORTATION
ELEMENT

NATURAL GAS
PIPELINES



— TRANSMISSION LINE

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PIPELINE TRANSPORTATION

From 1991-96 six transportation studies were conducted in Douglas County. All transportation modes were reviewed and these studies found that existing pipelines capacities, with the exception of water, are adequate to meet demand within the study period.

In the Reedsport area, the water supply system is in potential jeopardy of being contaminated due to its close proximity of US 101, a hazardous material route. ODOT has begun construction of a project to protect this water resource. ODOT is widening US 101, placing shoulder barriers between the northbound lanes and the lake, and constructing retention barriers to collect spills and runoff from the highway before it reaches the lake.

The studies encouraged all cities to work with the various service providers to identify service patterns and utility corridors that make the most sense at the time a need is identified.

The future location of pipeline and other networks in Sutherlin were proposed along the north south railroad line which may provide a possible right-of-way for shared use as a fiber optic line. There were no existing pipelines facilities found along the Hwy. 38 or 42 corridors. However, portions of the Highway 42 facility does contain fiber optic trunk lines.

Industries along the Hwy. 42 corridor have expressed interest in the development of a natural gas pipeline from the existing Grants Pass lateral west of Roseburg to the coast. Preliminary investigations indicate that such a utility, accommodated within the existing Bonneville Power Administration electric transmission line clearing, may be viable and may be a catalyst to economic development in the area.

Pipelines are the predominant means of transporting gaseous and liquid fuels. Among the advantages of this form of transportation are its low operating cost and relatively small labor requirement. The cost of pipeline transportation is approximately one cent per ton-mile, comparable to that of barge shipment and less than half the cost of rail. Since the initial investment typically represents about two-thirds of the total cost, once in place, pipelines are relatively immune to inflationary pressures. Pipelines are less sensitive to grade and routes are frequently more direct than railroads or highways. Pipeline drawbacks include its high initial investment, one-way flow of one or a limited variety of products, and a low transport speed of about five miles per hour.

Facilities

The Northwest Pipeline Corporation operates a natural gas transmission line in central Douglas County. This company brings natural gas into the Pacific Northwest from Canada and the Rocky Mountain region. Its transmission line through Douglas County consists of a 10 inch pipeline extending from the Willamette Valley generally following the I-5 corridor

south into Josephine County (see Map 4). Gas from this line is distributed to consumers in the County except Elkton, Drain, Yoncalla and Glendale. No gas or oil transmission or distribution facilities are located in the coastal portion of the County.

Users

W.P. Natural Gas serves approximately 11,120 customers in Douglas County including 9,300± residential users and 1,820± commercial and industrial users. Although the number of residential users far exceeds commercial and industrial users, the amount of gas consumed by commercial and industrial uses approximately equals residential consumption. The largest consumer of natural gas in southwest Oregon is Glenbrook Nickel which uses approximately 8 million therms per year, one-tenth of W.P. Natural Gas's sales in Oregon.

Over the period from 1972 and 1982 the amount of gas sold in Oregon decreased from approximately one billion therms to 680 million therms, a decrease of 32 percent. The decrease experienced by C.P. National (now W.P. Natural Gas) was consistent with that experienced by the State overall. Discussions with local C.P. National (now W.P. Natural Gas) representatives indicate that, in Douglas County, sales have increased since 1982 with commercial and industrial sales increasing by 10 percent over the period. Residential use, however, continues to decline due primarily to energy conservation practices and increased use of wood for heating.

Plans and Projections

A discussion of the development and expansion of the pipeline system in Oregon can be found in A Survey of Energy Pipelines in Oregon. This study concludes that the existing pipelines in the State have sufficient capacity to meet the State's needs at least to 1999⁴¹.

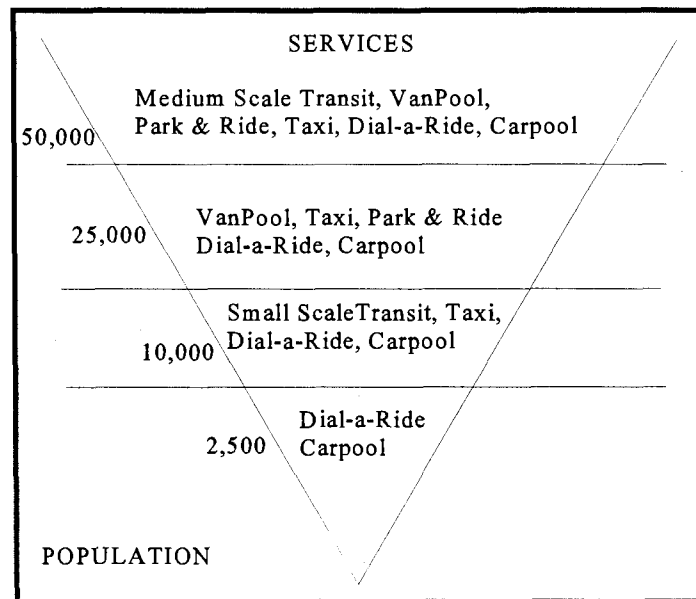
The Oregon Transportation Plan provides a minimum level of service for pipelines. In order to make alternative fuel widely available to the transportation uses and to support regional economic development opportunities, adequate natural gas should be available every 100 to 150 miles on major interstate/statewide transportation corridors throughout the state when economically feasible. The pipeline system within Douglas County exceeds the standards of the Oregon Transportation Plan.

⁴¹Hirsch, Fred, A Survey of Energy Pipelines in Oregon, Oregon Department of Transportation, Salem, Oregon, 1979, p. 63.

PUBLIC TRANSPORTATION

A variety of public transportation services are available to Douglas County residents. Air and rail service are discussed in the sections covering those travel modes. Other forms of public transportation which use the existing highway system are discussed in this section.

The Oregon Public Transportation Plan, (figure below) outlines the public transportation choices for a community. Implementation of the Oregon Public Transportation Plan builds from maintaining the existing system as it is today. A second step should keep pace with growth. And a third step should offer a menu of service options.



A Chronology of Douglas County Public Transportation⁴²

- 1940-1956 Roseburg Transit Company, one bus on a regular schedule. No subsidy or franchise. Failed due to the cost of maintenance and the loss of ridership.
- 1957-1963 Roseburg City Bus Company, three Volkswagen buses later reduced to two buses on a fixed route loop. Franchise operation with the City of Roseburg. The franchise was terminated due to excessive operating costs, scheduling problems and increasing debt.
- 1963 Evergreen Bus Lines, two Ford vans over a four fixed routes. Failed due to

⁴²"Douglas County Transportation Planning Analysis: Douglas County Transportation Planning Advisory Committee"; Umpqua Regional Council of Governments. p. 34-35

insufficient ridership and operating costs.

- 1976-1984 City of Roseburg "Pumpqua Pumpkin Ride", a public bus system begun as a demonstration project using three 43 passenger buses. Financing was obtained by state and federal funds and a city levy. Failed following an unsuccessful attempt to pass a third three year levy.

- 1976-1982 City of Reedsport "Tri-River Trolley" provided a public transportation system using one mini-bus. Financing for this fixed loop route was dependent upon federal funds. The transit system was discontinued due low ridership and the lack of funding.

- 1986-1996 Douglas County Special Transportation Program (STP), was operated by the Health and Social Services Department and subsidized by state and local funds and donations. The STP provided an extensive demand responsive (Dial-a-ride) and van service to areas seniors and the disabled via 13 vehicles located throughout the County including Reedsport, Glendale and Glide. Program vehicles were driven by 7 staff drivers and 6 volunteers and provided regular rides to senior dining sites and intercity trips to medical appointments and shopping. The STP was instrumental in acquiring 12 other state funded vehicles for use by area group homes, Sunrise Enterprises and the Cities of Winston and Sutherlin who operate their own volunteer programs. In 1994 the Dial-a-Ride system was further enhanced by a state grant to operate a demonstration fixed route transit service between Oakland, Roseburg and Canyonville. The fixed route system consisted of 5 vehicles ranging in size from 10 to 24 passengers. The entire STP program was transferred by the County to the Umpqua Regional Council of Governments in July 1996.

- 1996-Present: Umpqua Regional Transit, operated by Umpqua Regional Council of Governments, assumed responsibility for Douglas County's Special Transportation program and public loop transit demonstration project in July 1996. All of the elements of the STP have been transferred including operations and funding. The Council of Governments is pursuing strategies to increase general ridership on the "fixed loop" portion of the STP system and public loop transit demonstration project. Service is provided at approximately 90 minute head ways in nine communities. Ridership in fiscal year 95/96 averaged 159 persons per day which was an increase from 101 persons per day in fiscal year 94/95. The average for fiscal year 96/97 is currently 177 persons per day. Dial-a-ride ridership has also increased over the same time period.

Bus Service

Greyhound Lines, Inc. operates buses along two north-south corridors through Douglas County. Along the I-5/Highway 99 corridor, Greyhound operates four buses per day - two northbound and two southbound. All of these buses stop in Roseburg. Other stops, which vary according to the schedule, are made at Rice Hill, Sutherlin, Myrtle Creek and Canyonville. In addition, Greyhound operates two buses per day - one northbound and one southbound along Highway 101. All of these buses stop in Reedsport.

Raz Transportation provides service from Reedsport to Eugene, but not to the interior of Douglas County.

In addition to scheduled bus service chartered bus service is provided in the County by Greyhound Lines, Inc., Trailways Lines, Inc. and other smaller charter companies.

The Oregon Transportation Plan has defined a minimum level of service for the Roseburg Market area to have at least three minimum intermodal (Ex. taxi, bus, transit, train, air) round trip connections to Portland available per day via intercity passenger modes. The minimum of three intermodal methods to connect to Portland are: ① "Umpqua Regional Transit" to Roseburg, bust to Eugene for connection by bus to Portland, ② Taxi to Roseburg, Bus to Eugene, for connection by air to Portland, ③ Bus to Eugene, connect to passenger rail to Portland. Historically, the commercial venders (bus and air) have met market demand for services. The existing level of service complies with the pre-defined minimum.⁴³

Taxi Service

Taxi service is available to west, south and central Douglas County by companies based in Reedsport, Roseburg and Myrtle Creek.

⁴³Oregon Transportation Plan, Oregon Transportation Commission, September 1992; p. 88

PUBLIC TRANSPORTATION FACILITIES-

The Umpqua Regional Transit program, serving Douglas County, is no longer a demonstration project but is now considered a "transitional system" by the state. The Council of Governments, Douglas County and ODOT are working out a transitional funding package through the year 2001 when less state support and more federal and local financial support is anticipated. At this time the system may become a fully functioning transit system. If this is to occur, additional local transportation planning would coincide through a Legislative planning update process.

ODOT proposes to extend the transit/para-transit service to serve Hwy. 38 and 42, including connections to the Willamette Valley. This extension would enhance and expand the existing senior on-demand transit services. ODOT has expressed their long term goal to provide daily intercity transit services along the length of the Hwy. 38 and 42 corridors.

Umpqua Regional Council of Governments is conducting a transit feasibility study. This study will evaluate transit service in the greater Roseburg area (Roseburg UGB south to the Winston UGB) only. The Greater Roseburg Area Transportation Study supported, in the long term, a fixed-route service in the vicinity of "the box" (an area bounded by Stewart Parkway, Harvard Avenue, Stephens Street and Garden Valley Boulevard). In addition to a review of specific transit alternatives and an evaluation of transit feasibility, funding alternatives will be discussed. In the I-5 Corridor of Douglas County, the County supports ODOT continuation of the transitional system to provide transit service to the transportation disadvantaged in the greater Roseburg area and supports and supports expansion of this demand responsive transit service to rural areas of the County.

Areas such as Glide, Glendale, Reedsport clearly would benefit from transit services. Historically, transit services have been provided through multi-jurisdictional subsidies, fares and donations. Although, recent statewide property taxes reduction measures have been approved by voters, preliminary surveys conducted by the Umpqua Regional Council of Governments in the greater Roseburg area suggest that voters are not opposed to subsidizing a transit system that has a local benefit. Local community efforts in the greater Roseburg area to provide volunteer demand responsive transit services may not adequately serve forecast demand but it does rally community support and heighten public awareness. It is recommended that the State of Oregon, ODOT, Douglas County and its incorporated cities continue support for the flexible transit programs.

Expanding service to serve Reedsport, Glendale and Glide, including connections to the Willamette Valley would enhance and improve the existing senior on-demand transit services. The ODOT should consider a joint effort with intercity transit operators to provide transit facilities along the Hwy 38 and 42 corridors.

The Oregon Transportation Plan has defined a minimum level of service for the Roseburg Market area to have at least three minimum intermodal (Ex. taxi, bus, transit, train, air)

round trip connections to Portland available per day via intercity passenger modes. The minimum of three intermodal methods to connect to Portland are: ① "Umpqua Regional Transit" to Roseburg, bus to Eugene for connection by bus to Portland, ② Taxi to Roseburg, bus to Eugene for connection by air to Portland, ③ Bus to Eugene, connect to passenger rail to Portland. Historically, the commercial vendors (bus and air) have met market demand for service. The existing level of service complies with the pre-defined minimum.

PEDESTRIAN AND BICYCLE TRANSPORTATION

The use of bicycles and footpaths as means of transportation is more effective in urban areas and within urban growth boundaries than in rural areas. In urban areas trip origins and destinations are closer to one another making travel by bicycle or on foot an acceptable alternative to the automobile. In rural areas origins and destinations are separated by greater distances, motor vehicle speeds are higher and sidewalks are not economically feasible to construct. All of these factors discourage the use of bicycles and footpaths in rural areas for transportation purposes.

The need for the use of bikeways and footpaths within the cities of the County are discussed within the comprehensive plans of those cities. The need for and use of recreational footpaths in rural areas of the County are discussed in the Park and Recreation Element of this Plan.

A bikeway Master Plan was developed for all unincorporated areas in the County in 1983. That document which was adopted by the Board of Commissioners includes background text, findings, policies and a map of existing and future bikeway routes. The findings, policies and map of that Plan are included as part of this element of the Comprehensive Plan. For additional information regarding bicycling in Douglas County, that Plan should be consulted.

The Oregon Transportation Plan establishes principles for bikeway development in urban and rural areas.

- Bicycle and pedestrian networks should be developed and promoted in all urban areas to provide safe, direct and convenient access to all major employment, shopping, educational and recreational destinations in a manner that would double person trips by bicycle and walking.
- Secure and convenient bicycle storage available to the public should be provided at all major employment and shopping centers, park and ride lots, passenger terminals and recreation destinations.
- Statewide and regional bicycle systems should be integrated with other transportation systems in urban and rural areas to accommodate commuting and other trips by bicycle. Safe, direct and continuous bikeways free of unnecessary delays are encouraged along all urban arterial and major collector routes. Paved shoulders are encouraged on highways in rural areas.

Douglas County has an adopted Bicycle Master Plan that provides a bicycle and pedestrian network connecting (where feasible) urban areas. The Douglas County Comprehensive Plan is designed to be consistent with the Oregon Transportation System Plan.

TRANSPORTATION DISADVANTAGED

The transportation disadvantaged who, because of age, disability or low income, are unable to take full advantage of our automobile-based transportation system have only recently begun to demand the same access to transportation services that have been enjoyed by most Oregonians. While members of the general public make an average of 2.2 vehicle trips per day, the comparable figures for those who are transportation disadvantaged range from 0.8 to 1.4 trips per day.

No one mode of transportation can solve the mobility problems experienced by the transportation disadvantaged. Conventional bus service partially addresses the problems of the young and poor but it is not economical in sparsely populated areas and is often not accessible to the elderly and handicapped. Other transit services such as those providing door-to-door deliveries and buses equipped with lifts or ramps can make the transportation system available to most people. However, the high cost of this type of service makes it impractical to provide it to all disadvantage. Thus the most efficient system would be one that meets the varying requirements of its passengers with a variety of types and levels of service.

THE POOR

The costs of ownership and operation of the automobile often limits, or even eliminates, that transportation option to the poor. The problems of the poor become particularly significant in a county such as Douglas where the population density is low, where activity centers are widely dispersed, and where few trip destinations are accessible by means of transportation other than the automobile.

In 1990, 13,828 County residents or 14.6 percent of the total population had incomes below the poverty level. This level of poverty exceeds the state level of 12.1 percent for that year.

THE YOUNG

The young are often omitted from the definition of the transportation disadvantaged. However, those persons in the 10 to 14 age group generally desire an increased level of mobility and often do not have access to the transportation necessary for their social and extracurricular activities. In 1995 this group totaled 7,154 persons or 7.3 percent of the County population.

THE ELDERLY

As a result of the natural aging process the elderly often experience difficulty in operating an automobile or in taking advantage of other forms of transportation. As a group, these people suffer from a series of limitations including physical weakness, limited use of limbs, poor eyesight, hearing loss, poor reaction time, etc. While no single physical limitation may be severe enough to merit inclusion in the handicapped group, any combination of these physical limitations may reduce the elderly's mobility.

While not all persons over the age of 65 experienced transportation disadvantages, most studies use this as the definition of elderly. With 17,340 persons or 17.7 percent of its residents over 65, Douglas County has a higher portion of elderly than the State as a whole (13.7 percent). The percentage of elderly persons is increasing at a rate faster than the State.

THE DISABLED

The group most difficult to define and estimate is the disabled. Those persons classified as disabled include those who, because of physical limitations, are unable to operate an automobile or use conventional types of public transit and those who are unable to comprehend and appropriately respond to directional signs or verbal instructions.

One method of identifying the disabled is to utilize the estimates produced in a study of the transportation disadvantaged by the Oregon Department of Transportation which indicates that in 1972 16.5 percent of Douglas County residents were disabled. The 1990 Census identifies 13,557 or 14.3 percent of Douglas County residents were disabled. Applying this percentage to the 1995 population produces an estimated 13,994 disabled persons. Many of the disabled undoubtedly reside near the population centers in order to take advantage of the available social services, but there is no data available to show the extent to which this is true.

There is a considerable amount of overlapping of the potentially transportation disadvantaged which have been identified in each of the preceding groups. For example, many of those disadvantaged persons who are elderly are also disabled, many of the disabled are also poor and a number of the elderly are both disabled and poor. The same type of overlapping occurs with the young. The ODOT has developed a procedure which discounts the overlapping of each group and thereby gives a more accurate indication of the number of potentially disadvantaged. By applying this procedure to Douglas County, ODOT estimated the potentially transportation disadvantaged in Douglas County in 1972 to comprise 16.5 percent of the County population. Applying this percentage to the 1995 population would indicate that as many as 16,120 persons in Douglas County were potentially transportation disadvantaged in that year.

APPENDIX

STATE AND COUNTY
ROAD SYSTEMS
MAJOR ROUTES

The listing of road functional classification is presented as found in the original Comprehensive Plan. This table should be retained to document this historical data. A current listing of road functional classifications is found in the Transportation Element of the Comprehensive Plan.

Historical Functional Classification

<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>STATE SYSTEM</u>				
I-5		Lane Co. line to Josephine Co. Line	Principal Highway	1
Highway 38		Hwy. 101 to Hwy. 99	Principal Highway	2
Highway 42		Coos Co. line to I-5	Principal Highway	3
Highway 99		Hwy. 38 to I-5 Curtin	Principal Highway	4
Highway 99		Hwy. 38 to Dole Road (No.14)	Arterial	5
Highway 99		Dole Road (No. 14) to I-5 (Exit 112)	Major Collector	6
Highway 99		I-5 Exit 108 to Josephine Co. line	Arterial	7
Highway 101		Lane Co. line to Coos Co. line	Principal Highway	8

The listing of road functional classification is presented as found in the original Comprehensive Plan. This table should be retained to document this historical data.

Highway 138	Hwy. 38 to I-5	Principal Highway	9
Highway 200	Lane Co. line Hwy. 99	Major Collector	10
Highway 227	I-5 to Josephine Co. line	Major Collector	11
Highway 230	No. Umpqua Hwy.(No. 4) to Jackson Co. line	Arterial	12
Highway 230	No. Umpqua Hwy.(No. 4) to Klamath Co. line	Principal Highway	13

<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
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COUNTY SYSTEM

Lower Smith	48	Hwy. 101 to North Fork	Major	1 4
River Road		Smith River Rd. (No. 48A)	Collector	
Salmon Harbor Drive	251	Hwy. 101 to M.P. 1.43	Major Collector	15
Salmon Harbor Drive Spur Road	251	Salmon Harbor Dr. (No. 251) to Lighthouse Rd. (No. 87)	Major Collector	16
Loon Lake Road	3	Hwy. 38 to M.P. 10.04	Major Collector	17
Hayhurst Road	24	Hwy. 38 to Drain Road (No. 24A)	Major Collector	18
Drain Road	24A	Hayhurst Road (No. 24) to Drain city limits	Major Collector	19

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Bear Creek Road	62	Curtin Rd. (No. 212) to I-5	Major Collector	20
Curtin Road	212	Bear Creek Road (No. 62) to Hwy. 99	Major Collector	21
Elkhead Road	7	Hwy. 99 to I-5 (Exit 154)	Major Collector	22
Goodrich Highway	126A	I-5 Exit (150) to I-5 (Exit 148)	Major Collector	23
Stearns Lane	10A	I-5 to Oakland city limits	Major Collector	24
Nonpareil Road	19	Sutherlin city limits to Plat K Road (#75)	Arterial	25
Nonpareil Road	19	Plat K Road (No. 75) to Fair Oaks Road (No. 22A)	Major Collector	26
South Sutherlin Road	120	Sutherlin city limits to Nonpareil Road (No. 19)	Major Collector	27
Cooper Creek Road	305	South Sutherlin Road (No. 120) to M.P. 1.80	Major Collector	28
Stephens Highway	77	Hwy. 138 to Cole Road (No. 91)	Major Collector	29
Cole Road	91	Stephens Hwy. (No. 77) to Fort McKay Rd. (No. 9)	Major Collector	30
Fort McKay Road	9	Garden Valley Rd. (No. 6) to Sutherlin city limits	Major Collector	31

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Hubbard Creek Road	6	Melqua Rd. (No. 13A) to Garden Valley Rd. (No. 6)	Major Collector	32
Garden Valley Road	6/31/31A	Hubbard Creek Rd. (No.6) to del Rio Rd. (No. 115)	Major Collector	33
Garden Valley Road	6	Del Rio Rd, (No. 115) to I-5	Arterial	34
Melqua Road	13/13A	Hubbard Creek Rd.(No. 6) to Melrose Rd. (No. 13)	Major Collector	35
Melrose Road	51	Colonial Rd.(No. 52) to Melqua Rd. (No. 13)	Major Collector	36
Melrose Road	13/167	Melqua Rd.(No. 13) to Garden Valley Rd.(No. 6)	Arterial	37
Old Melrose Road	13	Melrose Rd. (No. 167) to Roseburg city limits	Major Collector	38
Cleveland Hill Road	59	Melqua Rd. (No. 13) to Melrose Rd.(No. 51)	Major Collector	39
Orchard Lane	253	Elgarose Road (No. 53) to Cleveland Hill Rd. (No. 59)	Major Collector	40
Elgarose Road	53	Orchard Lane (No. 253) to Doerner Rd. (No. 90)	Major Collector	41
Deorner Road	90	Elgarose Rd. (No. 53) Melrose Rd.(No. 51)	Major Collector	42
Fisher Road	189	Garden Valley Rd. (No. 6) to M.P. 3.00	Major Collector	43

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Del Rio Road	31/115	Garden Valley Rd. (No. 31A) to I-5	Major Collector	44
Wilbur Road	31	Del Rio Rd. (No. 115) to Hwy. 99	Major Collector	45
North Bank Road	200	Hwy. 99 to North Umpqua Hwy. (No. 4)	Major Collector	46
Sunshine Road	58	North Umpqua Hwy. (No.4) to End	Major Collector	47
North Umpqua Highway	4/245	Roseburg city limits to Hwy. 230	Principal Highway	48
North Umpqua Highway	4	Hwy. 230 to Klamath Co. line	Arterial	49
Buckhorn Road	4B.1/17	M.P. 0.76 to Little River Rd (No.17A)	Major Collector	50
Little River Road	17A	North Umpqua Hwy. (No. 4) to Cavitt Cr. Rd. (No. 82)	Major Collector	51
Dixonville Road and Roberts Cr. Rd	16	Buckhorn Rd. (No. 17) to Hwy. 42	Major Collector	52
Troost	144	Harlan to Roseburg city limits	Major Collector	53
Colonial Road	52	Melrose Rd. (No. 51) to Lookingglass Rd. (No. 5)	Major Collector	54

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Lookingglass Road	5	Colonial Rd (No. 52) to Roseburg city limits	Arterial	55
Lookingglass Road	47/107	Colonial Rd. (No. 52) to Hwy. 42	Major Collector	56
Happy Valley Road	26	Lookingglass Rd. (No. 47) to Carnes Rd.(No. 16)	Major Collector	57
Carnes Road	16	Hwy. 99 (north) to Hwy. 42	Major Collector	58
Austin Road	207	Carnes Rd. (No. 16) to Hwy. 99	Major Collector	59
Winston Road	111	Hwy. 99 to Thompson Rd. (No. 266)	Major Collector	60
Thompson Road	266	Hwy. 99 to Winston Rd. (No. 111)	Major Collector	61
Rice Creek Road	43	Brockway Rd. (No. 47) to Willis Creek East Road (No. 88)	Major Collector	62
Brockway Road	47	Lookingglass Rd. (No. 107) to Hwy. 42	Major Collector	63
Brockway Road	47	Hwy. 42 to Hwy. 99	Arterial	64
Dole Road	14	Hwy. 99 to I-5	Arterial	65
Clarks Branch Road	105	I-5 to M.P. 2.50	Major Collector	66

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
North Myrtle Road	15	South Myrtle Rd. (No. 18) to Bilger Creek Road (No 103)	Major Collector	67
South Myrtle Road	18	North Myrtle Rd. (No. 15) to Riverside Dr.(No. 18A)	Major Collector	68
Riverside Drive	18A	Hwy. 99 to South Myrtle Rd. (No. 18)	Major Collector	69
Pruner Road	20	Riddle Bypass rd. (No. 263) to I-5	Arterial	70
Pruner Road	20	Riddle Bypass Rd. (No. 263) to Riddle city limits	Major Collector	71
Riddle Bypass	263	Pruner Rd. (No. 20) to Glenbrook Loop Rd (No. 39)	Arterial	72
Main Street	264	Riddle Bypass Rd. (No. 263) to Riddle Canyonville Rd (No. 21)	Major Collector	73
Glenbrook Loop Road	39	Canyonville Riddle Rd. (No. 263) to Riddle Rd. (No. 321)	Major Collector	74
Canyonville Riddle Road	21	Riddle city limits to Canyonville city limits	Major Collector	75
Yokum Road	20A	Riddle city limits to I-5	Major Collector	76

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Gazley Pacific Highway	35A	I-5 to Gazley Rd. (No. 35)	Major Collector	77
Gazley Road	35	Hwy. 99 to Gazley Pacific Hwy.(No. 35A)	Major Collector	78
Upper Cow Creek Road	36	I-5 to M.P. 8.0 (Recreation site)	Major Collector	79
Junction Road	12A	I-5 to Azalea Glen Rd. (No. 12)	Major Collector	80
Azalea Glen Road	12/12B	Windy Creek Rd. (No. 28) to Glendale city limits	Major Collector	81
Windy Creek Road	28	Azalea Glen Rd. (No. 12) to M.P. 0.2	Major Collector	82
Glendale Valley Road	313	Glendale city limits to I-5	Arterial	83
<u>Roseburg Urban Growth Boundary</u>				
Umpqua College Road	284	Hwy. 99 to end	Major Collector	100
Page Road	115A	Hwy. 99 to M.P. 1.00	Major Collector	101
General, Bower, Sweetbrier	225	Hooker (No. 171) to Mulholland (No. 217)	Major Collector	102
Hooker	171	General (No. 225) to Hwy.99	Major Collector	103

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<u>Road Name</u>	<u>Road Number</u>	<u>Limits</u>	<u>Classification</u>	<u>Map Ref. Number</u>
<u>COUNTY SYSTEM (cont.)</u>				
Mulholland	217	Stewart Parkway (No. 308) to Sweetbrier (No. 225)	Major Collector	104
Newton Creek Road	84	Hwy. 99 to Parker (No. 322)	Major Collector	105
Broad Street	217	Stewart Parkway (No. 308) to end	Major Collector	106
Stewart Parkway	308	Garden Valley Rd. (No. 6) to Hwy. 99	Arterial	107
Alameda Street	150	Hwy. 99 to Todd(No.262)	Major Collector	108
Kline Street	367	Garden Valley Road (No. 6) to UGB	Major Collector	109
Portland Avenue	56A	I-5 to Hwy. 99	Arterial	110
Frear Road	56	Portland Avenue (No. 56A) to end	Major Collector	111

The listing of road functional classification is presented as found in the original Comprehensive Plan. This table should be retained to document this historical data.

PROPOSED ROUTES

Southerly Bypass of Central Avenue in Sutherlin	Arterial	A
Sunshine Road Extension to North Bank Road	Major Collector	B
Roseburg Bypass from the North Umpqua Highway near Dixonville	Major Collector	C
Direct access between Coos Bay and Melrose	Principal Highway	D
Harvard Avenue Extension to Garden Valley Road	Arterial	E
Ben Irving Reservoir Access	Minor Collector	F
New I-5 Interchange near Broad Street		AA
Rifle Range Road Extension north to Alameda Road	Minor Collector	BB
Rifle Range Road Extension south to Highway 99	Minor Collector	CC
Portland Avenue Extension to Highway 99	Arterial	

Compilation of Project Lists
Found within the
Transportation System Plan

- A. Needed/Planned
- B. Desirable/Future

In review of the Douglas County Transportation Element, ODOT requested the inclusion of this list. ODOT further requested the County to note that these projects are not improvements which can be relied upon by developers to mitigate planned development impacts on transportation facilities

Proposed improvements that are "needed and planned" in the future with funding identified.

1. Southerly Bypass of Central Avenue in Sutherlin. In conjunction with the City of Sutherlin, coordinate the planning and development of a southerly bypass road to relieve congestion on Central Avenue. The Sutherlin Area Transportation Study supported a southerly bypass route for Central Avenue using Calapooya Street or Comstock Road. The dogleg corners on the Calapooya Street route should be re-aligned.
2. Access to Hwy. 99 from I-5 is necessary to relieve traffic volumes on Hwy 99S. The Myrtle Creek Area Transportation Study provides three alternate routes for the new crossing over the Umpqua and the Weaver Road interchange. Public Works has set aside \$60,000 for a study only. The contract will be awarded within two years funds to study the Weaver Road route.
3. Old Pacific Hwy. has an excessive amount of driveways for an arterial. The Public Works Department has scheduled a project to widen the north end of the arterial to three lanes. The project is estimated to cost \$2,000,000 and is anticipated to be constructed by 1999. The southern portion of the route will also be widened to three lanes. The project is estimated to cost \$750,000 and is anticipated to be constructed by 2002. The County is considering road expansion to widening this section to 3 or 4 lanes and addressing access management to reduce the number of curb cuts.
4. The completion of Rolling Hills Road is estimated to cost \$1,250,000 and is scheduled for construction through year 2002.
5. The intersection of Ft. McKay at Hwy 138W requires realignment. The anticipated cost of this project is \$85,000. Construction of this joint ODOT and Douglas County funded project is anticipated by the 1998.
6. The intersection of Comstock at Central requires re-alignment and installation of a signal. The anticipated cost of this project is \$ 100,000. Completion of this joint ODOT and Douglas County funded project is anticipated by 1998.

Proposed improvements that are considered desirable in the future but are conceptual in nature with no funding identified.

1. Bypass from the North Umpqua Highway near Dixonville to I-5 (Conceptual - no funding identified). This route would serve as a bypass for southbound and westbound traffic thus relieving congestion in downtown Roseburg. Existing roadways will be utilized wherever possible and other portions may need realignment. The Greater Roseburg Area Transportation study included a recommendation for a truck route from Dixonville to Kelly's Corner. The study identified a measurable benefit by removing trucks from downtown Roseburg via this route. Two major issues must be addressed prior to implementation of this bypass. This route diverts truck traffic an extensive distance on winding roads to Dixonville. A second and substantial issue is the cost to pave the existing gravel roads may be cost prohibitive. The 1996 GRATS (Table 5-14) estimated the construction cost of this project at 25.5 million dollars. This estimate does not include the purchase of additional right-of-way. Additional analysis of the route selected and the construction cost is recommended.
2. Extension of Rifle Range Road to Highway 99 (Conceptual - no funding identified). This corridor should serve as a bypass for southbound traffic as well as relieving congestion at the Harvard Avenue Interchange by more effectively utilizing the Portland Avenue Interchange. This extension should consider the timing and financial constraints on the construction of an alternate truck route at the Roberts Creek Dixonville Bypass between the North Umpqua Highway and Highway 42 at Kellys Corner.
3. Extension of Rifle Range Road North to Alameda Road (Conceptual - no funding identified). Would serve the developing area as well as provide another access to east Roseburg.
4. Extension of Harvard Avenue from the existing city limits to Garden Valley Boulevard (Conceptual - no funding identified). This extension would include a bridge across the South Umpqua River and give the Calkins Road area another access. The intersection at Garden Valley Boulevard would provide another access to Roseburg from the west.
5. Extension of Portland Avenue to Highway 99 (Conceptual - no funding identified). This proposed arterial would provide another river crossing and more effectively utilize the Portland Avenue Interchange.
6. Connection from Sunshine Road to North Bank Road (Conceptual - no funding identified). This connection will provide a needed linkage from the North side of the North Umpqua River via a bridge to the Roseburg Area. It will serve as a rural collector.

These improvements are not to be relied upon to satisfy OAR 660-12-060(1)(b)3-78

**Proposed urban and rural preferred alternatives
that are considered conceptual in nature with no funding identified.**

COASTAL AREA

1. To address the naturally constrained corridor and the need to preserve water quality of Clear Lake south of Winchester Bay, the relocation of Highway 101 around Clear Lake should be considered. The existing route could be preserved as a scenic route. Coordinate with the Oregon Dunes National Recreation Area's concept of providing an overlook of the dunes west of Clear Lake. (Hwy 101)
2. Investigate the feasibility and appropriateness of a rest stop location between Winchester Bay and North Bend. (Hwy 101)
3. Identify passing lane locations from Clear Lake to Saunder's Lake. (Hwy 101)
4. Gardiner: Sidewalks provided on the east side of US 101 within the urbanized section (from the existing beginning point south of Pitt Street to the intersection of Marsh Street). (RATS)
5. Umpqua River Bridge: construct a new bridge approximately 500 feet upriver from the existing structure. Utilize the existing bridge for a bicycle and pedestrian pathway to retain the historic swing span bridge. (RATS)
6. Umpqua River to Highway 38: provide two travel lanes in each direction to match the increased capacity across the Umpqua River. Provide sidewalks connecting Highway 38 to the bridge. (RATS)
7. Along Hwy. 101 identify locations where safety, geometric, or passing lane improvements are feasible and appropriate, preserving the scenic and natural quality of the travel corridor. These improvements should recognize the dune movement that is occurring and the effect it may have on the feasibility of certain improvements.
8. Identify primary access locations for recreational vehicles and vehicles with trailers, such as access to the Tahkenitch Campground, and develop compatible safety and geometric improvements.
9. Identify locations to relocate overhead utility lines, screen development, and introduce advertisement signage controls.
10. Identify locations for enhanced or additional scenic overlooks or viewpoints. Particular attention should be focused at the top of Gardiner Hill where views of the Umpqua Estuary and the ocean are available
11. Identify locations for enhanced and additional overlooks and view points of the

These improvements are not to be relied upon to satisfy OAR 660-12-060(1)(b)3-79

Oregon Dunes, ocean, and the system of inland lakes. Preserve views at the overlook at the top of Winchester Bay Hill and at the Oregon Dunes.

12. Identify methods and opportunities for Highway 101 to support the historic features of Gardiner.
13. Identify areas where slow tourist traffic can be diverted off the road and onto scenic byways or scenic overlooks.
14. Identify locations for passing lanes, while preserving the scenic natural qualities.
15. A goal of the Reedsport study was to identify existing and potential viewpoints and view sheds for the purposes of inventory and preservation. The study recommended that those viewpoints presently established by the state and the county be preserved, with maintenance and clearing of brush and topping of trees, as necessary. (Figure 20 of Reedsport Area Transportation Study)
16. Investigate the feasibility and appropriateness of a rest stop location between Reedsport and Winchester Bay.
17. Consider identifying the route through Winchester Bay, Umpqua Lighthouse, and Lake Marie as a scenic route.
18. Develop informational and directional signage to inform travelers that this point is the closest access to the beach between Florence and Bandon.
19. SIGNING -
 - a. Hwy. 38: Update and replace signage for Highway 38/Reedsport/Ocean Beaches, improve the internal circulation for Deans Creek Elk Viewing area, provide signing and striping to better control speeds and define the bike lane along the section from Deans Creek Elk Viewing area to Winchester Avenue.
 - b. Gateway Treatments for the north and south entrance to Reedsport on US 101 and the bi-directional entrance to Winchester Bay. It is recommended that these gateway treatments be funded and implemented in coordination with ODOT.
 - c. Guide signing to Reedsport and the Ocean Beaches on I-5 is recommended to be replaced and relocated one half mile prior to the Exit for Hwy 38.

CENTRAL COUNTY

1. Extend Vine Street north from Roseburg City Limits to NE Stephens near the new east-west facility that connects to the north Roseburg Interchange. This project should be completed as the area develops and may address two needs. The route will serve as a frontage road to local street networks and should reduce the local traffic useage of North Stephens.
2. Add an auxiliary lane on I-5 in the northbound direction between the Harvard

These improvements are not to be relied upon to satisfy OAR 660-12-060(1)(b)3-80

Avenue and Garden Valley Boulevard Interchanges.

3. Widen and align Troost street to West Roseburg.
4. Realignment and widening of Stewart Parkway overpass across I-5.
5. Reconfigure the I-5 Interchange at Hwy 42 and the I-5 Interchange at Hwy 99.
6. Widen Hwy 42 between Winston and Green.
7. Extend Calkins to Stewart Parkway
8. Construct a new collector facility between Diamond Lake Blvd and NE Stephens [previously discussed as the Rifle Range Extension]
9. Building new facilities - Consider findings supporting regional coordination of infrastructure improvements.
10. The Garden Valley/Melrose Road Intersection is near capacity. As this area grows, the county is considering Darley Drive and this intersection for future signalization.
11. The rail switching yards should be relocated from downtown Roseburg to Green. Until this project is completed, the use of Dillard rail spurs should continue. Central Oregon Pacific Railroad should complete a detailed study to determine the economic, environmental, and transportation related impacts and benefits of relocating the switching yard to Green or to another location outside Roseburg.
12. Support the implementation of the City of Roseburg and the City of Winston TDM (Travel Demand Management) strategies in the five nodal areas: North Roseburg (increase freeway and airport related activity), West Roseburg, Downtown Roseburg (multi-family housing), Diamond Lake (reduce destination oriented travel), and Winston (balance jobs to housing). The existing County policies already support the economic development in the Green area. The recent construction near Ingram Book Company on Speedway Road supported the county's effort to increase employment opportunities.

SOUTHERN COUNTY

1. Additional analysis of Interstate - 5 at the Myrtle Creek Curves is required to address the dangerous curves. The Myrtle Creek interchange (Exit 108) is poorly designed and does not provide for adequate acceleration/deceleration. In the short term, the installation of additional advance warning signage prior to the curves is recommended.
2. Access to Hwy. 99 from I-5 is necessary to relieve traffic volumes on Hwy 99S. The Myrtle Creek Area Transportation Study provides three alternate routes for the new

These improvements are not to be relied upon to satisfy OAR 660-12-060(1)(b)3-81

crossing over the Umpqua and the Weaver Road interchange.

3. Chadwick Road Overpass (MP 106) is too low for some trucks to go under, causing the use of downtown as a bypass. The bridge should be elevated and a traffic signal installed at the intersection of Chadwick Lane and the Old Pacific Highway.
4. The Riddle Interchange Overpass (Exit 103) is too low for some trucks to go under and the interchange off/on ramps are not the typical diamond configuration. The bridge should be elevated or the off/on ramps reconfigured to allow for the passage of over-height trucks. The study addressed both methods to mitigate this problem.
5. Old Pacific Hwy. has an excessive amount of driveways for an arterial. The Public Works Department is considering road expansion to widening this section to 3 or 4 lanes and addressing access management to reduce the number of curb cuts.

General

1. Improved geometric design of key intersections along truck routes.
2. Regional coordination of infrastructure improvements. The study advisory team members expressed an interest to attend meetings of agency representatives. Specifically, the GRATS Management Team proposed on-going meetings as an advisory Committee on regional transportation issues to the region's governing bodies.

POTENTIAL DEVELOPMENT IMPACT ANALYSIS
ODOT Identified Sites as compared to
Douglas County Plan Designation

PDIA#	General Location	UGB	UJA	RC	RSC	RCL	T	R	S	Info & Add Sites	
The PDIA #'s are based on the Potential Impact Development Area Map for Douglas County dated 1996. This map is a portion of the statewide PDIA Map created by ODOT.											
1	C-1	Tahkenitch Campground				2	20	12	29	Coastal PAC	
2	C-2	Sawyers Rapids					22	8	5	RV Park	
3	C-3	Hwy 38 - Salibashan Inn and Campground				18	22	11	2	Coastal PAC	
4	C-4	Goodrich Hwy at I-5			X	24	23	5	28	Elk Crk PAC	
5	C-5	Frontage Road				19	25	5	30	Calapooya PAC	
6	C-6	Little River at Engles Creek				22	26	3	34	N.Ump PAC	
7	C-7	Susan Creek				16 17	26	2	21 23	N. Ump PAC	
8	C-8	Umpqua Store				X	10	25	6	30	Calapooya PAC
9	C-9	Rsb Home Orchard Tract			X		11	26	6	32	Callahan PAC
10	C-10	Myrtle Ck Airport					19	29	5	28	S.Ump PAC
11	C-11	Tiller Trail at Tyson Rd					6	31	1	32	S.Ump PAC
12	C-12	Drew					4	31	2	14	S.Ump PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites	
The PDIA #'s are based on the Potential Impact Development Area Map for Douglas County dated 1996. This map is a portion of the statewide PDIA Map created by ODOT.											
13	C-14	Coos Bay Wagon Rd				X	24 B	27	7	35	Callahan PAC
14	C-15	Canyonville Riddle Rd					23	30	5	33	S.Ump PAC
15	C-18	Glendale at I-5			X		11	32	6	35	Cow Ck PAC
16	I-1	Lower Smith River Road east of Noel Ranch					14	20	10	31	Coastal PAC
17	I-2	Lower Smith River Rd near Franz Creek					4	21	12	14	Coastal PAC
18	I-3	Eagle Valley Road near Boswell					7	22	5	21	Elk Ck PAC
19	I-4	Eagle Valley Road north Yoncalla CL					20	22	5	34	Elk Ck PAC
20	I-5	Deady Crossing					20	25	5	31	Calapooya PAC
21	I-6	Elkhead Rd South of Yoncalla CL					21	23	5	10	Elk Ck PAC
22	I-7	Hwy 138 Near Church Rd					17 A	25	6	13	Calapooya PAC
23	I-8	Gardiner North		X			3	21	12	16	Coastal PAC

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24	I-9	Hwy 99N (Rsbg Orch Tract Plat G)					21	26	5	6	Calapooya PAC
25	I-9	N. Umpqua Hwy E. of Dixonville			X		24	27	4	18	N.Ump PAC
26	I-10	Glengary					19	27	6	24	Rsbg-Grn PAC
27	I-11	Canyonville Riddle Rd						30	5	21	S.Ump PAC
28	I-12	Boomer Hill Rd					7	29	5	19	S.Ump PAC
29	I-14	North of Glenbrook Loop Rd						30	6	33	S.Ump PAC
30	I-18	Glenbrook Loop Rd					26	30	6	24	S.Ump PAC
31	Non e	Wildwood Drive					13 A	22	13	36	Coastal PAC
32	M-1	Lower Smith River Rd near North Fork of Smith River				X	14	20	10	32	Coastal PAC
33	M-2	Ada Campground					1	20	12	1	Coastal PAC
34	M-4	Gardiner		X				21	12	22	
35	M-5	Curtin			X		2A	21	4	30	Elk Ck PAC
36	M-6	Wells Creek					21	22	9	8	Coastal PAC 21 a-c

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites		
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37	M-6	Hwy 38 Hardscrabble Creek			X		11	22	6	11	Elk Creek PAC	
38	M-7	Anglers Acres					13	22	8	23	Elk Creek PAC	
39	M-8	Bolon Island & South Gardiner					6	21	12	26	Coastal PAC	
40	M-9	Winchester Bay		X				22	12	7		
41	M-10	Half Moon Bay					11	22	13	13	Coastal PAC	
42	M-11	Eagle Valley Rd at I-5					23	23	5	15	Elk Crk PAC	
43	M-12	Loon Lake					26	23	10	12	Coastal PAC	
44	M-13	Rock Creek Rd Ridge Acres Sub (Glide UUA)		X			12 A 28	26 26	3	1 10	N Ump PAC 12B	
45	M-14	Glide		X				14	26	3 4	13 17	N Ump PAC
46	M-15	Royal Oaks					X	1	26	4	7	N Ump PAC
47	M-16	Winchester/DelRio Log Pond						8	26	6	24	Callahan PAC
48	M-17	Wilbur						2A	26	5	7	RsbGGrn 2a-b Calapooya PAC 22a
49	M-19	Newton Creek	X						27	6	12	

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50	M-20	Cleveland Hill Rd			X		6A	27 26	6 7	31 6	Callahan PAC 6a-c
51	M-21	Little River/Cavitt Creek					22	26	3	34	N.Ump PAC
52	M-22	W. of Roseburg UGB-Dixonville			X		6 20	27 27	5 5	15 14	RsbG-Grn PAC
53	M-23	Roseburg UGB	X					27	5	13	RsbG-Grn PAC
54	M-24	Old Melrose					16 17 A	27 27	6 6	9 15	Callahan PAC 17a-c
55	M-25	Shady		X			11 12	27	6	36	RsbG-Grn PAC
56	M-26	Green		X			14 15 16 17	28	6	10	RsbG-Grn PAC
57	M-27	Rice Cr Rd.					23	29	6	8	Douglas PAC
58	M-28	Round Prairie			X		1 2	29 29	6 6	1 2	S.Ump PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites	
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59	M-29	TenMile			X		8 9 10 11	28 28 28 28	7 7 7 8	28 28 31 36	Douglas PAC
60	M-30	Upper Camas Rd					1	29	8	6	Douglas PAC
61	M-31	Camas Valley			X		2 3 4 5 6 7	29 29 29 29 29 29	8 8 8 8 8 8	9 17 20 21 29 31	Douglas PAC
62	M-32	Umpqua Camp/Jackson				X	1	30	1	18	S.Ump PAC
63	M-33	Tiller			X		3	30	2	33	S.Ump PAC
64	M-34	Milo					7 8 9 10 11	30 30 30 30 30	3 3 3 3 3	25 26 26 34 28	S.Ump PAC
65	M-35	Days Creek			X		12 13	30 30	4 4	9 22	S.Ump PAC
66	M-36	Riddle N & S of City Limits					24 25	30 30	6 6	12 24	S.Ump PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites	
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67	M-37	Upper Cow Ck at I-5			X		4 5	32 32	5 5	14 11	Cow Ck PAC
68	M-38	Fortune Branch				X	6 7 10	32 32 32	5 5 6	19 20 24	Cow Ck PAC
69	M-39	Quines Ck			X		8	32	5	22	Cow Ck PAC
70	M-40	Glendale East					14 18	32 33	6 6	32 9	Cow Ck PAC
71	M-73	Dole Rd						29	5	18	S.Ump PAC
72	R-1	N. of Lower Smith River Road near Butler Creek					17	21	11	18	Coastal PAC
73	R-2	South Smith River Road					16	21	11	16	Coastal PAC
74	R-4	Upper Smith River Road					6A	21	5	4	Elk Ck PAC
75	R-5	Curtin Rd					3	21	4	18	Elk Ck PAC
76	R-6	Curtin					2B	21	4	19	Elk Ck PAC
77	R-6	SunnyDale Orchard Plat			X		10	22	6	16	Elk Ck PAC
78	R-7	Laurel Hill Dr						22	5	4	
79	R-8	Hwy 38 near Sandy Ck					5	21	5	34	Elk Ck PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites
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80	R-9	Hwy 38 near Jack Crk Rd				30	22	6	14	Elk Ck PAC
81	R-10	Binder Road Elkton				16	22	7	19	Elk Ck PAC
82	R-11	Elkton				17	22	7	29	Elk Ck PAC
83	R-12	Azalea Drive				18	23	7	5	Elk Ck PAC
84	R-13	Mehl Creek Rd				17	22	7	30	Elk Ck PAC
85	R-14	Hwy 38 near Eagle Rock Park			X	12	22	8	18	Elk Ck PAC
86	R-15	End of Henderer Road				14	22	8	28	Elk Ck PAC
87	R-16	Hwy 38 W of Weatherly Ck				21 E	22	9	16	Coastal PAC
88	R-17	Scottsburg West Road & Scottsburg			X	23 A	22	10	13	Coastal 23B - C
89	R-18	Brandy Bar Planned Development				19	22	10	6	Coastal PAC
90	R-19	Ridge line S of Hwy 38 & NE of Schofield Rd				20 A	22	11	8	Coastal PAC 20B
91	R-20	Schofield Road				12	22	12	14	Coastal PAC
92	R-22	Elkhead Rd				21	23	5	3	
93	R-23	Rice Valley Rd				22	23	5	16	Elk Ck PAC

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The PDIA #'s are based on the Potential Impact Development Area Map for Douglas County dated 1996. This map is a portion of the statewide PDIA Map created by ODOT.											
	R-24	Rice Valley Rd S at I-5					25	23	5	32	Elk Creek PAC
95	R-25	Red Hill Estate					27	24	5	10	Elk Creek PAC
96	R-26	Maupin Rd					19	23	7	20	Elk Creek PAC
97	R-27	Nonpareil Road (End)					37	24	3	31	Calapooya PAC
98	R-28	Old Homestead Road					29	24	5	7	Elk Ck PAC 29a-c
99	R-29	Hwy 138 near Tyee Curves					2	24	7	11	Calapooya PAC
100	R-30	Tyee Rd					5	24	7	29	Calapooya PAC
101	R-31	Non Pariel Road					29	25	4	9	Calapooya PAC
102	R-32	Nonpareil Road (Banks)				X	30	25	4	10	Calapooya PAC
103	R-33	Oakland CL East (South of Driver Valley Rd)					13	25	5	3	Calapooya PAC
104	R-34	Cemetery Rd			X		12 A	25	5	5	Calapooya PAC 12B
105	R-35	Union Gap					15	25	5	8	Calapooya PAC 14
106	R-36	Nonpareil Road (South Side)					26	25	5	15	Calapooya PAC 26B
107	R-36	North Side Road					8	25	6	8	Calapooya PAC
108	R-37	White Oaks Hills Subdivision					16	25	5	18	Calapooya PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites	
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109	R-38	Plat "M"					18 A	25	5	19	Calapooya PAC 18B
110	R-39	Green Valley Rd					33	25	6	1	Calapooya PAC
111	R-40	Dole Road					9	25	6	7	Calapooya PAC
112	R-41	Hwy 138 (South of Road)					17 B	25	6	13	Calapooya PAC
113	R-42	Oak Hill Rd					11	25	6	32	Calapooya PAC
114	R-43	Tyee Rd					8	25	7	16	Calapooya PAC
115	R-44	N. Umpqua Village					15	26	2	16	N.Ump PAC
116	R-45	Little River E. of Buckhorn Road					21	26	3	29	N.Ump PAC
117	R-46	Little River E. of Fall Creek					22	26	3	33	N.Ump PAC
118	R-47	N. Umpqua Hwy at Glenvue Sub					7	26	4	31	N.Ump PAC
119	R-48	North Bank Rd					8A	26	5	14	N.Ump PAC 8B
120	R-49	Impala Drive off of N.Bank Rd					21	26	5	16	RsbG-Grn PAC
121	R-49	Oak Lawn Acres					10	26	5	26	N.Ump PAC
122	R-50	Westview					7	26	6	11	Callahan PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites	
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123	R-51	Old Garden Valley			X		8 10 A 13	26 26 26	6 6 6	14 20 32	Callahan PAC 10B
124	R-52	Melqua Rd at Joelson Lane					2A	26	7	2	Callahan PAC 2b
125	R-53	Melqua Rd at Heydon					3A	26	7	13	Callahan PAC 3b
126	R-54	Little River Rd					18	27	2	3	N.Ump PAC
127	R-55	Gazley Rd at Surprise Valley					17 18	30 30	5 5	19 17	S.Ump PAC
128	R-56	Little River Rd					19	27	2	8	N.Ump PAC
129	R-57	Little River at end					20	27	2	12	N.Ump PAC
130	R-58	Buckhorn Road near Little River					23	27	4	1	N.Ump PAC
131	R-59	O.C. Brown Rd Strader Rd					25 26	27 24	5 4	25 21	N.Ump PAC N.Ump PAC
132	R-60	N. Umpqua Hwy at Dixonville			X		27	27	5	13	N.Ump PAC
133	R-61	Shady					11 13	28 27	6 6	1 36	RsbG-Grn PAC RsbG-Grn PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites
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134	R-62	Laurel Oaks				20 A 22	27 27	7 7	13 24	Callahan PAC 20a-c
135	R-63	Coos Bay Wagon Rd				21 25 30	27 27 27	7 7 7	21 32 33	Callahan PAC
136	R-64	Lookingglass/Colonial				X 24	27	7	25	Callahan PAC
137	R-65	N. Myrtle Ck at Lee Ck				11	28	4	28	S.Ump PAC
138	R-66	Booth Rd				29	28	5	1	N.Ump PAC
139	R-67	Glengary				19	28	6	11	Rsbg-Grn PAC
140	R-68	Happy Valley				27 28	28 28	6 6	5 6	Callahan PAC
141	R-69	Larson Rd				29	28	7	9	Callahan PAC
142	R-70	N. Myrtle Rd at Frozen Ck Rd				12 13	29 29	4 4	5 9	S.Ump PAC
143	R-71	S. Myrtle Rd				8 14 15	29 29 29	5 4 4	23 19 20	S.Ump PAC
144	R-72	Louis Ck Rd				16 17	29 29	4 4	22 23	S.Ump PAC

PDIA#	General Location	UGB	UUA	RC	RSC	RCL	T	R	S	Info & Add Sites		
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145	R-74	N. Myrtle Rd						3	29	5	13	S.Ump PAC
								4	29	5	14	
								5	29	5	14	
								6	29	5	23	
146	R-75	Myrtle Ck Airport	X					9	29	5	32	S.Ump PAC
								10	29	5	32	
147	R-76	E. & W. Fork Willis Ck.						24	29	6	15	Douglas PAC
								25	29	6	16	
								26	29	6	21	
148	R-77	Suicide Ck to Base of Camas Mtn						14	29	8	1	Douglas PAC
								15	29	8	2	
								16	29	8	10	
149	R-78	Olalla						12	29	7	8	Douglas PAC
150	R-79	Upper Olalla Rd						13	29	7	28	Douglas PAC
151	R-80	Umpqua Camp Rd						2	30	2	23	S.Ump PAC
152	R-81	Tiller Trail Hwy at Weaver Ck						14	30	5	13	S.Ump PAC
								15				
153	R-82	Gazley N. Rd						16	30	5	22	S.Ump PAC
154	R-84	Canyonville Riddle Rd						20	30	5	30	S.Ump PAC
								22	30	5	32	

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155	R-85	Glenbrook Loop Rd						31 32 33	30 30 30	6 6 6	33 33 33	S.Ump PAC
156	R-85	Tiller Trail Hwy at Days Crk Rd						21	30	5	26	S.Ump PAC
157	R-86	Tiller Trail Hwy S. of Drew						5	31	2	24	S.Ump PAC
158	R-87	Upper Cow Ck						1 2	32 32	4 4	7 5	Cow Ck PAC
159	R-88	Starveout Rd						3	32	4	18	Cow Ck PAC
160	R-89	Quines Ck Rd						9	32	5	26	Cow Ck PAC
161	R-90	Glendale at I-5			X			15 16	32 32	6 6	34 35	Cow Ck PAC
162	R-91	Mt. Rueben Rd						12 13 19	32 32 32	6 6 7	32 31 36	Cow Ck PAC

Douglas County Planning Department
INTERCHANGE ANALYSIS

October 16, 1998

	Exit #	Interchange	Plan	Zone	Approx Size	Comments
1	163	Curtain Loraine	CRC, RR5, PR, FFT	CO, 5R, PR, FF	100	Curtin Rural Community
2	162	Drain Elkton	FFT, AGG, CRC, PR, RR5, RR2	FF, FG, CRC, PR, 5R, RR	200	Curtin Rural Community.
3	161	Anlauf/Loraine	TL, FFT	TR, FF		
4	160	Salt Springs Road	TL, FFT	TR, FF	80	Primarily Resource area. Small resource dwelling node east of I-5
5	159	Elk Creek Cox Creek	TL, FFT	TR, FF	40	Resource area
6	154	Yoncalla, Elkhead, Scotts Valley	AGG, AGC, PR	FG, FC, PR	100	Sparsely developed resource. Future access point to Mill Town Hill Dam.
7	150	Yoncalla, Red Hill, Drain	AGG, RR5	FG, 5R	80	Portion of Rice Hill Rural Community
8	148	Rice Hill	RCC, RR2, RR5, AGG	CO, RR, 5R, FG	160	Rice Hill Rural Community
9	146	Rice Valley	AGG, FFT, RR5	FG, AW, 5R	100	Resource with a small note of rural residential
		Mile 144 Cabin Creek Rest Area				
10	142	Metz Hill	AGG, CT	AGG, CT	80	Primarily resource - small commercial
11	138 S	Oakland	FFT, AGG	FF, FG	160	Resource area

	Exit #	Interchange	Plan	Zone	Approx Size	Comments
12	138 N	Oakland	FFT, AGG	FF, FG	160	Resource area
13	136	Sutherlin Elkton	AGG, RR-2	FG, RR	160	Rural Residential area on the east side of I-5 north of City Limits
14	135	Wilbur	RC5, CO, AGG, FFT	5R, CO, FG, FT	40	Small Commercial and Rural Residential area west of I-5
15	129	Winchester Wilbur	PR, RMD, IND, AGG	PR, R-2, M-3, FG	700	Resource Industrial NW, Residential NE of I-5
16	127	North Roseburg	IND, RHD, RMD, RLD, RR5, AGG	M-3, R-2, R-1, 5R, SR, FG	640	City of Roseburg. County Rural Residential east of I-5 and High and Medium Density Residential west and east of I-5
17	125	Roseburg	N/A	N/A	940	City of Roseburg. County High and Medium Density Residential.
18	124	Roseburg Info Center	N/A	N/A	640	S. City of Roseburg access and rural residential development along Military Road.
19	123	Fairgrounds Umpqua Park	PR, CO, RCL	PR, CO, RR, RS	160	Fairhill residential node and access to fairgrounds
20	121	McLean Avenue	FFT, PR, CO, RCL	FF, PR, CO, RR, RS	80	Access to landfill and small residential node on McLean Avenue
21	120	Roseburg	IND, CO, RC2, RCL, PSP	MRC, M-3, CRS, 5R, RR, PR	280	Shady UUA has access via H99S from Exit 119 to Roseburg. Fairground access is limited to Exit 123

	Exit #	Interchange	Plan	Zone	Approx Size	Comments
22	119	Winston Dillard	RHD, RMD, RHD, C1, CO, IND	R-3, R-2, R-1, CO, C-2, M-3	680	Green Urban Unincorporated Area. Includes the Ingram Book Company and undeveloped industrial site to the north
23	113	Round Prairie Clarks Branch	RSC, RC2, RR5, AGC, AGG, FFT	CO, RR, 5R, F1, FG, FF	320	Rural Residential node east of I-5 tourist commercial and rural residential west of I-5
24	112	Dillard Winston	AGC, AGG, RR5, RR2	F2, FG, 5R, RR	100	New RV Park northwest of I-5 and south of rest area, sparse resource dwellings east of I-5. Small portion of Clarks Branch R.C. north of interchange does not have access to this exit
		Mile 111 South Umpqua Rest area				
25	111	Rest Area	FFT, AGG, RC5	FF, FG, 5R	40	Rest area west of I-5, small residential node east of I-5 on Dole Road
26	110	Boomer Hill	FFT, AG, IND	FF, FG, M- 2	60	Small Resource Industrial node
27	108	Myrtle Creek	FFT	FF	100	City of Myrtle Creek to the east, undeveloped resource to the north and west,
28	106	Weaver Road	PR, IND, CT, RR5, AGC	PR, M-2, CT, 5R, F1	120	Rural Residential, north of I-5, Industrial and Airport south of I-5
29	103	Tri-City Riddle	IND, RHD, RMD, CT	M-3,R-3, R-2, CT	500	Myrtle Creek UGB, Pruner Road Industrial Site
30	102	Gazley Road	AGC, AGG, PR, IND	F1, F2, FG, M-2	60	Low resource density mixed residential and industrial use

	Exit #	Interchange	Plan	Zone	Approx Size	Comments
31	101	Riddle Stanton Park	AGG, RR-5, RC2	FG, 5R, RR	420	Gazely Road contains a residential node
32	99	Canyonville	City	City	20	Canyonville UGB
33	98	Canyonville Days Creek	City	City	160	Canyonville UGB
34	95	Canyon Creek	TL, FFT	TR, FF	80	Limited resource development along Canyon Creek Road
Cow Creek Rest Area						
35	88	Azalea	CPR, RR5, RR2, FFT, AGG	CRC, 5R, RR, FF, FG	120	Azalea R.C. Residential west of I-5, Residential and Commercial mix east of I-5
36	86	Quines Creek Barton Road	CPR, CO, RC5, PR, FFT, AGG	CRC, CT, 5R, PR, FF, FG	120	Quines Creek R.C. Development south of I-5 on Quines Creek Road.
37	83	Fortune Branch	PR, RC5, RC2, AGG, FFT	PR, 5R, RR, FG, FF	100	Fortune Branch R.S.C. Limited development along Az-Glendale Rd. and sparse development along Barton Road north and south of the highway.
38	82	Glendale	AGG, FFT, TR, RC5	FG, FF, TR, 5R	40	Primary access to Rest Area. Sparse resource and committed rural residential (3 units) development along Az-Glendale Road
39	80	Glendale	FFT, AGG, CPR, RC2	FF, FG, CRC, RR2	240	Glendale Junction R.C.
					8180	

Level Service

Rd #	Name	Limits	FC	ADT	LOS	MilePost	Source	V/C
	County System							
1	Tiller Trail	Main Street 1C to Jackson County Line	MAC	5002	A	2.84	DCPW	50.02%
				1046	A	26.23	DCPW	10.46%
4	Diamond Lake Blvd.	N. Stephens to Roseburg City Limits	ART	15050	B	FultonSt	GRATS	60.20%
004C	Buckhorn Rd	MP 0.76 to Rd 16 and 17 Jct.	MAC	2372	A	1.79	DCPW	23.72%
005C	Lookingglass Rd	Roseburg City Limits to Rd 52 (F.A.S.)	ART	2493	A	0.56	DCPW	9.97%
6	Garden Valley Blvd.	Rd 31D to Rd 9 (F.A.S.)	MAC	659	A	14	DCPW	6.59%
006A	Old Garden Valley	Rd 31A to Rd 31D	MAC	880	A	5.29	DCPW	8.80%
6	Garden Valley Blvd.	Rd 9 to Rd 13A	MAC	981	A	8.98	DCPW	9.81%
6	Garden Valley Blvd.	From I-5 (Roseburg City Limits) to Rd 31A (F.A.S.)	ART	10253	A	2.83	DCPW	41.01%
9	Fort McKay Road	Hwy 138 to Rd 6 (F.A.S.)	MAC	1742	A	0.04	DCPW	17.42%
010A	Stearns Lane	Oakland City Limit to I-5 Exit 138 (Hwy 99 to	MAC	1505	A	0.01	DCPW	15.05%
12	Azalea Glen Rd.	Rd 97 to Glendale City limits	MAC	1371	A	9.95	DCPW	13.71%
012A	Junction Road	I-5 Exit 80 to Rd 12 (F.A.S.)	MAC	982	A	0.1	DCPW	9.82%
012B	Glendale Pacific Hwy.	Rd 12 to Rd 313 (F.A.S.)	MAC	1699	A	0.12	DCPW	16.99%
13	Melrose Rd	Rd 167 to Rd 51 (F.A.S.)	ART	6261	A	6	DCPW	25.04%
13	Old Melrose Rd	Roseburg City Limits to Rd 167 (F.A.S.)	MAC	2474	A	3.11	DCPW	24.74%
14	Dole Rd	Rd 105 to Hwy 387 (N. Jct.)	ART	2348	A	0.5	DCPW	9.39%
15	North Myrtle Rd	Rd 18 to Rd 103 (F.A.S. to Rd 104)	MAC	1344	A	1.55	DCPW	13.44%
16	Carnes Rd	At Happy Valley Rd	MAC	2168	A	14.3	DCPW	21.68%
16	Carnes Rd	At Hwy 42 (Kelly's)	MAC	7950	C	13.34	DCPW	79.50%
016E	Dixonville	Rd 17 to MP 2.5 (F.A.S.)	MAC	2125	A	0.03	DCPW	21.25%
17	Buckhorn Rd	Rd 16 to Rd. 17A (F.A.S.)	MAC	1680	A	0.05	DCPW	16.80%
17	Little River Rd	Rd. 17A to Rd 82A	MAC	1425	A	11.58	DCPW	14.25%
17A	Little River Rd	State Hwy 138 to Rd 17 (F.A.S)	MAC	2043	A	0.18	DCPW	20.43%
18	South Myrtle Rd	Myrtle Creek to Rd 18A (F.A.S.)	MAC	1925	A	0.71	DCPW	19.25%
018A	Riverside Drive	Rd 386 to Rd 18	MAC	2954	A	0.16	DCPW	29.54%
19	Nonpareil Rd	Rd 75 to Rd 22A (F.A.S.)	MAC	1153	A	4.94	DCPW	11.53%
19	Nonpareil Rd	Sutherlin City Limits to Rd 75 (F.A.S.)	ART	3703	A	2.01	DCPW	14.81%
20	Pruner Rd	I-5 Exit 103	MAC	8812	D	0.65	DCPW	88.12%
		to Rd 263	MAC	3765	A	1.15	DCPW	37.65%
20	Pruner Rd	Rd 263 to Riddle City Limits	MAC	2451	A	2.35	DCPW	24.51%
21	Canyonville-Riddle Rd	Canyonville to Riddle (F.A.S.)	MAC	2696	A	5.09	DCPW	26.96%
24	Hayhurst Rd	Rd 24A to Hwy 38	MAC	1226	A	9.06	DCPW	12.26%
024A	Drain Rd	Drain City Limits to Rd 24	MAC	629	A	1.1	DCPW	6.29%

Note: Each route contained a varying number of data points. This table used the highest data point found for each route and provided the associated milepost. Individual analysis may be required for specific areas of concern.

Level of Service

26	Happy Valley Rd	Rd 16 to Rd 47	MAC	2614	A	0.03	DCPW	26.14%
26A	Happy Valley East	Rd 16 to Rd 47	MAC	636	A	0.01	DCPW	6.36%
28	Windy Creek Rd	From Rd 12 to MP 020	MAC	568	A	0.02	DCPW	5.68%
31	Wilbur Rd	Wilbur to Rd 6 (F.A.S. from RD 115 to RD 31)	MAC	2827	A	4.7	DCPW	28.27%
031A	Garden Valley Rd.	Rd 6 & 6A to Rd 31D (F.A.S.)	MAC	4373	A	0.62	DCPW	43.73%
35	Gazley Bridge Road	Rd 1C to Rd 35A	MAC	827	A	0.06	DCPW	8.27%
36	Upper Cow Creek Rd	I-5 to MP 8.00 (to recreation site) (F.A.S.)	MAC	1034	A	0.03	DCPW	10.34%
39	Glenbrook Loop	Rd 21 to Rd 321	MAC	3353	A	0.63	DCPW	33.53%
42	Willis Creek Rd.	Brockway Rd (47) to 88	MAC	1588	A	0.03	DCPW	6.35%
47	Lookingglass Rd	Rd 387 to Hwy 42 (F.A.S.)	ART	1590	A	7.61	DCPW	6.36%
47	Lookingglass Rd	Hwy 42 to Rd 5	MAC	1314	A	4.7	DCPW	13.14%
48	Lower Smith River Rd	Hwy 101 to Rd 48A (F.A.S.)	MAC	1066	A	0.05	DCPW	10.66%
51	Flournoy Valley Rd	Rd 13 to Rd 90 (F.A.S.)	MAC	984	A	1.92	DCPW	9.84%
52	Colonial Rd	Rd 5B to Rd 51	MAC	788	A	0.02	DCPW	7.88%
53	Elgarose Rd	Rd 90 to Rd 253	MAC	1475	A	0.7	DCPW	14.75%
056A	Portland Avenue	Proposed from I-5 - Hwy 99 at Southgate	ART	483	A	0.03	DCPW	1.93%
59	Cleveland Hill Rd	Rd 51 to Rd 13	MAC	2188	A	0.03	DCPW	21.88%
62	Bear Creek Rd	Rd 212 to I-5 Exit 163	MAC	961	A	0.1	DCPW	9.61%
84	Newton Creek Rd	Hwy 99 to Parker Rd	MAC	3666	A	10.05	DCPW	36.66%
90	Doerner Rd	Rd 51 to Rd 53	MAC	1575	A	0.02	DCPW	15.75%
107	Lookingglass Rd	Hwy 42 to Rd 47	MAC	837	A	1.66	DCPW	8.37%
111	Winston Rd	Hwy 42 to Rd 266	MAC	555	A	0.02	DCPW	5.55%
115	Del Rio Rd	I-5 Exit 129 to Rd 31 (F.A.S.)	MAC	2958	A	0.14	DCPW	29.58%
116	Territorial Hwy	Hwy 38 to Rd 212	MAC	701	A	0.09	DCPW	7.01%
120	South Sutherlin Rd	Sutherlin City Limits to Rd 19	MAC	573	A	2.5	DCPW	5.73%
126A	John Long Rd	I-5 Exit 148 to I-5 Exit 150	MAC	499	A	1.67	DCPW	4.99%
167	Melrose	Rd 6 to Rd 13 (F.A.S.)	ART	6988	A	0.01	DCPW	27.95%
189	Fisher Rd	Rd 6 to MP 3.00	MAC	1688	A	0.05	DCPW	16.88%
200	North Bank Rd	Rd 388 to Hwy 138	MAC	996	A	0.04	DCPW	9.96%
207A	Austin Rd	Rd 16 to East End	MAC	992	A	0.02	DCPW	9.92%
217	Broad Street	Edenbower at Exit 127 to End	MAC	1198	A	0.01	DCPW	11.98%
251	Salmon Harbor Dr.	Hwy 101 to MP 1.43	MAC	5193	A	0.06	DCPW	51.93%
251	Salmon Harbor Dr.	Spur Rd 251 to Rd 87	MAC	1985	A	1.15	DCPW	19.85%
253	Orchard Lanes	Rd 59 to Rd 53	MAC	1285	A	0.05	DCPW	12.85%
263	Riddle Byass	Rd 20 to Rd 39	ART	4733	A	0.11	DCPW	18.93%
264	Main Street	Rd 263 to Riddle City Limits	MAC	1464	A	0.08	DCPW	14.64%

Note: Each route contained a varying number of data points. This table used the highest data point found for each route and provided the associated milepost. Individual analysis may be required for specific areas of concern.

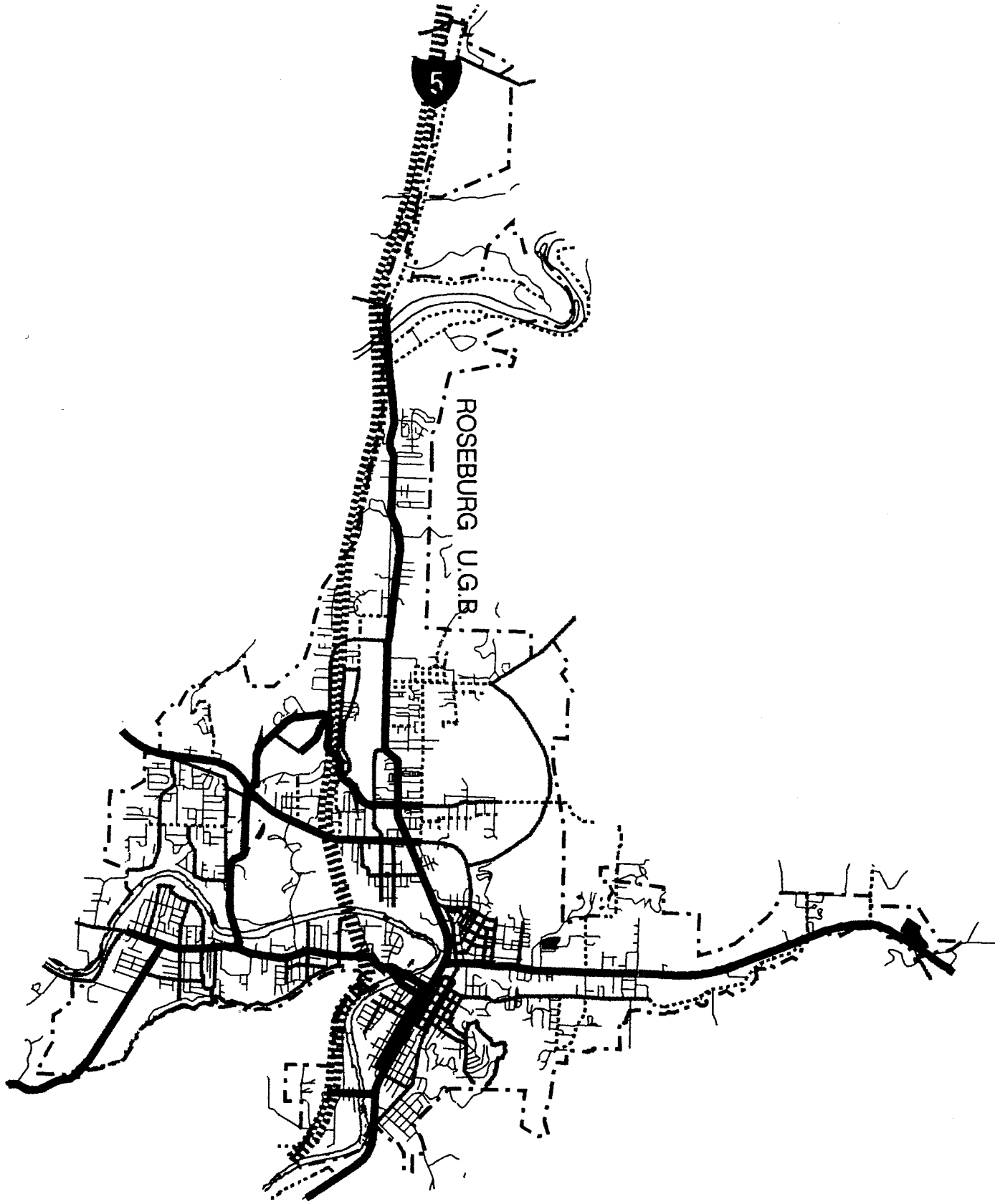
Level Service

305	Cooper Creek Rd	Rd 120 to MP 1.80	MAC	553	A	0.04	DCPW	5.53%
313	Glendale Valley Rd	Glendale City Limits to I-5 Exit 80 (F.A.S)	ART	3582	A	0.02	DCPW	14.33%
386	Old Pacific Hwy	I-5 Exit 103	MAC	7101	C	5.09	DCPW	71.01%
386	Old Pacific Hwy	Wecks Rd	ART	9854	A	2.1	DCPW	39.42%
387	Old Hwy 99 South	I-5 Exit 112 to Hwy 42	ART	14454	A	0.22	DCPW	57.82%
387	Old Hwy 99 South	I-5 Exit 112 to Hwy 42	ART	2998	A	8	DCPW	11.99%
388	Old Hwy 99 North	Winchester Bridge North to I-5 Exit 138	ART	1153	A	11.53	DCPW	4.61%
388	North Stephens	N. of Exit 127 to Winchester Bridge	ART	11128	A	14.5	DCPW	44.51%
389	Drain Yoncalla	I-5 Exit 150 to Hwy 38	ART	4312	A	0.3	DCPW	17.25%
400	South Stephens	City Limits to Hwy 42	ART	15103	B	0.42	DCPW	60.41%
400	South Stephens	City Limits to Hwy 42	ART	10868	A	3.44	DCPW	43.47%
MAC	ART	MART	PH				Transportation System	
10000	25000	30000	60000				Planning Guidelines	
NOTE: This Level Of Service analysis utilized the Public Works Department Average Daily Traffic Volumes 1996 Edition.								
This 1996 report contained varying number of data collection points for the differing routes. This table identifies the highest data point and the associated milepost for each route analyzed. The data collected in this report consisted of seventy two hour weekday periods Monday through Thursdays. Listed ADT at each collection point represents vehicles traveling in both directions.								
LOS A - Low Volume High Speed no delay High freedom to select desired speed and maneuver within traffic stream. Volume/Capacity 0.50								
LOS B - Stable Flow with reasonable freedom of select speed. Volume/Capacity 0.60								
LOS C - Stable flow, but speed and maneuverability is affected by the presence of others and requires care on the part of the driver. Volume/Capacity 0.70								
LOS D - Approaches unstable flow. Speed and maneuverability are severely restricted. Small additions to traffic flow will generally cause operational problems. Volume/Capacity 0.80								
LOS E - Represents operating condition at or near the capacity of the highway. Low speeds. Freedom to maneuver is extremely difficult. Any incident can cause extensive queing. Volume/Capacity 0.90								
LOS F - Represents forced flow operation at very low speeds. Operations are characterized by stop-and-go traffic. Vehicles may progress at reasonable speeds for several hundred feet or more then be required to stop. Volume/Capacity > 1.00								
PH-Principal Highway, MART-Major Arterial, ART-Minor Arterial, MAC-Major Collector								NA - Not Available

Note: Each route contained a varying number of data points. This table used the highest data point found for each route and provided the associated milepost. Individual analysis may be required for specific areas of concern.

TRANSPORTATION
ELEMENT SUPPORT
DOCUMENT

MAJOR STATE &
COUNTY ROADWAY
SYSTEMS ROSEBURG
U.G.B.



SCALE



- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- OTHER

DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT



(541) 440 - 8070

CHAPTER 4: CIRCULATION PLAN FOR GLIDE, GREEN & TRI-CITY

**CIRCULATION
PLANS**

for

GLIDE, GREEN AND TRI CITY

A SUPPLEMENT TO
THE TRANSPORTATION ELEMENT AND
THE URBAN UNINCORPORATED CHAPTER OF
THE LAND USE ELEMENT OF
THE COMPREHENSIVE PLAN

prepared by
DOUGLAS COUNTY PLANNING DEPARTMENT
Keith L. Cubic, Director

David Kammerman,
John Boyd AICP, Project Planner

Adopted by Board of County Commissioners

November 21, 1984
and May 15, 1985
August 13, 1997

Ordinance 84-11-3
Ordinance 85-5-1
Ordinance 97-4-1

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INTRODUCTION

HISTORY

There are within the County six unincorporated areas which are located outside of city urban growth boundaries and which have sewer service available to them (Dillard, Gardiner, Glide, Green, Shady and Winchester Bay). Due to the availability of sewer service, these areas (called urban unincorporated areas) have been able to develop at urban densities. The City of Myrtle Creek amended their urban growth boundary on March 4, 1992 to include Tri-City. This reduced the number of urban unincorporated areas to six. The urban level of development in two (Glide and Green) of these six areas and the Tri-City portion of the Myrtle Creek UGB has created (or has the potential to create) problems of inadequate vehicular circulation. The existing street systems in the other four areas, Dillard, Shady, Gardiner and Winchester Bay, are considered to be adequate to accommodate the growth projected for each.

Prior to the adoption of this plan, the location of almost all future streets within the three plan areas was determined on a piecemeal basis. At the time a property owner proposed to divide his land, his plan for division was reviewed by the County. That review was based upon ordinance requirements and a general "sense" of where roads are needed in the area. The property owner was rightfully interested in division which best suits his needs. The County, without an adopted plan for future circulation in these areas, often found it difficult to ascertain the consistency of the proposed division with the overall community circulation needs. As a result, property divisions were approved which resulted in such problems as poor access between adjacent properties, inadequate access for emergency vehicles and overloading local streets with high volumes of through traffic, to name a few.

In recognition of these problems, policies in the Comprehensive Plan call for the development of "overall circulation plans" for the six urban unincorporated areas of the County. This plan, through its continuing evolution, has eliminated these problems and prevented new circulation deficiencies from being established. In three areas, Glide Green and Tri-City, community wide circulation plans have been developed.

The purpose of this plan is to provide general circulation findings and policies for all unincorporated areas and to address the specific transportation circulation for Glide Green, and the Tri-City portion of the Myrtle Creek Urban Growth Boundary.

INTENT

It is the intent of the general findings/policies and the circulation plans for Glide and Green and the Tri-City portion of the Myrtle Creek Urban Growth Boundary plan areas to overcome the piecemeal approach to overall street development in each community. By

planning for a network of major streets in each area, including some existing streets as well as future street needs, it is hoped that proper vehicular movement through each area in the future will be assured. The streets identified by these plans include only arterials which move traffic through each area (such as Highway 99), collectors which collect traffic from local streets and funnel it onto arterials and certain necessary future local streets. It is not the intent of these plans to plot the location of all future local streets in each area. By planning the location of collector and arterial streets with which local streets may connect, flexibility is retained for property owners to divide their land as it suits their needs while providing for the overall circulation needs of each area.

In addition to graphically depicting an overall transportation network for each area, these circulation plans include a discussion of objectives to be achieved by the plans, standards used to designate existing streets and locate future streets shown on each map and means by which the plans may be implemented as intended. Also, statements of County policy are included to ensure the plans are implemented as intended.

PROCESS

The process used in May 1985 to develop these circulation plans included the involvement of numerous groups and agencies. Four public meetings were held with each Planning Advisory Committees (PACs) with responsibility for the plan areas. Major property owners who would be affected by the plans and all special districts with jurisdiction in the plan areas were individually invited to participate in these meetings. In additions, articles were published in the local newspaper regarding the plans and meeting notices were advertised.

Generally, participation in the process was good. Special districts showed interest in the projects and had few objections to the proposals. Property owners spoke in opposition to certain aspects of the plans which proposed streets through their undeveloped properties or which projected increased traffic volumes on streets adjacent to their homes. PAC members responded, as possible, to these concerns while trying to satisfy the long-term circulation needs of the areas.

EFFECT OF THE PLANS

Following adoption, all future land use actions which are affected by these circulation plans shall be consistent with them. As defined in the Land Use and Development Ordinance, the installation of street improvements shown on the plan maps shall be a condition of approval of all property divisions. In addition, policies in the plan regarding street length, access to arterial streets, etc., shall be observed in development of all public roads whether they are financed by adjacent property owners, the County, the State or other governmental organizations.

UPDATE OF THE PLANS

On November 1984 the Board of Commissioners adopted the Transportation Element Findings and Policies for the Comprehensive Plan. This included the support document "Circulation Plans for Tri-City and Glide." The following changes have occurred following adoption of the Transportation Element.

May 1985	Adopted the Bikeway Master Plan and Circulation Plan for Green
December 1985	Adopted Circulation Plan Findings/Policies
November 1986	Updated Transportation Element Findings/Policies
November 1987	Updated Bikeway Plan, Transportation Element and Circulation Plan for Green
June 1989	Updated Transportation Element Findings
December 1990	Updated the Circulation Plan for Green to revise Finding No. 62 removing Route B and revising the Green Circulation Plan
October 1994	Updated Transportation Element Findings/Policies and revising road classifications for numerous routes
November 1995	Updated Transportation Element Findings/Policies
May 1996	Revised the Road Classification for Melody Avenue

From 1992 to 1996 six transportation studies were conducted in Douglas County. The areas studied included Coastal Douglas County, Reedsport, Sutherlin, the Greater Roseburg area, Myrtle Creek, and Highway 38/42 Corridors. These plans were conducted to address Oregon's recently adopted Transportation Planning Rule. These studies specifically addressed Green, Dillard, Tri-City, Gardiner and Winchester Bay. Research was conducted using state and local resources to update the Glide circulation plan.

In addition to the studies, nine PAC meetings were conducted to present the Transportation Planning Rule elements, the Douglas County Transportation System Plan, and to identify what, if any, updates, were needed. The final product was reviewed by the Planning Advisory Committee's, a Transportation Coordination Committee consisting of representatives from interested cities and state representatives.

OBJECTIVES AND STANDARDS

In the development of circulation plans for Glide, Green and the Tri City area, certain objectives and standards were observed. These objectives and standards were used in determining which existing streets currently function as collectors or arterials and which existing streets will serve these functions in the future. The objectives and standards were also used in generally establishing the location of future collector and arterial streets.

The objectives and standards used are not unique nor were they specifically developed for circulation planning in Douglas County. They represent commonly held values and principles for vehicular circulation at all levels. As such, many of these objectives and standards should be utilized in the review of plans for development of all streets, not just those identified.

OBJECTIVES

There were five major objectives used in the development of urban area circulation plans.

The **first objective** was to provide convenient access to all existing and future residential, commercial, industrial and public areas. The lack of convenient access via designated collector or arterial streets often results in use of local streets not planned for through traffic. To provide convenient access, existing traffic patterns were studied and major routes which provide access between neighborhoods and from residential areas to activity centers (commercial, industrial and public) were identified. Obstacles to convenient access were also identified and, where feasible, these obstacles were eliminated or alternate access provided. The general location of future collector and arterial streets through undeveloped areas were established in such a manner as to ensure reasonably direct access.

The **second objective** was to ensure the safety of vehicular movement. The ultimate traffic volumes to be carried by each collector and arterial street considered for designation were approximated using existing Comprehensive Plan land use designations. Based upon those projected volumes, the street's location and type of traffic it is anticipated to carry, each street studied was assigned a classification including standards for its development to ensure safe traffic movement. New intersections were planned for such locations as would minimize hazardous situations.

The **third objective** was to keep through traffic out of neighborhoods. By providing convenient and safe access to collector and arterial streets which skirt neighborhoods, through traffic will have no need to use local neighborhood streets. Use of local streets for residential access only preserves the privacy of the residences, improves vehicular safety and generally enhances the liveability of the neighborhood.

The **fourth objective** was to ensure that streets are economically planned. By designating only those streets which warrant construction to a collector or arterial standard, all other streets may be developed to the lesser local street standards. This is cost effective both in terms of street construction and maintenance. Conversely, by ensuring that the rights of way of future streets which will serve as collectors and arterials are adequate for those purposes, costly condemnations and street widening can be avoided.

The **fifth objective** was to ensure the adequate access of emergency vehicles to all dwellings. Areas where potential natural hazards such as flooding or landslides exist

were identified and their effect on traffic circulation assessed. In instances where such hazards would adversely affect circulation, alternate plans were developed. Also identified were areas where limited access exists and where a significant number of dwellings exist or could be constructed. In these areas, where feasible, alternate or secondary access was planned.

STANDARDS

Street Classification System

In the development of circulation plans, the existing County road classification system was used. As applied, those street classifications include Principal Highways, Arterials, Major Collectors, Minor Collectors and Local Streets. These street types are defined below.

Principal Highway: Principal highways fall under state jurisdiction and the management of these facilities is outlined in the Oregon Highway Plan.

Arterial - The arterial network will provide through traffic movement (including public transportation and its distribution from Principal Highways on the Collector and Local Streets Network) As with Principal Highways, Arterials provide connection between major communities in the County. Arterials are subject to regulation and control of parking, turning movements, entrances, exits, and curb uses. Access control and on-street parking are a function of the number of lanes, lane and shoulder width, design speed, traffic volumes, and land use. Traffic volumes on arterial streets can reach up to 30,000 vehicles per day.

Collectors

Major Collector: Major collectors provide for the connection of major residential and activity centers. Such roads primarily accommodate through traffic and channel traffic from local and minor collectors onto streets of higher classification. In urban areas, major collectors should help to establish neighborhood identity and define land use patterns. In rural areas, major collectors connect minor rural communities, provide secondary access between major communities, provide access to major employment, recreational and rural residential areas. Access to adjacent properties may be limited. Traffic volumes on major collector streets can range up to 10,000 vehicles per day.

Minor Collector: Minor collectors are intended to distribute local traffic onto major collector or arterial streets. Property access onto minor collectors is often allowed. In urban areas, minor collectors should border neighborhoods thereby helping to establish neighborhood identity. In rural areas, minor collectors also connect rural residential areas. Traffic volumes can range up to 5,000 vehicles per day. In addition, in rural areas minor collectors provide a connection between resource

areas having high economic impact on the community and principal highways and arterials. These resource collectors are generally rural in nature and provide interface with agriculture, forest service, and Bureau of Land Management (BLM) roadways. Traffic volumes range from 250 to 4,000 vehicles per day.

Local Streets

Rural roads and local streets provide direct access to abutting property. Careful planning of the street layout will discourage the through movement of traffic. Street closures or traffic diverters can convert existing local street grid patterns to preserve neighborhood integrity. When properly planned and designed, traffic control devices will not be necessary at intersecting local streets.

Local Street: Local streets provide direct access to adjacent properties. Through traffic on local streets is discouraged. Traffic volumes on local streets are generally less than 1,500 ADT.

To ensure that the various street classifications defined above are able to accommodate the volume and type of traffic anticipated, standards for their construction have been adopted by the County. The standards may be found in Chapter 4 (Land Divisions) of the Land Use and Development Ordinance.

Necessary Local Streets

In addition to principal highways, arterials and major and minor collectors, the circulation plans have designated certain streets or street segments as necessary local streets. The purpose of designating necessary local streets is to ensure that street connections are provided in areas where, without such connections and upon development as prescribed by the Comprehensive Plan, inadequate vehicular access would exist. To explain this situation, certain standards regarding property access should be discussed. These standards address desirable lengths for residential cul-de-sac streets.

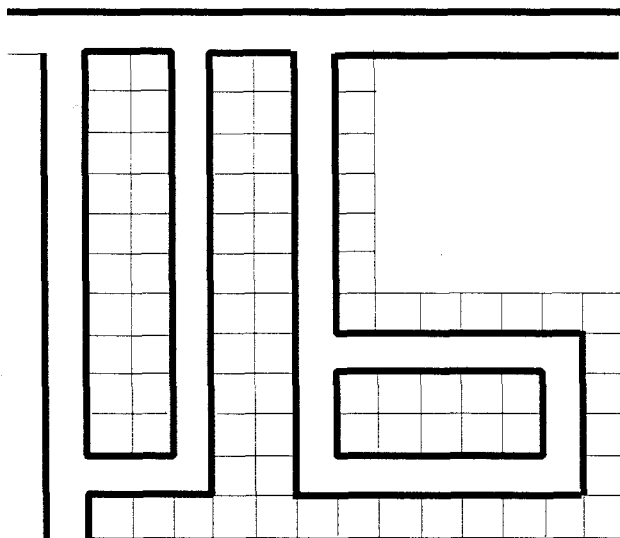
The County Land Use and Development Ordinance and Comprehensive Plan both discourage long cul-de-sacs. This length is generally defined as greater than 400 feet in urban areas. (Assuming typical single family subdivision with 6,500 square foot lots, a street of this length could access between 15 and 20 dwellings.) There are a number of reasons for this recommended limit. Dead end or cul-de-sac streets have the potential of resulting in hazardous situations during times of emergency. If, for example, there is an automobile accident or flood that blocks the sole access point or, in a hillside area, the road gives way or is blocked by a landslide, emergency access to or from the area would be impossible. The longer the cul-de-sac, the more dwellings affected by blockages of these types. Police patrol is less efficient with cul-de-sacs due to the doubling back on the

same street just traveled. And, the longer the cul-de-sac, the more liable emergency vehicles are to misdirection¹.

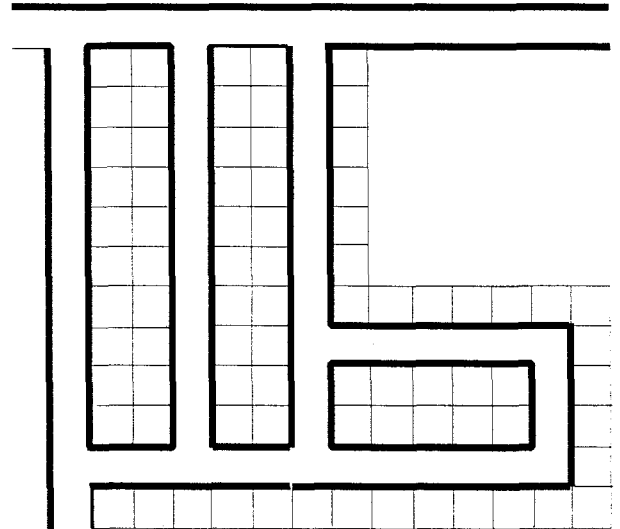
Given this concern for cul-de-sac length or the maximum number of units being located on a cul-de-sac, necessary local streets have been designated on each of the circulation maps under three sets of circumstances. First they have been included to make existing cul-de-sac streets form looping streets where, without such street connections, there exists the potential for more than 20 dwellings to be constructed on the cul-de-sac streets.

Secondly, necessary local streets have been shown in locations where single properties have the potential for division into 20 or more lots and, due to the property configurations, only one point of access could be provided by the property alone. Under such circumstances, necessary local connections have been mapped across the adjacent property or properties which provide the most logical secondary access to the site. An example of such a property is shown on the following figure.

PROPERTY DIVISION
WITHOUT NECESSARY
LOCAL CONNECTION



PROPERTY DIVISION
WITH NECESSARY
LOCAL CONNECTION



¹Lynch, Kevin, Site Planning Third Edition, the MIT Press, Cambridge, Mass., 1984, pp. 196-197.

And thirdly, necessary local streets have been shown in other areas where they provide access to landlocked parcels or where they otherwise provide logical, efficient street connections and circulation.

The development of necessary local streets is not considered to be more important than the development of any other local streets. As indicated, they have been designated in areas where necessary connecting links do not exist and, without their designation, the necessary link would probably not be made. In all areas where necessary local streets are not shown, either all necessary street connections exist or they can be easily made as a condition of individual property division.

Necessary local streets have only been shown in instances where no public street access currently exists. In instances where inadequate public street access exists it is assumed that, as a condition of property division, street improvements will be installed to ensure that necessary connections can be made.

Other Standards

The quantity and location of streets shown on the circulation plan maps are based upon land use designations which have been adopted as part of the County Comprehensive Plan. Traffic volumes were determined for all residentially planned areas according to the densities prescribed. Traffic volumes for commercially and industrially planned areas were averaged using typical types of development which can be expected in these areas. Examples of these traffic volumes are shown on the following table.

TRAFFIC GENERATION BY LAND USE TYPE¹

<u>Land Use</u>	<u>Weekday, One-way Trip Generation</u>	
Single family residential	9.73	trips per dwelling unit
Multi family residential	5.93	trips per dwelling unit
Neighborhood shopping center	786.72	trips per acre
Industrial (various types)	70	trips per net acre
Schools	1.02	trips per Elementary student
	1.38	trips per High School student

Amendment to the Comprehensive Plan map designations within any of the urban unincorporated areas could affect the proposed circulation plan for that area. The adequacy or appropriateness of the circulation plan for an area should be considered as

¹Trip Generation, 5th Edition, Institute of Transportation Engineers, Washington, DC

part of any proposed plan amendment within it. As appropriate, an amendment to the circulation plan should accompany an adopted land use change.

An effort was made to locate future streets on existing property lines. By so doing, the cost of street dedication and improvement could be borne by two or more property owners rather than just one. Also, by locating future streets on property lines, the flexibility of property owners to divide their property as they see fit is affected less than if the streets cut through the middle of their property.

Another factor considered in locating future collector and arterial streets was street grade. Generally speaking, the higher the street classification the lower the acceptable street grade. Arterial streets, for example, should generally be restricted to grades of less than 8%, collector streets to grades less than 10% and local streets less than 22%¹.

The horizontal alignment of all new intersections created by the circulation plans are proposed to be 90 degrees. Such intersections are safer and more land efficient than acute angle intersections. Acute angle intersections, particularly those of less than 70 or 80 degrees, create sight distance problems for vehicles and result in corner parcels which are uneconomical to develop².

Another concern regarding intersection design is slight jogs or offsets of intersecting streets. Two streets which intersect the same street (at T - intersections) which are offset less than 125 feet from centerline to centerline create hazardous situations for vehicular movement through the intersection³. These situations are depicted on the following illustrations.

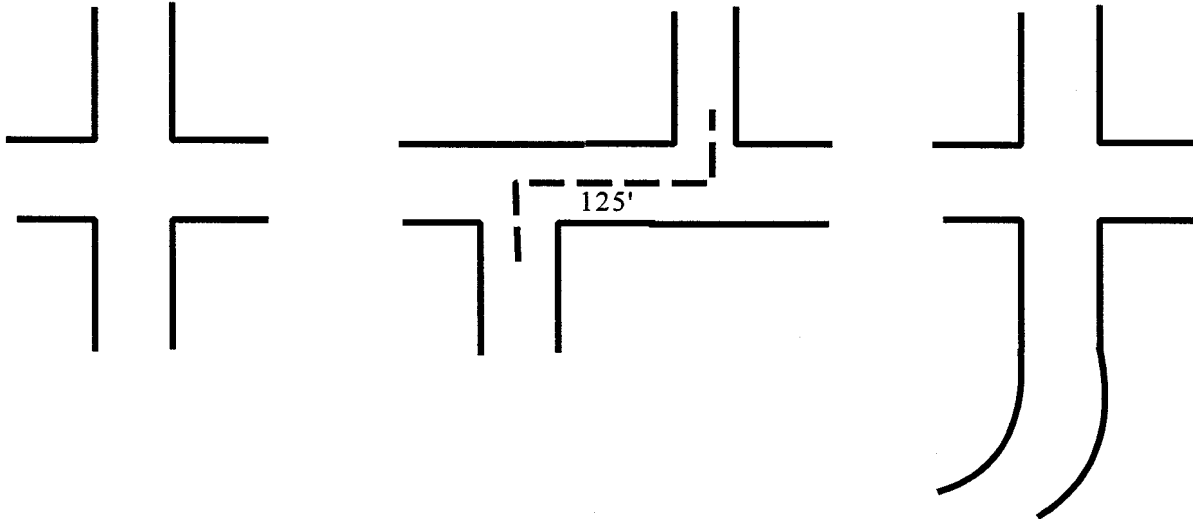
¹National Association of Home Builders, Land Development Manual, Washington, D.C., 1969, p. 153.

²O'Mara, W. Paul, Residential Development Handbook, Urban Land Institute, Washington, D.C., 1978, p. 162.

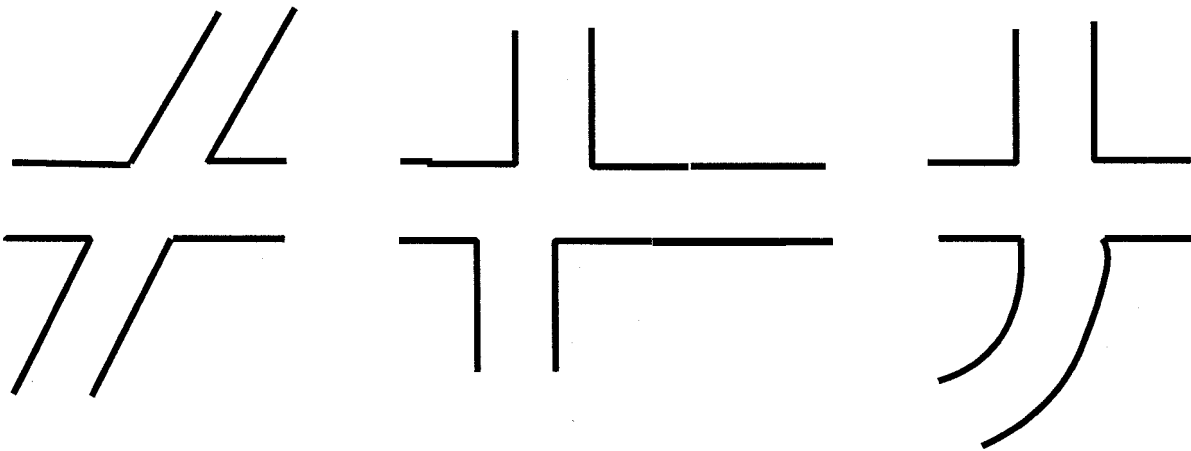
³O'Mara, W. Paul, Residential Development Handbook, Urban Land Institute, Washington, D.C., 1978, p. 162.

INTERSECTION DESIGN

Desirable



Undesirable



All streets should serve to connect streets of equal or lower classification to streets of equal or higher classification. For example, local streets should connect other local streets or cul-de-sacs to local or collector streets. Local streets should not serve as a through connection between collector streets. This connection of lower classification to streets of higher classification ensures the maintenance of proper vehicular circulation and traffic safety¹.

CIRCULATION PLAN MAPS

The designated streets shown on the circulation plan maps for each of the three plan areas are intended to provide for the overall circulation needs of each area. The streets designated in each plan area are consistent with the objectives and, with few exceptions, the standards for street location and development specified in the previous section of this document. All of the arterial and local streets and almost all of the collector streets designated by the plans conform to the standards for maximum street grade previously discussed. All new street intersections are proposed to meet at 90 degree angles. There are, however, a few existing street intersections included within the circulation plans which meet at acute angles. All proposed "T" street intersections are offset at least 125 feet from centerline to centerline. And all designated routes connect streets of equal or lower classification with ones of an equal or higher classification.

All of the principal highway and arterial streets included within these plans are under the jurisdiction of the State of Oregon. The only exceptions is the arterial connection between the I-5/Weaver Road Interchange and Highway 99 in Tri City. The jurisdiction of this latter proposed connection could be the State or County.

With exception of the aforementioned arterial connection between I-5 and Highway 99, all new roads proposed by the plans are either minor collector or necessary local streets. No new major collector streets are proposed for any of these areas.

In each plan area several necessary local or minor collector streets have been stubbed out at the urban growth boundary line. These street stubs are all located adjacent to areas where, based on topography, UUA expansion and subsequent urban development could occur. The rationale for the designation of these streets was that, if expansion of the UUA into any of these areas was to be proposed, adequate street access would be available for their development. It is not the intent of these stubbed streets to promote urban development of these adjacent rural areas.

¹O'Mara, W. Paul, Residential Development Handbook, Urban Land Institute, Washington, D.C., 1978, p. 162.

GLIDE CIRCULATION PLAN

The Glide circulation plan map includes only those properties located within the Glide core area. For the purposes of this report, the Glide core area is defined to include all areas within the Glide Urban (UUA) west of the Highway 138 crossing of the North Umpqua River and east of that area within the Boundary which is west of and adjacent to Little River Road. Outside of the core area there are four existing roads which are to be included as part of the overall circulation system for the Glide UUA. These four streets include the following:

North Umpqua Highway - this route is an Principal Highway for its full length within the UUA

Wild River Drive - this route is a minor collector for its full length within the UUA

North Bank Road - this route is a major collector for its full length within the UUA

Lone Rock Road - this route is a minor collector for its full length within the UUA.

There are no new streets outside of the core area which are proposed for incorporation into this plan.

This plan recognizes the role that the streets listed above along with the Little River Road and Glide Loop Road presently play in the overall traffic circulation in the Glide UUA. In addition to this recognition there are a number of components of this plan which address proposed streets and new circulation patterns.

The existing street which connects Glide Loop Road to the North Umpqua Highway across the Glide Elementary School property has been designated as a minor collector street. Although open to public use, this street is under school district ownership and its use could be restricted by action of that agency. The intent of the minor collector designation is to promote the dedication of this street to ensure its future availability for public use. This street provides relatively direct, convenient access between the elementary school and future high school site and the residential area south of the North Umpqua Highway. (Glide Loop Road is proposed to be the only public vehicular access point to the future high school site.) The dedication of this street for public use opens the possibility of its use by industrial traffic from the mill which is located adjacent to and east of it. This could, in turn, reduce or eliminate the amount of industrial traffic on Glide Loop Road west of the minor collector - a situation which has been characterized as hazardous by the school board and residents of the area.

A minor collector street is proposed to connect Terrace Drive/Upper Terrace Drive to the North Umpqua Highway through the 73± acre property west of the Bar L Ranch subdivision. This future street is intended to serve as a primary access to the 73 acre

property through which it passes and to provide a second means of access to the Upper Terrace Drive and the Southern Terrace Drive areas. Without this connection, Terrace Drive would be the only means of access to an area with the potential for development of up to 40 homes.

The necessary local streets designated are intended to provide a second point of access and looping circulation through areas which have the potential for substantial development (20 or more homes) and which presently have only a single point of access.

There are two areas within the Glide UUA which have a single access, cannot reasonably be provided with a second point of access and which have the potential for the construction of 20 or more homes. These areas include Lone Rock Road and Bar L Ranch Road.

The Lone Rock Road area has the potential for property division which would allow for construction of between 35 and 40 homes. This area is topographically constrained from a second point of access by the steep hills to the south and east and the North Umpqua River to the northwest. Amendment to plan designation in this area should not be considered unless an alternate access point is provided.

Bar L Ranch Road is the only access into the 60± lot Bar L Ranch subdivision. Due to their 5± acre size, none of the lots in this subdivision can be further divided. Thus the dedication of new roads through this area as part of the land division process is not possible. The Comprehensive Plan for The Glide area identifies an area of unstable soils adjacent to the west side of Bar L Ranch Road approximately halfway between the North Umpqua Highway and Overlook Road and further substantiating the need for a second access. One of these would use the existing "cat" road between Overlook Road and the Terrace - Grandview collector. For this route to be used would require establishment of a non-exclusive easement and improvement of the cat road to allow one way emergency vehicle access in all weather. A public road along this alignment is not feasible due to existing cross slopes.

The other potential access for the subdivision would require the extension of Terrace Drive to the southeast from its present terminus and connection to Bar L Ranch Road near its most southerly hairpin turn. The advantage of this access is that it could be developed as either an emergency vehicle access or a County road available for daily use. The disadvantage is that the properties along this alignment which are part of the Bar L Ranch subdivision have been divided to their ultimate Plan potential. As a result, the County could only acquire right-of-way and improvement of the Bar L portion of this alignment through condemnation and County installation of improvements.

While either route would satisfactorily address the concern for emergency vehicle access to the Bar L Ranch subdivision, the former is the route which the County can cause

to be installed without direct County involvement. As the emergency vehicle access would benefit only one subdivision and as that subdivision was once a part of the property over which the access would be located, it appears appropriate that installation of the emergency vehicle access be a requirement of division of the property through which it would pass. However, installation of the latter access through the Bar L Ranch subdivision by the divider of the property through which the former access would pass should be considered to be an acceptable alternative.

The necessary local street which connects the North Umpqua Highway with Catherine Street (west of Little River Road) has been included in the plan to provide looping circulation through an area with the potential for 45± dwellings (including existing parcelization on Mountain View Street). This proposed street passes through an area south of and adjacent to the highway which has been identified by the Comprehensive Plan as consisting of unstable soils (see the Glide Circulation Plan Map). Discussions with the County Engineer's office indicates that construction of a street through this unstable area following the alignment of the existing "cat" road is an acceptable solution for circulation through the area.

A number of the platted streets in the core area of Glide, including Pike, Park, Abbott and West Estella have rights-a-way that are 50 feet wide. As properties on both sides of these streets have been divided to the maximum density permitted by the Comprehensive Plan and no further property division is possible, the only means of acquiring the additional right-of-way needed to meet County standards (56 feet or 60 feet) would be through voluntary dedication or condemnation by the County. As a means of facilitating their incorporation into the County street maintenance system and thereby encouraging their improvement, the County should consider acceptance of these streets for County maintenance upon their improvement with their existing 50 foot rights-a-way.

Outside of the Glide core area, much of the Idleyld Park area was divided into one and five acre parcels by the North Umpqua Homes subdivision. This 80± acre subdivision included the dedication of public rights-of-way to access all of the lots created. Although divided, most of this subdivision remains under a single ownership. Access to the few lots which have been developed in the subdivision does not follow the dedicated rights-of-way but rather traverses a number of lots in it. and most, if not all, of the one acre lots in the subdivision may be partitioned as they are located in an area planned for half acre density. The County should coordinate with property owners in this area in an effort to realign existing rights-of-way and develop a circulation plan which is consistent with the Comprehensive Plan designations in the area, and provides logical and safe access to properties in the area.

The Comprehensive Plan designates most of the land within the Glide UUA as being appropriate for residential development. The density of development envisioned varies from a high of three dwellings per acre in some areas to a low of one dwelling per five

acres in others. In locations where property division can occur without requiring the development of new streets, the densities envisioned by the Plan can be realized. However, in locations where property division will require the development of new streets, realization of Plan densities is problematical. The County road standards for urban areas were developed to urban densities. Glide has been defined as an urban area due to the urban nature of the services available (sewer and water, primarily). Yet the density of development envisioned by the Comprehensive Plan is not urban. The required installation of urban streets as a condition of property division at rural densities may have the effect of discouraging property division. Also, such streets may detract from the sub-urban character of the area. As a means of facilitating realization of the Comprehensive Plan for this area, the County should consider relaxation of street improvement standards within the Glide UUA. Standards for local streets of 28 foot paved surfaces and 56 foot rights of way and for minor collectors streets 34 foot paved surfaces and 60 foot rights-of-way would seem appropriate in that unique setting.

LAND USE ELEMENT

GLIDE CIRCULATION PLAN

ADOPTED NOVEMBER 21, 1984

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SCALE

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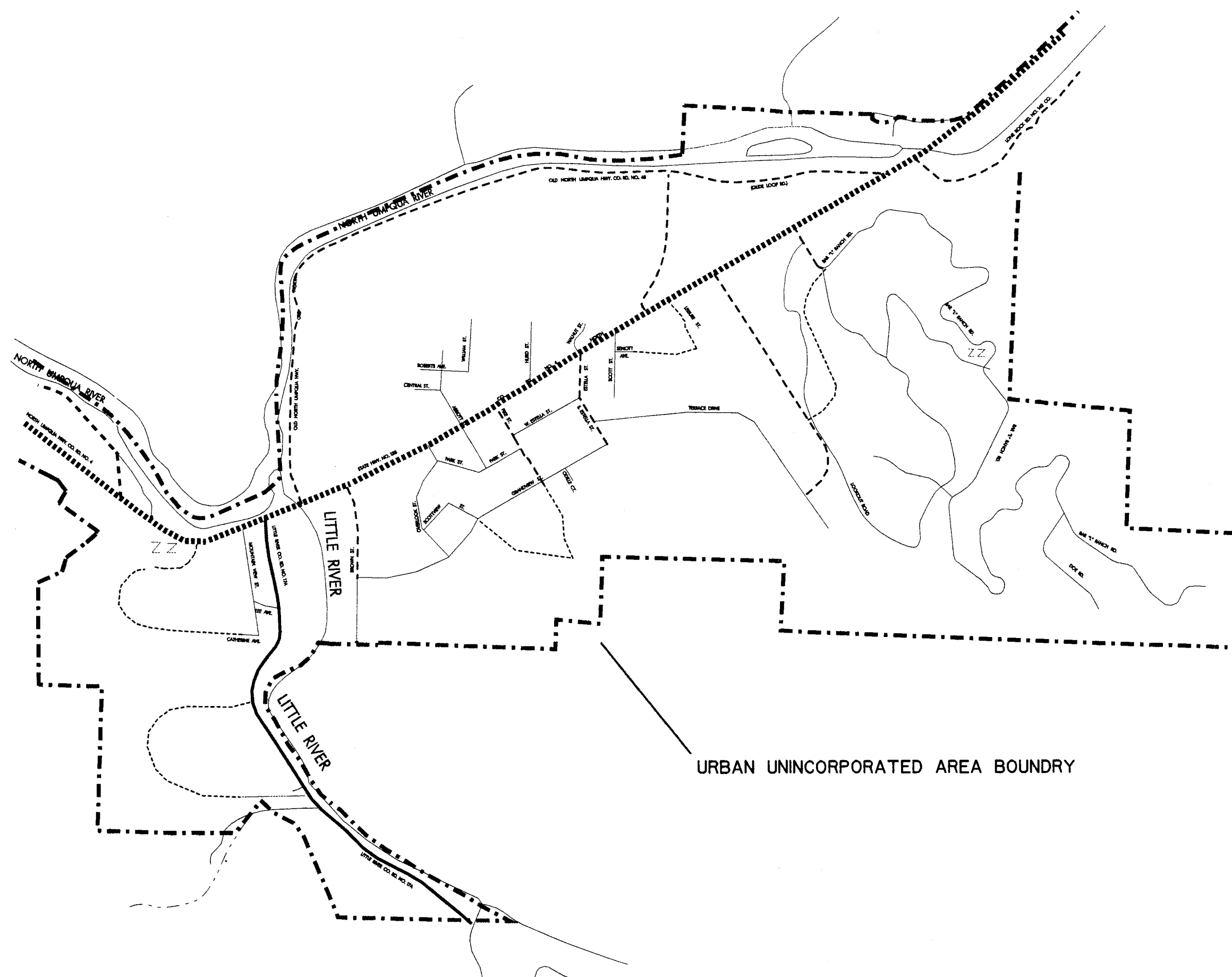
- ZZ GEOLOGIC HAZARD
- PRICIPAL HIGHWAYS
- ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- NECESSARY LOCAL
- OTHER
- - - - URBAN GROWTH BOUNDRY

URBAN UNINCORPORATED AREA BOUNDRY

DOUGLAS COUNTY
PLANNING DEPARTMENT
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541- 440 - 4289



GREEN CIRCULATION PLAN

The circulation plan for Green recognizes the roles which the major streets through the area presently play: I-5 and Highway 42 as principal highways; Highway 99 as an arterial; part of Carnes Road, Roberts Creek Road, and Happy Valley as major collectors; and part of Little Valley Road, Stella, part of Austin, Green Avenue, Green Siding Road, Landers Lane, Industrial Drive, the portion of Grant Smith southeast of Hwy 42. and Rolling Hill Road as minor collectors. With the exception of the minor collectors, these streets serve their ultimate function due to the volume of "through" as opposed to local traffic which they presently carry. In addition to the streets listed above, future development within the Green UUA will require the construction of a number of new collector streets and will increase the traffic volumes on a number of existing streets in the area resulting in their classification as minor collectors, as well.

The area between Carnes Road and the Central Oregon Pacific Railroad lines has been designated by the Comprehensive Plan primarily for industrial development. When fully developed, the vacant industrial property in this area could generate approximately 9,000 additional vehicle trips per day (using traffic generation data cited previously). Presently, this area is served only by Austin Road and Green Siding Road.

The circulation plan for this industrial area involves two components. First a minor collector street is proposed to connect this area with Carnes Road further to the north and to the south of the existing access points. Two minor collector streets are proposed to connect this area with Carnes Road: one to the north of Happy Valley Road following an existing 40 foot right-of-way; and the other consisting of an extension of Industrial Drive to connect with Linnell Street. These minor collectors will provide access to the undeveloped properties in the industrial area, a looping circulation system through it and provide for truck access to the area which bypasses most of the residentially planned area on Carnes Road. While existing volumes of truck traffic on Carnes Road are not excessive, the additional truck traffic generated by development of the vacant industrial properties in this area could significantly alter the residential nature of this street. The closure of the northern access of Carnes Road to Old Hwy. 99 has redirected truck traffic to Happy Valley East. The alignment of the proposed collector street from Austin Road north to Carnes Road is intended to follow the undeveloped 40 foot right-of-way which exists through the area. The southerly portion of this collector is completed. The southwesterly extension of Industrial Drive passes through commercial planned property at the intersection of Carnes Road and Highway 42 and intersects with Carnes Road opposite Linnell Street. This point of intersection with Carnes Road is as far north on the commercial property as possible without creating an intersection which is offset less than 125 feet from Linnell Street (an undesirable alignment as discussed previously). The most northerly possible connection to Carnes Road is proposed as a street in this location interferes least with the development potential of this 10± acre vacant commercial parcel. This major collector is shown between Green Siding Road and Austin Road on the Green Circulation Plan map. This route is intended to follow the southerly prolongation of this existing right-of-way which extends from Carnes Road south to Austin Road. However, this route bisects a vacant

industrial site which fronts on Green Siding Road. The original transportation element considered two routes to connect Green Siding and Austin Roads. In 1989, "Route A" (Industry Drive) was dedicated through the partitioning process. "Route B" (an extension of an existing right of way adjacent to Central Oregon Pacific Railway property) was dropped from consideration. It was determined that local developers are not expected to bear the entire cost for major transportation structures that would benefit the entire Green urban area. Should an application be made to divide the parcel through which the extension of Industry Drive would pass and should development not have precluded Industry Drive (between Green Siding and Austin Road), dedication of the right-of-way necessary for its development should be made a requirement of that division. Any consideration of street dedication, or offer to sell, or offer to dedicate, or direct purchase of right of way, access or other controls must consider private property rights, development design, and the acquisition practices established in the Comprehensive Plan of the local government.

In addition to the looping collector street, an over crossing of the Central Oregon Pacific rail lines to connect Austin Road with Highway 99 was proposed. This connection had intended to provide a more direct access to this industrial area from the I-5 Freeway. Austin Road was originally selected as being a more appropriate crossing point than Green Siding due to the width of the rail crossing (100± feet including two rail lines at Austin Road versus 150± feet and three rail lines at Green Siding) and its more central location to Highway 99 between I-5 and Highway 42. Following the extension of East Happy Valley Road in 1995, the extension of Austin Road to Hwy. 99 appears unlikely. If the construction of the Austin Road rail crossing with Highway 99 were to occur, it will require County participation due the area-wide impact this facility would have.

The need to close the northern end of Carnes Road created an opportunity to coordinate the construction of a new facility on Happy Valley Road. In 1996, in a project coordinated with ODOT, Central Oregon Pacific Railroad and Douglas County Public Works, Happy Valley Road was extended via a new railroad crossing to Hwy. 99. This expansion included a new traffic signal on Highway 99.

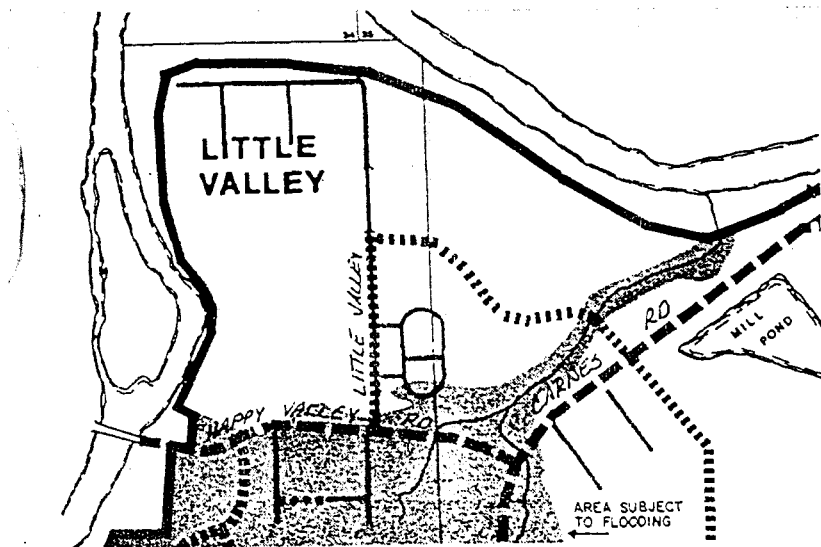
Prior to the re-alignment, most of the traffic originating along the Highway 99 corridor in Green which needs access to I-5 in a southbound direction had to travel south on Highway 99, then left onto Grant Smith Road, left onto Highway 42 and right onto I-5. The new alignment allows a signalized movement directly from Hwy. 99 onto Hwy. 42 and then onto I-5. As development occurs along this corridor, along the Happy Valley East in general, and upon construction of the Austin Road connection to Highway 99, traffic making turning movements onto and off of Grant Smith Road will increase significantly. The improvement completed at the intersection of Highway 99 and 42 avoided a potentially hazardous intersection.

The Oregon Department of Transportation has relocated the intersection of Carnes Road and Highway 99. The existing intersection, located north of the UUA has resulted

in numerous accidents and was considered unsafe. This new intersection with Hwy. 99S is significantly south of the old intersection. The extension of Happy Valley Road East includes an at-grade crossing of the Central Oregon Pacific rail line and closing of the existing Carnes Road crossing. This new alignment has been included as part of the circulation plan for Green.

The Little Valley area, north of Happy Valley road and west of Roberts Creek, is slowly developing. Under existing Comprehensive Plan land use designations, up to 600 dwellings could be constructed in this area. At the present time the only access to this area is Little Valley Road via Happy Valley Road. This street will likely carry much of the traffic generated by new development in the area. As a result it has been designated as a minor collector. The County's flood hazard mapping indicates that Happy Valley road from Carnes Road west past its intersection with Little Valley Road would be inundated during flooding of a 100 year intensity (see the following illustration).

AREA OF POTENTIAL ISOLATION DURING PERIODS OF FLOODING



Thus, during such flooding, access to the Little Valley area could be blocked. A second point of access is proposed due to the volume of traffic that will be generated by full development of this area and as a solution to the potential blockage of access from Happy Valley Road. This alternative minor collector access is proposed to extend from Little Valley Road east to intersect Carnes Road directly opposite the collector street serving the industrial area southeast of Carnes Road. This point of intersection is considered appropriate as it helps to limit the number of points of traffic conflict on Carnes Road and provides a point of common signalization on Carnes should it become necessary in the future. This alternate access will require a bridge crossing of Roberts Creek. It is likely that construction of this bridge and its connection to Carnes Road will require County participation as the development potential of the property between the creek and Carnes Road is limited.

The minor collector streets shown in the area south of Happy Valley Road, west of Carnes Road and north of Highway 42 are intended to provide convenient access to both the existing development in this area as well as future development which is planned. There are a number of existing streets in this area, presently serving as local streets, which will function as minor collector streets upon full development of the area. These streets include Stella Street, Rolling Hills Road, and Landers Lane. (Austin Road and Green Avenue presently serve as minor collector streets.) The function of these existing local streets will change as new streets are connected to them and their traffic volumes increase.

In addition to these existing streets, there are a number of new minor collector streets proposed to provide access to the undeveloped western portion of the UUA. These streets include Rolling Hills Road, the northerly extension of Stella to Rolling Hills Road, Stella, and Rolling Hills. It is intended that Rolling Hills Road be the primary collector of north and southbound traffic generated by development of the area through which it passes. It is not anticipated that a significant amount of traffic generated outside of the Rolling Hills corridor will use this street. The segment of Rolling Hills Road between Austin and Happy Valley roads will improve circulation between these two streets and should reduce the amount of additional traffic on Austin Road generated by development of the western portion of the Green area. The extension of Melody Lane as a necessary local intended to provide a connection between Linnell, Stella, and Rolling Hills Road. That portion of Melody Lane north of Landers to its connection with Stella has been identified as a necessary local since it will not serve as a connector of through traffic to or from Rolling Hills. The predominant use of this section of Melody will be for ingress and egress to residential development on the hill south of Stella. Landers Lane, and Austin Road have been designated as minor collectors to the western urban growth boundary line so that they may serve as major access points to the agricultural land west of the urban growth boundary should it ever be urbanized.

It is possible that with development of the western portion of the Green area that Rolling Hills Road may carry more traffic than Happy Valley Road. This possibility should be further studied and, if appropriate, the intersection of those two streets realigned (as a County project) to facilitate uninterrupted traffic movement onto and off of Rolling Hills Road.

A future street that runs east and west between Stella (near its intersection with Hebard Avenue) and Rolling Hills Road has been designated as a necessary local street. A local street midway between Austin and the Linnell/Melody extension would achieve the overall purpose of the Green Circulation Plan. This necessary local street takes advantage of an existing right-of-way and also provides a logical and efficient street connection between Rolling Hills Road and Stella Street.

The minor collectors planned for the area south of Highway 42 and west of Roberts Creek Road will provide access and connecting links through this hilly area. A planned

development, the Highlands at Vista Ridge received approval for an amendment to the circulation plan removing the minor collectors in this area.

Landers Lane will focus turning movements onto and off of the Highway at a central location thereby promoting traffic safety. As part of the development of the new access point, the existing northeasterly intersection of Grange Road and Highway 42 will be closed. This existing access point is very close to the intersection of Highway 42 and Roberts Creek Road. Increased use of this existing access point in the future due to development of the hill area south of Highway 42 could create a hazardous situation.

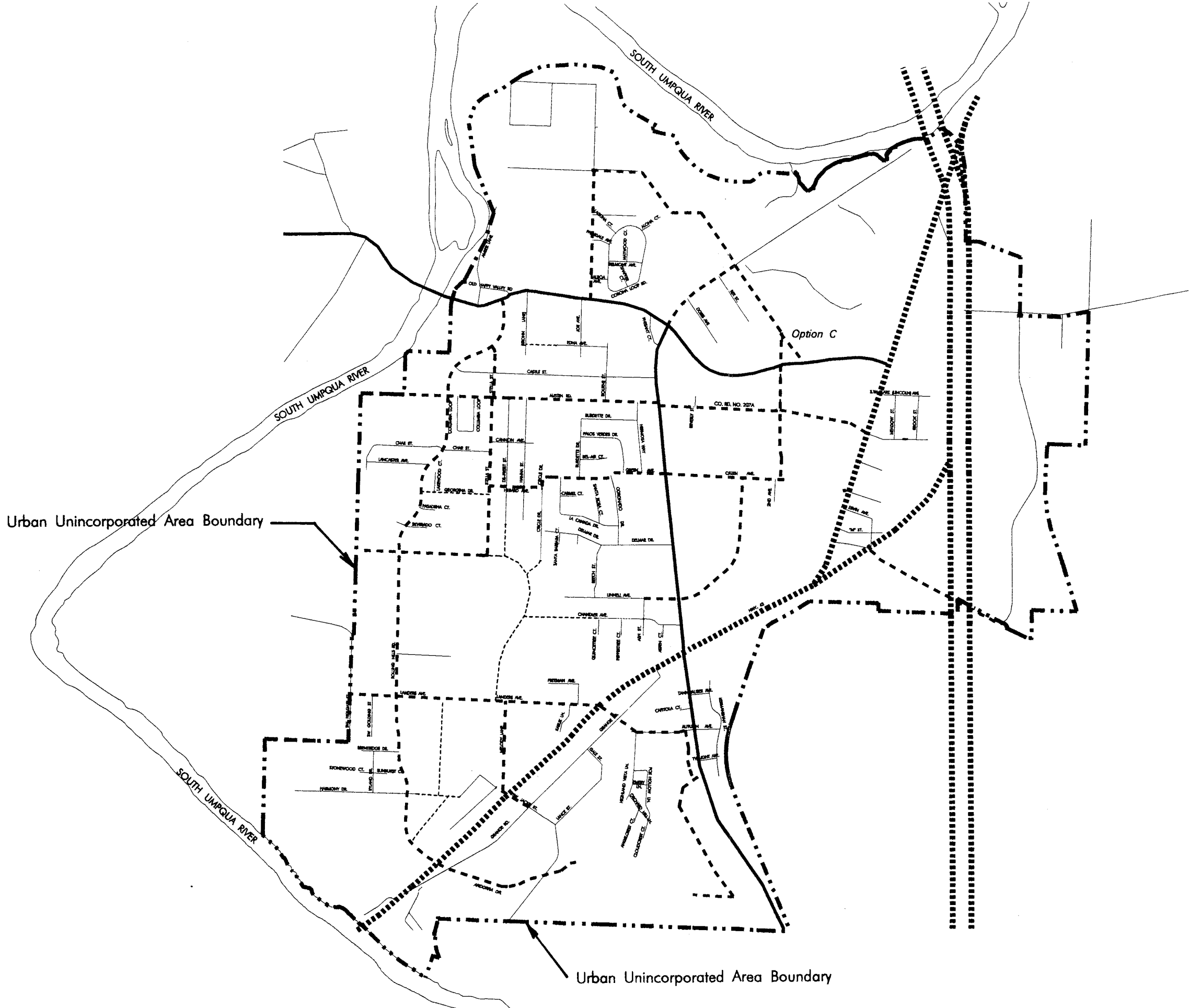
The necessary local streets planned throughout the Green area are intended to provide for a looping circulation system, ensure that no properties or areas will develop with more than 20 dwellings off of a single access, and to provide for other logical street connections. With the completion of a new north south street, Ingram Drive, provides access to a new industrial area north of Grant Smith Road on the eastern side of I-5. The northern section to Speedway Road is completed and a new east west loop exists. This construction addressed the height restrictions at the underpass for Speedway Road.

LAND USE ELEMENT

GREEN CIRCULATION PLAN

Adopted May 15, 1985
Revised July 1, 1996

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SCALE
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- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- - - - MINOR COLLECTORS
- NECESSARY LOCAL
- OTHER
- - - - Urban Unincorporated Area Boundary

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05410 440 - 4289

TRI CITY CIRCULATION PLAN

Circulation through this area is somewhat unique due to the topographic configuration of the area. The river and freeway on the west and steep hills on the east have limited development in the area to a long and relatively narrow corridor. The location of Highway 99 through the area in conjunction with its narrow width has created a situation where almost all of the property within the UGB is within one-half mile of this major north-south arterial.

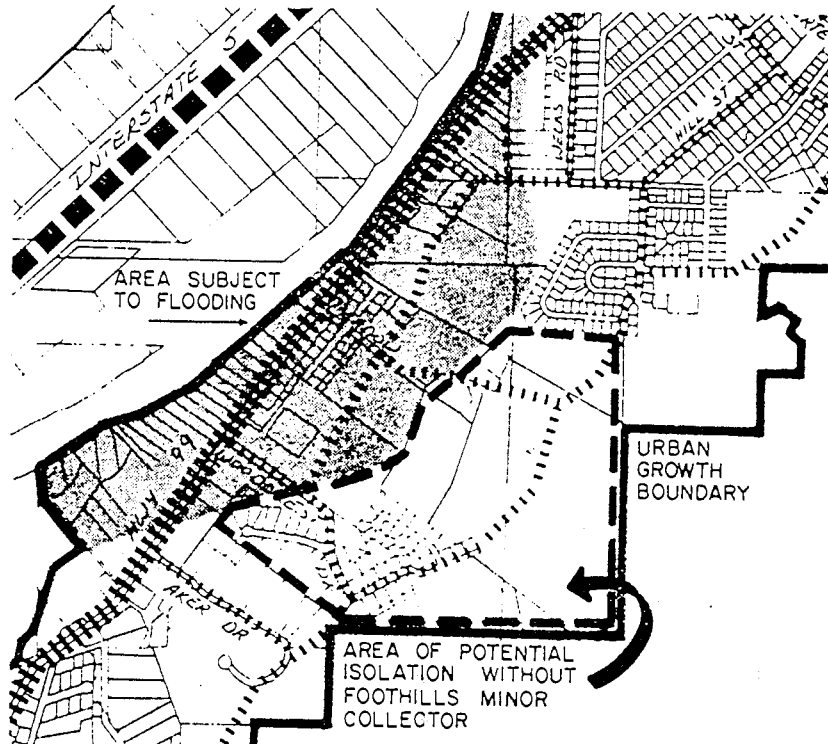
The circulation plan for Tri City recognizes the effect that the configuration of this area has on its traffic pattern. The major north-south route through the area are I-5 and Highway 99. I-5 has been designated as a principal highway. Old Pacific Highway has been designated as an arterial street from Wecks Road north to Myrtle Creek, and a major collector south from Wecks Road to Pruner Road. Most of the existing streets which intersect Highway 99 have been designated as minor collector streets. Those existing streets intersecting Highway 99 which have not been designed as minor collectors were not designated due to either their proximity to other minor collector streets, the low volumes of traffic they will ultimately carry or both. No existing or future streets are proposed to be designated as major collectors. This is due primarily to the proximity of Highway 99 to all areas within the UGB.

The Myrtle Creek Area Transportation Study has identified two concerns regarding the I-5 corridor and impacting Tri-City area. The Chadwick Road Overpass is too low for some trucks to go under, causing the use of downtown Myrtle Creek as a bypass. The study recommended raising the bridge and adding a traffic signal at Chadwick Lane/Myrtle Creek Highway. Riddle Interchange Overpass (Exit 103) is too low for some trucks to go under and is not designed as a typical diamond interchange. The study recommends ramp/intersection improvements to either raise bridge or provide an alternative routing via re-designed on/off ramps .

In addition to those discussed above, a minor collector is proposed through the foothills of Tri City. This route which would generally parallel Highway 99 would serve two purposes. First, it would collect traffic from east of it and funnel that traffic onto other minor collectors which intersect Highway 99. And, secondly, it would provide an alternate access to a number of areas in Tri City which have significant development potential and, without such a connection, would have only a single point of access. This is particularly important for those areas which may be affected by flooding. The County flood hazards mapping indicates that the portion of Highway 99 extending from a point slightly south of Wecks Road to a point slightly north of Aker Drive would be inundated during periods of flooding of a 100-year intensity. This situation would block access to the homes on Woodcrest Drive and Meadow Lane which are outside of the flood-plain (see the following illustration). Due to the topography in the foothills and general alignment of the proposed "foothills" minor collector, it is not intended that this street carry "through" traffic or reduce traffic volumes on Highway 99. The extension of this minor collector between Indian Lane and

Aker Drive will require a creek crossing. The County Engineer's office has indicated that this crossing can be made using a culvert and that a bridge would not be necessary. Due to the cost of this connection and the community (as opposed to local) benefits it would offer, County participation in its construction would be likely.

AREA OF POTENTIAL ISOLATION DURING PERIODS OF FLOODING



As a means of reducing traffic volumes on Highway 99, a connection is proposed between Old Pacific Highway and I-5 at the Weaver Road interchange. This arterial connection is proposed to intersect Old Pacific Highway opposite Wecks Road and would provide an alternate route for traffic between I-5 south of Tri City or from the Riddle area and the northern portion of Tri City or Myrtle Creek. And, from the north, it would provide an alternate route for traffic between I-5 north of Myrtle Creek and most of Tri City. This arterial connection is proposed to intersect Highway 99 opposite Wecks Road. As part of this project the acute intersection of Wecks Road with Highway 99 should be modified to provide a 90 degree intersection. The Myrtle Creek Area Transportation Plan completed in December of 1995 has proposed three possible routes for the Weaver Road interchange.

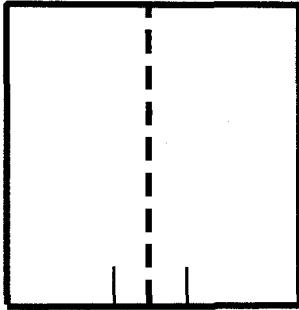
All but two of the necessary local streets included in this Plan are intended to ensure a second point of access to areas with the potential for development of 20 or more homes. One of the exceptions to this is the local street shown extending north from Gael Lane to the rear portion of a property which fronts on Highway 99. The portion of this property adjacent to the Highway is planned and developed commercially while the remainder of it is planned for residential use and is vacant. The necessary local street to this property is intended to provide an access for its future residential development.

The other necessary local exception is located south of and parallel to Wecks Road. This street is intended to provide access to the rear portions of the contiguous deep parcels which front on Highway 99. Without this local street, development of these parcels to the density permitted by the Comprehensive Plan would require the establishment of easements onto the Highway and would thereby increase the amount of direct property access onto it. In addition, this necessary local street would provide access to the rear portions of the deep parcels which front on Wecks Road. It is recognized that, if this street is to be constructed as a result of division of adjacent properties, temporary easements allowing access to the Highway or Wecks Road may be necessary on an interim basis. However, if offers to dedicate the necessary right-of-way and agreements to improve the street are required as conditions of property division, the ultimate construction of this necessary local street will be ensured.

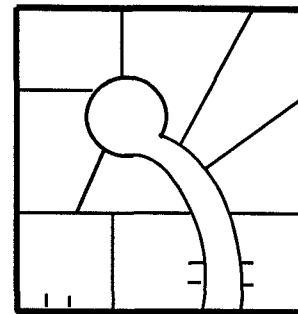
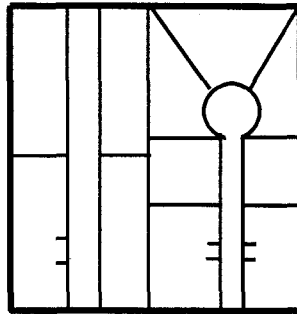
As previously discussed, the primary function of arterial streets, such as Highway 99, is to carry traffic through an area. Direct property access onto them should be restricted. However, past parcelization in Tri City has not recognized this principle and many parcels have been created with direct access onto that Highway. This access has resulted in a high incidence of rear end accidents resulting from left turn movements onto and off of it. While there is no practical way to restrict the access which has been previously granted, the number of additional access points to the highway should be limited. Wherever possible, division of property adjacent to the Highway should be designed so that newly created parcels have access to streets other than the Highway. If the only possible point of access for newly created parcels is Highway 99, the additional access for the parcel or parcels created should be limited to one point. For example, a three acre undeveloped parcel zoned for three dwellings per acre could be divided in the following ways: divided into two parcels, both with direct access to the Highway; divided into 3-9 parcels, one with direct access onto the Highway and the remaining parcels with direct access onto a street (created as part of the division) which intersects the Highway; or divided into 3-9 parcels with all parcels having direct access onto one or two streets (created as part of the division) which intersect(s) the Highway. The following figures illustrate these alternatives.

PROPERTY ACCESS ONTO HIGHWAY 99

DIVISION INTO
2 PARCELS



DIVISION INTO 3-9 PARCELS



Under this concept, none of the newly created parcels should be allowed to further divide in a manner which would create additional points of access onto the Highway.

The other means proposed to addressing the hazardous situation which exists along Highway 99 is to encourage the installation of a continuous left turn along that street. Such a lane would provide an area of refuge for traffic turning left off of or onto this arterial street. Douglas County Public Works is considering a road improvement project widening Highway 99S to three lanes from Myrtle Creek south to Pruner Road.

Pruner Road has been designated as a major collector street for its entire length, both inside and outside of the Tri City urban area. Within the UGB, the County anticipates this street to ultimately be developed to two travel lanes with a continuous left turn lane and curbs and gutters. Given the amount of traffic this street will carry, the urbanizing nature of Tri City, and anticipated commercial and industrial development on Pruner Road west of I-5, this standard is considered appropriate for that portion of Pruner Road which is within the UGB. The remainder of Pruner Road west of the UGB is within a rural area and, as such, would develop to rural standards. Rural major collector standards allow for two travel lanes and do not require curbs and gutters.

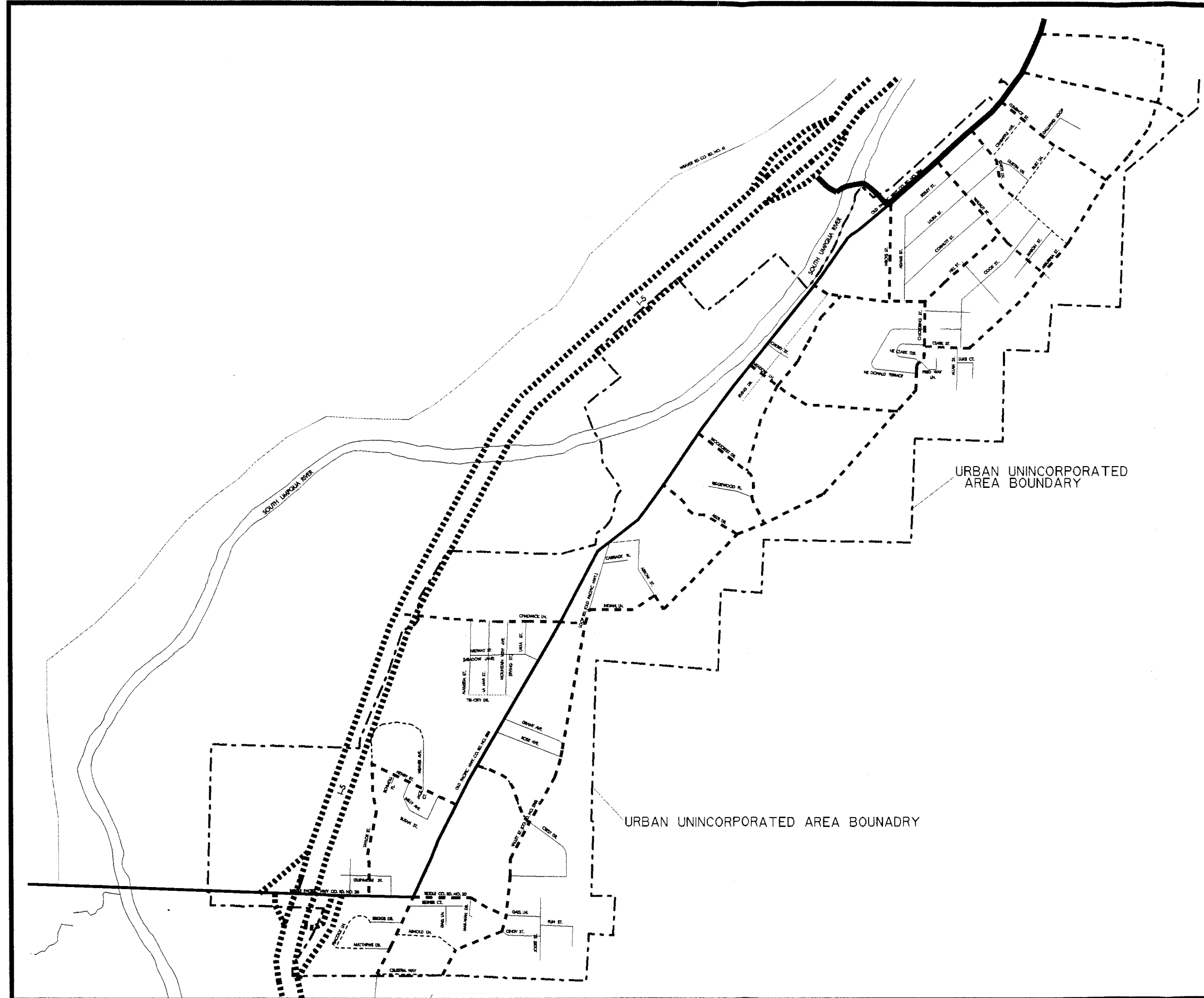
The Briggs Acres and First through Fourth Additions to Briggs Acres subdivisions were platted with 50 foot wide right-of-ways. Many of the lots within these subdivisions have been developed in such a manner as to preclude their redivision. As a result, it is unlikely that much of the additional right-of-way necessary for these streets to meet County standards (56 feet for local streets) will be obtained through the property division process. However, it is possible to develop a street meeting all local street standards within a 50 foot right-of-way. To remove one impediment to their improvement, the County should accept local streets within these subdivisions into the County street maintenance system at their current right-of-way width assuming all other standards are met. The streets to which this would apply include Seely, Laura, Cornutt, Adams, Conrad, and a portion of Cook Street.

LAND USE
ELEMENT

TRI CITY
CIRCULATION
PLAN

ADOPTED NOVEMBER 21, 1984
REVISED NOVEMBER 2, 1986

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SCALE

0 800 1600 FEET

- PRINCIPAL HIGHWAY
- ARTERIALS
- MAJOR COLLECTORS
- - - - MINOR COLLECTORS
- NECESSARY LOCAL
- OTHER
- - - - URBAN UNINCORPORATED AREA BOUNDARY

DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT



541-440 - 4289

IMPLEMENTATION

It is intended that all future land use actions involving properties affected by this plan be consistent with the plan. Division of private property should occur in such a manner that specific streets designated by this plan may be realized. Public installation or improvement of streets should also be made consistent with their designations and standards for improvement.

STREET LOCATIONS

The locations of the streets designated by the circulation plans vary from precise to schematic. Those designated streets which are restricted in their location are those which follow existing rights-of-way or easements or straddle property lines (for reasons discussed previously). Also, those segments of proposed streets which are shown connecting with the ends of, or opposite, existing streets or easements are restricted in their location as they must connect at fixed points.

In locating proposed streets where the preceding circumstances do not apply, greater flexibility exists. It is intended that the proposed streets enter the affected properties in the general location shown on the plan maps. The alignment of proposed streets through vacant properties is not significant as long as the route is reasonably direct and is continuous (meaning that the designated route should consist of a single street and meet County alignment standards).

There are several locations within the plan areas where proposed streets or street extensions may significantly affect a number of small properties and may involve County purchase of needed rights-of-way. Due to the relatively small parcel sizes at these locations, the schematic depiction of the proposed streets of the Circulation Plan maps creates uncertainty as to the ultimate effect of the street on the parcels. In such areas, the effect of the actual street location on a given parcel could vary from a small dedication or acquisition with a minimal impact on the parcel to a complete taking of the entire property. In such areas, the County should define precise alignments of the future streets to eliminate the uncertainty of future impacts and to identify those areas where acquisition may be necessary.

The circulation plan maps contained in the policy section of this document are of such a scale that, in some locations, it is difficult to determine which properties are affected by the designated streets. Larger scale maps which clearly indicate the location of the designated streets are available at the Planning Department office.

As discussed previously, the streets designated by the circulation plans are intended to provide safe and convenient vehicular access and movement. As such, all of the streets shown have community-wide value or importance. To ensure that these designated streets are available for public use they all should be public streets. Also, these streets should be

constructed or improved to meet County standards such that they could be included within the County road maintenance system.

STREET IMPROVEMENT IN CONNECTION WITH PROPERTY DIVISION

Many of the street improvements envisioned by the circulation plan are proposed to be made through the property division process. The division of private property and creation of new parcels frequently requires the construction of new streets or extension of existing ones to provide access to the newly created parcels. Also, traffic generated by the uses established on the new parcels often results in a need to upgrade existing streets. Thus, it is the division of property which creates the need for new or improved streets. Generally speaking, if property is not divided and thus no new parcels require street access, no additional traffic is generated. If traffic volumes do not increase, the existing street system in each area will adequately meet its circulation needs. It is the additional traffic generated by development of parcels created through the land division process that creates the need for new streets and improvement of existing streets. As such, it is appropriate that the property division process be a major tool in realizing the improvements proposed by these plans.

The extent to which the dedication and/or improvement of streets designated by these plans is required as a condition of division of property varies according to the legal and physical status of the streets. The street dedication and/or improvements required as a condition of property divisions which are adjacent to County roads or local access roads, as designated by these plans, include the dedication of one-half of the additional right-of-way width needed for the adjacent designated route to reach ultimate width. Exceptions to this dedication may be necessary in instances where the future alignment would not follow the existing alignment precisely. Also required is improvement of the right-of-way to local street standards for a full or half street (as circumstances warrant) for the length of the street necessary to serve the lots or parcels being created. Under certain circumstances an agreement to participate in a future local improvement district may be allowed in lieu of street improvements at the time of property division. Specifically, this means that the division of a property adjacent to a street designated by this plan must adhere to two conditions:

- 1) if the width of the right-of-way of the subject street (which has been designated by one of the plan maps) is not as wide as specified by the Land Use and Development Ordinance, then one-half of the additional right-of-way width needed for conformity to the plan shall be dedicated along the frontage of the property to be divided unless the specific street alignment would dictate an alternate dedication; and
- 2) if the construction of the subject street (street width, surfacing material, thickness of material, etc.) is not as specified by the Land Use and Development Ordinance for its classification (local, minor collector, arterial, etc.) then the property divider shall improve the portion of the street needed

for property access to the standard specified in the Land Use and Development Ordinance or agree to participate in a local improvement district should one be formed in the future, to improve the street.

The dedication of additional street right-of-way mentioned above will ensure that development does not occur in areas which will be needed for street improvements in the future. Dedication of only one-half of the required additional right-of-way assumes that street widening will occur equally on both sides of the street. This is generally considered to be the most equitable arrangement when street widening is necessary.

The requirement for street improvements is based on the premise that all public streets in the plan areas should meet the County standards and that the property divider should be responsible for improvement of the street adjacent to his property. The standard to which a property divider is responsible for street improvements is dependent on the classification of the street. If the street is classified as a local or minor collector street, it is intended that the cost of street improvements be borne by the adjacent property dividers. If the subject street is designated as a major collector street or as a street of a higher classification, it clearly serves a community or County interest. In recognition of this County interest, it is intended that the difference between the cost of improving the subject street to the local or minor collector street standard and the standard for its designation (major collector, arterial, etc.) be borne by the County. Thus, if a local improvement district is formed to improve a street, adjacent property owners would be responsible for the cost of improving the street to local or minor collector standards and the County would be responsible for the additional costs to improve the street to the designated higher standard.

There are circumstances under which the installation of street improvements at the time of property division may be deferred. These circumstances include situations where the division is adjacent to a public street, a local access road or a County road and would involve only a minor land partitioning or a major land partitioning (not involving a public street) providing that the division would not extend an existing public street which meets appropriate County standards. Conversely, the creation of subdivisions or major land partitioning (involving public streets) adjacent to such rights-of-way should include improvement of the right-of-way (for a full or half street, as circumstances warrant) to County standards at the time of division. Also, any division involving street improvements which would result in extension (for either a full or half street) of a street which meets county road standards, whether it be County maintained or not, should include the installation of these improvements at the time of division. Also, any division involving street improvements which would result in extension (for either a full or half street) of a street which meets County road standards, whether it be County maintained or not, should include the installation of these improvements at the time of property division.

The street dedication and improvement requirements for the division of properties which are adjacent to easements, undeveloped rights-of-way and routes where access has

not been established (as designated by this plan) include dedication of the necessary rights-of-way and improvement of the streets to local or minor collector street standards. These requirements are the same as detailed previously for County roads and local access roads regarding dedication of right-of-way. The requirements for improvement are also the same except as they pertain to the timing of improvements. As with County and local access roads, a property divider would be responsible for improvement of the street only to local or, as applicable, minor collector street standards with County responsibility for improvement costs in excess of those standards. Under most circumstances, however, the improvement of designated easements, undeveloped rights-of-way and routes where access does not exist would be required at the time of property division. Deferred improvement would not generally be possible as these streets will, most often, be needed for access to the parcels being created. Instances may arise, however, in which proposed property divisions could not use streets designated by any one of the plans due to physical characteristics of the property or due to a "missing link" in the designated route. Under circumstances where the designated street could not be incorporated into development design and provide access to the lots or parcels created, only dedication or an irrevocable offer to dedicate or an offer to sell the designated street right-of-way should be a requirement of the division. Improvement of the designated route should be the responsibility of the County. Under circumstances where the designated street could not be used due to "missing links" in the street's development, both dedication or an irrevocable offer to dedicate the designated street right-of-way and an agreement to participate in any local improvement district formed to improve the designated street would be a requirement of the division.

In Glide, emergency vehicle access to the Bar L Ranch subdivision has been proposed. This access is discussed in the Circulation findings specific to Glide. Although not proposed as local street for public use, this emergency vehicle access should be established as an easement and improved for all weather use as a condition of division of the property through which it would pass.

STREET IMPROVEMENT WITHOUT PROPERTY DIVISION

The dedication of right-of-way and improvement of streets as conditions of property division are commonly used and effective tools for the development of circulation systems. However, it should be recognized that the use of these tools will not realize all of the improvement included within the circulation plans.

There are certain existing County and local access roads designated by the plans which will be difficult to improve through property division or the use of local improvement districts. Property adjacent to these streets has, generally, been divided to the maximum density permitted by the Comprehensive Plan. Without further division, there is no mechanism available to the County to ensure participation of adjacent property owners in future local improvement districts to improve these streets. Examples of such streets are Austin Road in Green, Walnut Street in Tri City and Pike Street in Glide. Responsibility for

the improvement of these and other similar streets to the standards indicated by this circulation plan will likely fall under the County's responsibility.

In addition to the type of street mentioned above, there are a number of specific street improvements envisioned by these plans which cannot be accomplished by normal street dedication and improvement. These improvements, which are identified below, will require County and State participation.

In Glide, there are two designated routes which may involve the County in their implementation. The minor collector between Glide Loop Road and the North Umpqua Highway is located on school district property and thus under jurisdiction of that agency. Discussions with district officials indicate that future dedication of that gravel road for public use may be possible. However, the responsibility for improvement of that road to minor collector standards has not been determined. The other route which may involve County participation is the minor collector connection between the North Umpqua Highway and Upper Terrace Drive. The southernmost section of this route would cross a property which may have no practical use for it. As a result, County improvement of this section of the route may be necessary.

In Green, there are two bridge crossings which should include County participation. The minor collector street crossing of Roberts Creek and its connection to Carnes Road will benefit the entire Little Valley area. However, this connection will likely be expensive due to the construction costs of the bridge and potential condemnation of the property between the bridge and Carnes Road. The cost and area-wide benefit of this improvement will probably require County involvement. The other bridge crossing in Green involves the Austin Road crossing of the Central Oregon Pacific rail lines. As with the Roberts Creek crossing, this bridge offers community-wide benefit and its construction could not reasonably be made a condition of property division.

Portions of the segment of Rolling Hills Road between Austin and Happy Valley Roads also may not benefit adjacent properties either on one or both sides of this minor collector. Such portions may require County participation in their construction. Other street improvements in Green envisioned by the Plan may also involve public participation.

In Tri City, six improvements are of such a nature that they appear to require County and/or State participation. Three involve the foothill collector street which roughly parallels Highway 99. Completion of this route could require condemnation of one of the homes in the Woodcrest subdivision and property between it and Aker Drive. A culvert crossing of a creek between Indian Lane and Aker Drive will also be required. Also, involving this collector is the probable need to acquire right-of-way for the extension of Valley Drive in the vicinity of Gael Lane. As several parcels through which this street would pass have limited potential for division, right-of-way acquisition as a condition of property division is unlikely.

Another improvement in Tri City which may involve County participation is the connection of Taylor Street with Highway 99. Presently, there is a grade differential at this intersection which will require lowering of Taylor Street to connect with Highway 99. The fifth Tri City improvement consists of the connection between Highway 99 and I-5 at the Weaver Road interchange. This route would benefit much of the Tri City and Myrtle Creek areas by reducing traffic volumes on Highway 99. This route involves a major bridge crossing of the South Umpqua River. Due to the expense involved, this connection would likely require the financial participation of various levels of government. The sixth improvement involves construction of a continuous left turn lane on Highway 99. As portions of this route are County and other portions are State Highway jurisdiction, installation of this improvement would be the joint responsibility of the County and State.

The listing of policies are presented as found in the original Comprehensive Plan. This information should be retained to document the historical data. A current listing of policies is found in the Comprehensive Plan

POLICIES

INTENT

The Objectives and Policies listed below are intended to formalize the County's position regarding the circulation plans for the Glide, Green, and Tri City areas; provide guidance to ensure their proper implementation; and, to establish general standards for street development in all urban unincorporated areas. These objectives and policies should be used as a supplement to the existing policy direction and regulation contained within other sections of the Comprehensive Plan and Land Use and Development Ordinance regarding vehicular circulation through urban unincorporated areas.

GOAL: To provide for safe, convenient and efficient vehicular circulation through the urban unincorporated areas of the County.

POLICIES:

1. Consideration of the street design and area circulation shall be a part of the approval process for any partitioning or subdividing and appropriate conditions shall be applied as part of such an approval process.
2. Initiate a program for the paving of all unpaved streets in developed portions of urban unincorporated areas.
3. Conduct detailed studies of the circulation patterns within all urban unincorporated areas and adopt overall street plans including provisions for automobile, pedestrian and bicycle travel.
4. All future subdividing and partitioning in urban unincorporated areas shall include the installation of all necessary street improvements to meet County public street standards such that they may be incorporated into the County street maintenance program, thereby ensuring their adequacy for public and emergency vehicle access. Variance may be considered only in instances where it can be demonstrated that a proposed subdivision or partition could not be further partitioned or subdivided and where no adjacent properties would require access through the subject subdivision or partition.

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5. Assist, as possible, in the establishment of local improvement districts for the installation of street improvements in urban unincorporated areas.
6. All arterial and collector street extensions into developing areas should be designed so as to be compatible with existing street networks and officially adopted circulation plans for the area.
7. Assess the need for undeveloped street rights-of-way in all urban unincorporated areas and consider disposition, through vacation or sale, of unneeded land to facilitate efficient land utilization in these areas.

OBJECTIVE A: To establish overall circulation patterns for the Glide, Green, and Tri City areas and promote the proper flow of traffic through all urban unincorporated areas.

POLICIES:

1. The division of all properties which are contiguous to streets designated by this plan shall incorporate within the development design, street alignments consistent with the objectives of this plan and property access utilizing those alignments.
2. In recognition of their community-wide significance, all streets designated by the plan maps shall be public streets and be constructed or improved to meet the County standards such that they will be incorporated into the County road maintenance system.
3. Direct property access onto principal highways and arterial streets shall be restricted.
4. Direct property access onto major collectors shall be discouraged.
5. The County shall investigate means whereby direct property access onto minor and major collector streets may be limited.
6. Looping local streets shall be encouraged.

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7. The creation of cul-de-sac streets with the potential to serve 20 or more properties shall be discouraged.
8. "Through" traffic should be discouraged from using local streets.
9. All streets in the plan areas should serve to connect streets of equal or lower classification to streets of equal or higher classification.

OBJECTION B: To recognize and address the specific circulation problems which exist in the three plan areas.

POLICIES:

Glide

1. In recognition of the sub-urban and rural land use designations in the Glide area and the accompanying low traffic volumes generated, the County shall adopt street standards for this area which are appropriate to its unique land use pattern.
2. In the cases of Pike, Abbott, Park and West Estella Streets located within the Glide core area, the standard for incorporation of streets into the County maintenance system should be lessened to accept the 50 foot rights-of-way which presently exist if proper safety and maintenance can be achieved.
3. In that area of Glide which is served by Lone Rock Road and that portion of Terrace Drive which is south of Upper Terrace, no increase in Comprehensive Plan density should be considered without the provision of an alternate access to the area.
4. The County should coordinate with property owners in the Idleld Park area in an effort to realign existing rights-of-way and develop a circulation pattern which provides logical access to properties in the area and improves vehicular safety.
5. As a condition of approval of the division of the 73± acre property bounded by the North Umpqua Highway on the north and the Bar L Ranch subdivision on the east, the installation of an emergency vehicle access to serve the Bar L Ranch subdivision should be required. This access should consist of an established nonexclusive easement improved for use by emergency vehicles under all weather conditions. This access should either connect Overlook Road to the necessary

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local street shown on the subject property or connect Bar L Ranch Road to Terrace Drive.

6. As a means of promoting vehicular safety, the County shall place a high priority on the improvement of Glide Loop Road to the minor collector standard due to the volume and type of traffic it carries and the location of school and other public facilities located along it.

Green

7. Encourage the State Department of Transportation to realign and signalize the intersection of Highways 99 and 42 in Green at such time as traffic volumes would warrant such improvement.
8. The designated minor collector connection between Austin Road and Green Siding Road in the industrial area should be located along Route A as shown on the Green Circulation Plan map. Should industrial development preclude the connection along this route, the connection should be made along Route B, as shown.

Tri City

9. In the Tri City UGB, additional points of access to Highway 99 shall be restricted. In locations where property division requires access to Highway 99, that access shall be limited to a maximum of two points for properties which are currently vacant and one additional point for properties which have currently established access to the Highway.
10. Encourage the State Department of Transportation to install a continuous left turn lane on Highway 99 through Tri City.
11. Promote the development of an arterial connection between Highway 99 and Interstate 5 at the Weaver Road interchange.

OBJECTIVE C: To establish the necessary mechanisms to ensure proper implementation of the circulation plans for the urban unincorporated areas of the County.

The listing of policies are presented as found in the original Comprehensive Plan. This information should be retained to document the historical data. A current listing of policies is found in the Comprehensive Plan

POLICIES:

1. The evaluation of all proposed plan amendments within urban unincorporated areas should include an assessment of the effect of the amendments on circulation in and through the areas.
2. As a condition of approval of division of properties adjacent to rights-of-way within the plan areas including public roads, local access roads or County roads, the property divider shall:
 - (1) dedicate one-half of the additional right-of-way width needed for the adjacent designated route to reach its ultimate width (exceptions to this requirement may be necessary in instances where the planned future alignment would not follow the existing alignment precisely); and
 - (2) improve the right-of-way to local or minor collector street standards, as appropriate, for a full or half street (as circumstances warrant) for the length of the street necessary to serve the lots or parcels being created.
3. As a condition of approval of division of properties adjacent to or through which one or more of the streets designated by this plan which is not dedicated or improved would pass, the property divider shall:
 - (1) dedicate or irrevocably offer to dedicate the right-of-way necessary to develop the designated streets for their full length through the property to be divided; and
 - (2) improve the right-of-way to local or minor collector street standards, as appropriate, for the length of any street necessary to service the lots or parcels being created.
4. Building setbacks shall be required from the ultimate right-of-way lines of streets designated by the plan. Such setbacks shall be required on properties adjacent to existing streets, undeveloped rights-of-way and corridors where irrevocable offers to dedicate rights-of-way have been made.
5. In instances where the improvement of streets within the plan areas is not practical at the time of property division, deed restrictions and other appropriate documents shall be recorded for all lots or parcels within the division committing the owners of those properties to participate in any local improvement district which may be formed to improve the streets adjacent to the division. Circumstances under which street improvements are not practical at the time of division include: minor

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partitioning and major partitioning (not involving a public street) providing such divisions would not extend an existing public street which now meets appropriate County standards. In all cases, right-of-way dedications, would be required.

6. The cost of installation of street improvements to a standard higher than that for minor collector streets shall be borne by the County.
7. The County shall encourage and participate in the formation of local improvement districts as a means to improve the streets designated by this plan.
8. In instances where dedication of rights-of-way through undeveloped property does not seem likely through the property division process the County should seek to protect these rights-of-way prior to property development as a means of minimizing the cost of plan implementation.
9. Where local roads serve the function of higher classifications (i.e. collectors) the County may, as an interim measure and prior to upgrading, limit on-street parking to insure safe, efficient, and convenient circulation.
10. In instances where streets proposed by this plan would be of no practical benefit to properties through which they would pass and could not be incorporated into the development design, only the dedication of necessary rights of way for the full length through the properties to be divided shall be a requirement of approval of property divisions.
11. In areas where the specific location of streets proposed by this plan may significantly impact the properties through which they would pass, the County should determine precise alignments. Such determinations will help to define the extent of such impacts and, in cases where street dedication could not occur as part of the property division process, the need for County acquisition.
12. In recognition of the possibility that unique situations may exist which would warrant exception to the standards contained in the policies under Objective C, it is intended that the variance provisions of the Land Use and Development Ordinance apply to these policies.

CHAPTER 5: BIKEWAY MASTER PLAN

Douglas County

BIKEWAY MASTER PLAN



August 1997

Douglas County Planning Department

**BIKEWAY
MASTER
PLAN**

A Supplement to the
Transportation Element of the
Comprehensive Plan

**ADOPTED BY
BOARD OF COUNTY COMMISSIONERS
ORDINANCE 83-6-3
JUNE 29, 1983**

Revised
Ordinance 97-4-1
August 13, 1997

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August 1997
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BOARD OF COMMISSIONERS

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PLANNING COMMISSION

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Introduction

The popularity of bicycling continues to increase in this country. Beginning with the "bike boom" in the late 1960's, bicycling in the United States and abroad has reached new peaks. According to the Bicycle Manufacturers Association of America (BMA) in 1970 there were 75 million Americans who rode bicycles, at least occasionally. By 1980, that total had increased to over 105 million. Since 1972, total bicycle sales in this country have outnumbered auto sales. In 1980 alone, 9 million bikes were sold compared with 8.9 million passenger cars, according to the BMA. It has been estimated that about one person in three in the U.S. now owns a bicycle. Assuming that Douglas County is typical of the nation overall, there are approximately 27,000 bicycles in Douglas County. The Stanford Research Institute, in a study of "Personal Transportation" estimates that by the year 1990 there will be 125 million bicycles in the U.S. - one bike for every two persons.

In the sixties, bicycling made a comeback as people turned to bicycles for transportation and recreation, but many inexperienced riders feared motor vehicles. This viewpoint led to the bike path trend of the 1970's. Paths attempted to separate the two vehicle types to reduce conflicts. Keeping cyclists off the road with paths was not the total answer - paths function well in some areas and poorly in others.¹

Today, cyclists and motorists share the road. The two modes are integrated by improving roadways to accommodate cyclists, conserving funds and uniting users under one set of rules for better cooperating and safer operation. Modern bikeways do more than accommodate bicyclists - they invite them to use the roads.

Bicycles are found in most American households; the number of cyclists is rising, particularly among adults, who outnumber child cyclists.²

Bicycling and walking are low cost transportation modes available to all. In Oregon, approximately 16% of the adult population do not have a valid driver's license. Walking and bicycling are often their only transportation choices, especially in areas not served by public transportation. Walkways and bikeways create new opportunities for these groups to participate in the social, cultural and economic life of the community

School-age children make up approximately 13% of Oregon's population. [In urban areas] walkways and bikeways enable school children to walk or bike more safely and conveniently to school, reducing the need for busing or automobile trips by parents.³

Good bicycle and pedestrian facilities also benefit other transportation modes:

- Transit users benefit from safer, more convenient access;

¹1995 Oregon Bicycle and Pedestrian Plan: Oregon Department of Transportation, p. 3

²IBID

³IBID

- Motorists and freight carriers benefit from reduced congestion and wear and tear on our roads when more people switch from driving to other modes.
- Paved shoulders on rural highways have many safety benefits for motorists and reduce roadway maintenance costs; and
- Motorists benefit from an improved pedestrian environment: where there are sidewalks and street crossing opportunities, a person can park a car once to access several destinations. This reduces the need for additional parking spaces, "circling the block," or driving from one shopping center to the next, common behavior in urban areas without good pedestrian systems.⁴

The reasons for this popularity in bicycling result from the physical, financial and social benefits which it affords. Medical research has found that bicycling, along with swimming, is one of the two most healthful forms of exercise for heart, lungs and muscles. Given the rapidly increasing cost of automobiles and gasoline, bicycling is an extremely inexpensive form of transportation. In addition, the maintenance and upkeep costs for a bicycle are negligible. Social benefits of bicycling include energy savings, reduced automobile congestion and improvement of the environment through reduced auto emissions and noise pollution.

The Douglas County Traffic Safety Commission in 1981 formally recognized this popularity of bicycling and the need to provide a County-wide bikeway system by asking the Board of Commissioners to consider developing a bikeway plan for the County. This concept was fully endorsed by the Commissioners with a stipulation that a bicycling safety program be included as an integral part of the plan.

In December of 1981, a Steering Committee was appointed to formulate and recommend a comprehensive bikeway plan for Douglas County. Committee members selected represented a wide spectrum of expertise and concern in the areas of bicycling and bikeway planning. The thirteen member committee included:

Ed Wood, Chairman	
Dick Dolgonas, URCOG	Keith Cubic, County Planning Department
Craig Glass, Roseburg Track Club	David Bischoff, County Planning Department
Dr. Warren Kadas, Umpqua Velo Club	Jerry Hassler, County Parks Department
Dr. Al Morlang, Cyclist at large	Ron Hjort, County Parks Department
Butch Parker, ODOT	Warren Poland, County Engineering Department
Charlene Talkington, ESD	Trudy Reynolds, County Sheriff's Department

From 1981-82, this Committee met on a monthly basis to develop the Bikeway Plan. Although all meetings of the Committee were open to the public, the main source of public input into the process was through the Committee members themselves and through the questionnaire which was distributed to more than 175 businesses, institutions, agencies and citizen groups.

⁴IBID, p. 5

From September 1991 to December 1996 six transportation studies were conducted in Douglas County. These studies were guided by Management Teams and Advisory Committee's each containing representatives from ODOT, Douglas County, local cities and interested stakeholders. The purpose of these studies was to address the Transportation Planning Rule and to complete the necessary analysis to update the Douglas County Transportation System Plan. The studies analyzed the Douglas County Bikeway Master Plan and provided the following comments.

The findings of the Greater Roseburg Area Transportation Study related to pedestrian and bicycle ways are consistent with the acknowledged plan. No changes to the plan findings, goals or policies are proposed. The study findings are summarized as follows:

1. Pedestrian/Bicycle - implement a pedestrian and bicycle strategy that focused on safety improvements to the existing system and establish a continuous system throughout the study area.
 - a. Safety improvements to existing system
 - b. Establish a continuous system throughout the study area
 - c. Improve sidewalks to meet ADA standards
 - d. Improve pedestrian and bicycle facilities near the interchanges and on overpass
 - e. Improve signing on Bicycle Routes
 - f. Regional coordination of bicycle and pedestrian systems (County Map includes city routes)
 - g. Connect routes from residential areas to schools and shopping.
 - h. Consider pedestrian and bicycle bridge across river to fairgrounds near Portland Avenue
 - i. Improve rail crossings.

The findings of the Myrtle Creek Area Transportation Study related to pedestrian and bicycle ways are consistent with the acknowledged plan. No changes to the plan findings, goals or policies are proposed. The study findings are summarized as follows:

1. Douglas County has designated bikeways in an adopted bicycle plan.
2. Sidewalks are provided on most streets throughout the downtown Myrtle Creek area.

The findings of the two corridor studies Hwy. 101 and Hwy 38/42 related to pedestrian and bicycle ways are consistent with the acknowledged plan. No changes to the plan findings, goals or policies are proposed. The study findings are summarized as follows:

1. Provide bicycle facilities along the corridor (Hwy 38)
 - a. US 38 is a designated Statewide Bicycle Route.
 - b. Bicycle facilities should be provided along the sections: Drain to Elkton, Reedsport to the Elk Viewing area.
2. Provision for pedestrian movement should be made along urban sections of the corridor. All new highway road construction conducted by ODOT within urban areas shall provide curbs, gutters and paved sidewalks along both sides of the highway.

3. Bicycle facilities should be provided along both corridors (Hwy. 38 & 42).
4. All road construction along the corridor shall make provision for six foot shoulders along the entire length of the corridor.
5. Provision for pedestrian movement should be made along urban sections of the corridor. All new highway road construction within urban areas shall provide curbs, gutters and paved sidewalks along at least one side of the highway.

The purpose of this Bikeway Plan is threefold: to establish County policy with respect to bikeways, to ensure that funds for bikeway construction or improvement are expended in a cost-effective and coordinated manner, and to develop a program to promote safe bicycling throughout the County. To these ends, the need for bikeways has been assessed and routes designated to satisfy the identified needs. Standards have been developed for bikeway construction which will facilitate safe bicycling and ensure eligibility of the County to receive State bikeway funds. A bicycle safety education program has been developed to promote safe bicycling throughout the County.

It is also intended that, in its adopted form, the Findings, Goals and Policies of this Bikeway Plan be incorporated into the Transportation Element of the County Comprehensive Plan.

FINDINGS

The Findings included in this chapter are a summarization of the information contained in the supportive text of this Plan, chapters regarding bicycling and bikeways. The 1995 Oregon Bicycle and Pedestrian Plan was used as a update resource for these findings. It is intended that these Findings, along with the Goal, Objectives and Policies of the next chapter and the Bikeway Master Plan Map, be adopted as a part of the County Comprehensive Plan, Transportation Element.

BICYCLE USAGE

1. The popularity of bicycling continues to increase in this country.
2. Assuming Douglas County is typical of the nation overall, there are approximately 27,000 bicycles in the County. Bicycles are found in most American households; the number of cyclists is rising, particularly among adults, who outnumber child cyclists. It is estimated that one Oregonian in two owns a bicycle.⁵

TYPES OF BICYCLE TRIPS

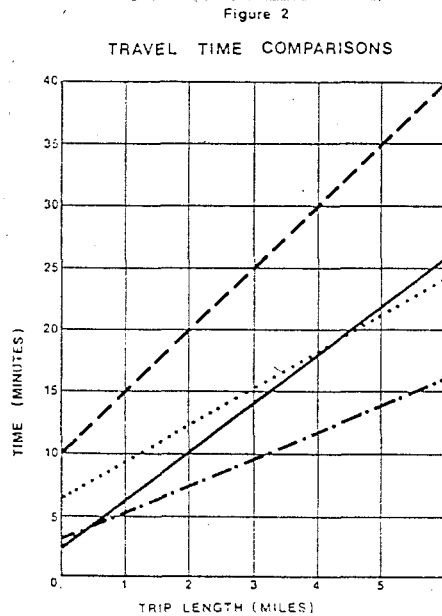
3. Cycling activity, as with other forms of travel, falls into two major categories: recreational and utilitarian. The type of bikeways appropriate for recreational use often differ considerably from those intended for utilitarian use. Recreational cycling involves the use of

⁵ IBID

bikeways for touring, exercise, social purposes or as a sport. Utilitarian cycling utilizes bikeways to reach a specific destination, such as employment, school, and for neighborhood circulation trips such as shopping, childrens' activities, etc. The skills of the cyclist within both of these categories vary greatly.

4. Often the recreational cyclist will prefer meandering or looping routes with scenic qualities which avoid areas with high automobile traffic volumes. Recreational trip length is not as important a factor as utilitarian trip length in that the cycling activity is the purpose of the recreational trip rather than reaching a specific destination.
5. Consideration of trip length and relative travel time is a prime factor in identifying work trips which could be served by bikeways. Work trips are utilitarian and are very sensitive to travel time. Average trip distances are short (typically under five kilometers), and short trips are the ones most easily made by bicycling or walking.⁶

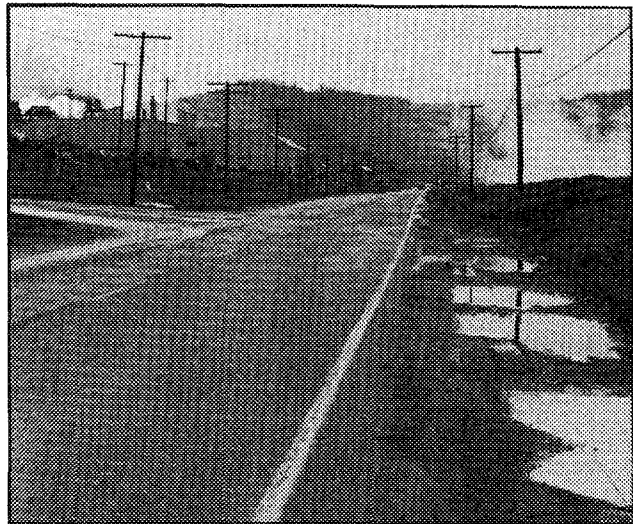
Consideration of trip length and relative travel time is a prime factor in identifying work trips which could be served by bikeways. Figure 2 was developed using data prepared by the United States Department of Transportation indicates the relative commuter times required for several distances using the bicycle, the automobile (in urban and suburban settings) and mass transit.



In this figure Terminal Time refers to the amount of time spent between the residence and the vehicle and the vehicle and the place of employment. From this figure it can be seen

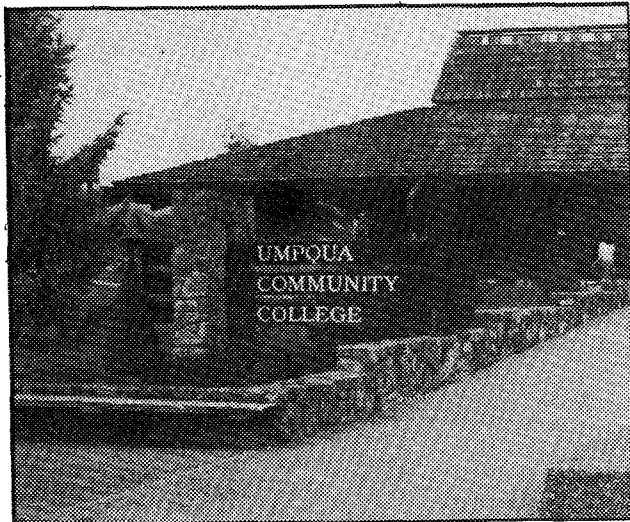
⁶ IBID, p. 6

that commuter bicycle trips of four miles or less in urban areas can be competitive with the automobile in time of travel. In suburban areas such as Douglas County, however, only very short trips of a mile or less are time-competitive. Other factors which influence the choice of vehicle of a person whose work trip falls within a reasonable time/distance range of bike travel include: whether or not an automobile is needed during the day, the opportunity to change clothes or shower before work, the amount of physical labor required on the job, etc.



A Class III Bikeway is recommended on State Highway 99 adjacent to Roseburg Lumber Company in Dillard. This plan employs about 2,000 persons.

For elementary school children riding a bicycle to school is a positive status symbol. Among junior high and high school age groups, however, bicycle riding for transportation is perceived as a negative status symbol. The potential for bicycle usage for school trips



A Class III Bikeway is recommended to Umpqua community College, with an enrollment of over 3,250 full and part time students.

is affected by traffic volumes, size of attendance areas, availability of busing, school policy and parental judgement. Responses to the 1982 County bikeway questionnaire indicate that in rural portions of the County, where elementary school attendance areas are large, relatively few students ride to school.

6. School trips are utilitarian and have the most probability of being served by bicycle travel. However, responses to the County bikeway questionnaire indicate that in rural portions of the County where elementary school

attendance areas are large relatively few students ride to school.⁷ Urban areas benefit most from improved bicycle and pedestrian transportation facilities.⁸

7. Neighborhood circulation trips cover all the miscellaneous trips made in a neighborhood which cannot be readily classified including children's activities, local shopping, visiting friends, trips to parks, etc. The number and frequency of these types of trips is a function of the local population and the favorability of the bicycling environment. This type of trip is particularly important to all youth below driving age as the bicycle is their primary means of personal mobility. The number of dedicated walkways between residential areas have been reduced because of increasing vandalism and criminal activities.

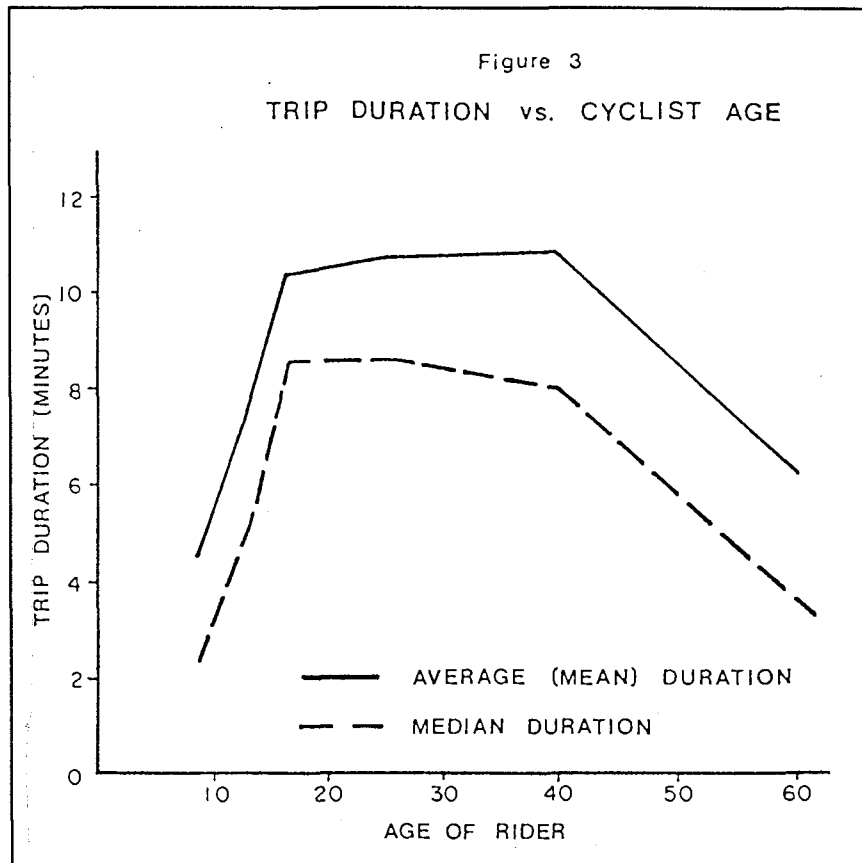
TRIP LENGTH

The 1995 Oregon Bicycle and Pedestrian Plan (p. 6) estimated that one Oregonian in two owns a bicycle. Everyone owns shoes, and new wheelchair technology greatly increases the mobility of pedestrians with disabilities. Research conducted in 1974 by the Oregon Department of Transportation (ODOT) indicates that the average trip length of young persons (in the 6-12 year old group) and older persons (51 years of age or older) is shorter than that for persons in the 13 to 50 year old group. Cyclists in the young and older groups average 0.7 miles and 1.0 miles per one way bicycle trip respectively while cyclists in the 13 to 50 year old group average approximately 1.7 miles per one way trip.

⁷ ORS 327.043(1) states " A school district is required to provide transportation for elementary students who reside more than one mile from school and for secondary school students who reside more than 1.5 miles from school. A district is also required to provide transportation for any student identified in a supplemental plan approved by the State Board of Education."

⁸ IBID, p. 6

Figure 3
TRIP DURATION vs. CYCLIST AGE



8. In Oregon, approximately 16% of the adult population do not have a valid driver's license. Walking and bicycling are often their only transportation choices, especially in areas not served by public transportation. School age children make up approximately 13% of Oregon's population. Walkways and bikeways enable school children to walk or bike more safely and conveniently to school, reducing the need for busing or automobile trips by parents.⁹

9. The length of cycling trips for various recreational and utilitarian purposes varies considerably depending on topography, bikeway availability and traffic characteristics. With minimal physical exertion, a person in reasonable physical condition can walk up to one kilometer (0.621 mile) or ride a bicycle up to 5 kilometer (3.1 miles) or

⁹ IBID, p. 5

more, in less than twenty minutes. - shorter than many automobile or transit commutes.¹⁰

WEATHER

Weather is one of the parameters that affects the choice of bicycle riding as a mode of travel. Although it is generally accepted that weather affects bicycle ridership, there is little specific data available which quantifies this effect. While work trips are essential, most often the need to maintain a presentable appearance on the job results in the selection of alternative modes of travel during rainy weather. Recreational and neighborhood circulation trips are usually postponed until more favorable weather conditions exist or a more suitable mode of transportation is used.

Oregon is blessed with a mild climate: moderate amounts of precipitation east of the Cascades and mild temperatures in the Willamette Valley and Southern Oregon. The state's exaggerated reputation for rain doesn't deter many cyclists and walkers from using these modes year-round.

MONTHLY RIDERSHIP

10. Bicycle volume counts conducted by ODOT indicate that in 1973 seventy-four percent of all usage of the bikeways counted occurred from May through October. A 1993 survey taken for the Oregon Bicycle and Pedestrian Plan in Eugene, Corvallis and Bend indicate that a third of regular bicycle commuters ride year-round; others ride from March to November. Traveling in the dark may be more of a deterrent than weather.¹¹

The Oregon Department of Transportation, Highway Division, conducts bicycle volume counts along bikeways under its jurisdiction. During 1973, year-long counts were recorded for eight stations throughout the State. These counts show that during that year, 74 percent of all usage of these bikeways occurred from May through October. This six month period coincides with generally improved weather conditions. The results of this survey are shown on Table 2. These results appear to be substantiated by the results of the County questionnaire regarding the effects of weather on school trips. These results, based upon estimates by elementary schools in the County, indicate that school ridership decreases 70 percent during the rainy months of the year.

¹⁰ IBID, p. 6

¹¹IBID, p. 9

TABLE 2

BIKEWAY USAGE BY MONTH	
% of all usage	
January	3
February	3
March	3
April	7
May	11
June	15
July	13
August	13
September	13
October	9
November	5
December	5
TOTAL	100

Weather/Conditions	No.	Percent	Comments
Precipitation	14	3%	Heavy Rain
	75	15%	Light Rain
	403	82%	No Rain
Surface Moisture	137	28%	Wet Pavement
	355	72%	Dry Pavement
Temperature	37	8%	Cold
	310	63%	Cool
	145	29%	Warm
Light Conditions	8	2%	Darkness
	81	16%	Dawn/Dusk
	403	82%	Daylight

BICYCLE ACCIDENTS

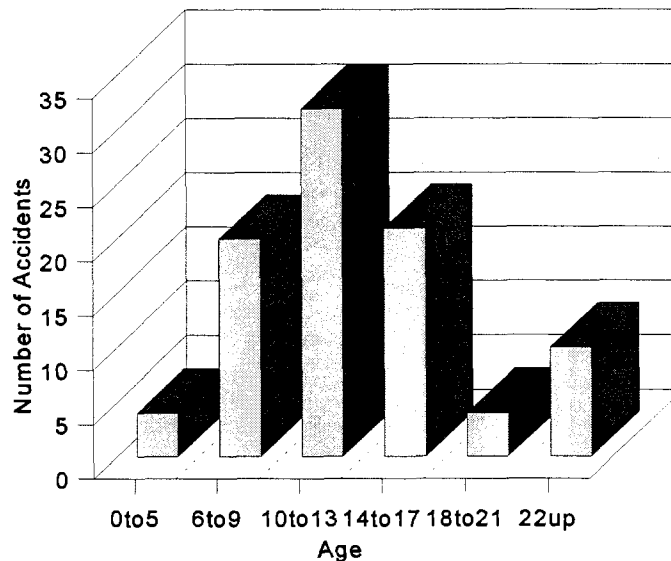
The accident statistics for Douglas County contained in the 1982 report were compiled with the help of the Oregon Motor Vehicles Division. These statistics have been used in determining which areas and which approaches need to be used in formulating corrective strategies in regard to bicycle safety education and enforcement. The Oregon Bicycle and Pedestrian Plan provided updated accident statistics.

Most bicycle accidents go unreported to police agencies unless there are associated severe injuries or substantial vehicle damage (\$400 or more). The majority of cyclists do not consider a bump or bruise to be an injury.

AGE OF CYCLIST

As shown on Figure 4, 75 percent of the accidents reported between January, 1977, and September, 1982, involved cyclists 18 years of age and younger. Of that percentage, 50 percent of the bicycle accidents involved children 13 years and under. Ten percent of the accidents involved persons 19 years of age and over. Fifteen percent of the accidents involved bicyclists whose ages were not given.

Figure 4 ACCIDENT BY AGE GROUPS



11. Most bicycling crashes (65% - 85%) do not involve collisions with motor vehicles; they usually involve falls or collisions with stationary objects, other cyclists and pedestrians. Many bicycle/motor vehicle crashes are not reported. ODOT statistics reveal statewide approximately 800 injury crashes a year are reported including 10-15 fatalities (1-2% of total).¹²
12. Between January, 1977, and September, 1982, there were 105 bicycle accidents in Douglas County which were reported to Oregon Motor Vehicles Division. Two of these accidents involved fatalities.

¹² IBID, p. 185

Only one cyclist in the 105 accidents did not receive injuries. All but one accident involved a motor vehicle as a direct collision. The only accident not involving a collision resulted from a cyclist's attempts to avoid a collision with a motor vehicle. As reflected by these statistics, the cyclist is in jeopardy regardless of who violated the traffic laws.

13. Seventy-five percent of the accidents reported between January, 1977, and September, 1982, involved cyclists 18 years of age and younger.

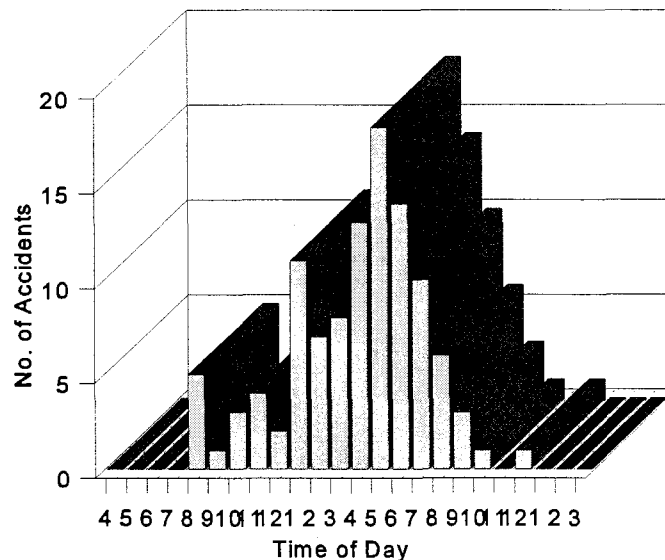
WEATHER CONDITIONS

The majority of bicycle accidents occurred during clear weather when pavement is dry. As discussed previously, this can be attributed to an increase in ridership during pleasant weather. During darkness, only two bicycle accidents occurred. Factors contributed to those were no headlights rather than weather conditions.

TIME OF DAY

A complete breakdown of accident time is shown on Figure 5. High accident months are July (22%) and April (16%). No accidents occurred in November, with December, January and March being low accident months. This follows the typical pattern of good weather.

Figure 5 ACCIDENT VERSUS TIME OF DAY



14. Sixty percent of the accidents during the survey period occurred between 3:00 p.m. and 7:00 p.m. This is consistent with the period of high ridership, as it is after school and during the early family hours. Also, traffic volumes during this period of time are heavier, resulting in a higher degree of exposure.

RESPONSIBILITY

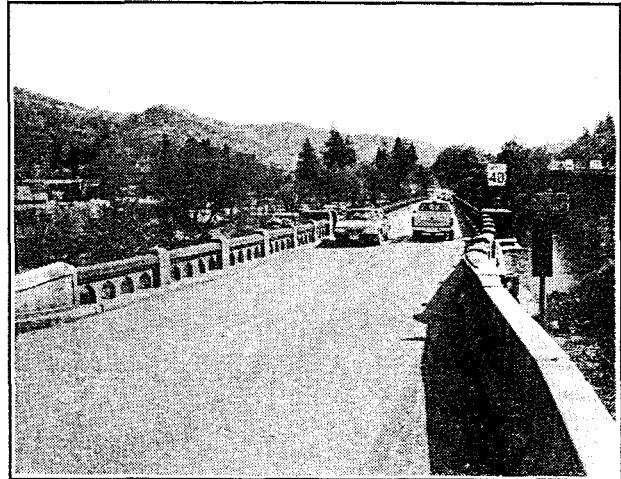
Cyclist errors are attributed to three violations: failure to yield right-of-way, running a stop sign or traffic signal light, and improper turning. Motorist errors resulted from failure to yield right-of-way and improper turning.

15. Of the 105 accidents reported, 75 were determined to be the fault of the bicyclist. Thirty were the fault of the motor vehicle driver. Most crashes are due to bicyclists or motorists disobeying the rules of the road, often out of ignorance. Overall, the fault lies equally with motorists and bicyclists. Most crashes occur where two roadways or a roadway and a driveway intersect, and one user failed to yield the right of way to the other. The fault in these situations is slightly more often the motor vehicle driver's than the bicyclist's. The leading cause of crashes in which the bicyclist is at fault is wrong-way riding. This behavior is observed in about 15% of riders, and is responsible for 17% of crashes.¹³

HAZARDOUS LOCATIONS

No unincorporated location within the County was identified as exhibiting a pattern of bicycle-related accidents. One area inside the Roseburg city limits--the Stewart Parkway-Harvard Avenue intersection--has been identified as a problem area. A majority of the accidents which have occurred at this location have resulted from bicyclists failing to stop at the traffic signal.

16. No unincorporated location within the County was identified as exhibiting a pattern of bicycle-related accidents.



The North Umpqua Bridge at Winchester, Oregon. The narrow width of this bridge almost prohibits any bicycle rider from crossing it. A Class I Bikeway is recommended for this area.

COUNTY BIKEWAY SYSTEM

Development of the County Bikeway Master Plan has resulted from the synthesis of information from numerous sources. General data regarding bicycling and bicyclists, specific data regarding cycling in Douglas County, the expertise of Steering Committee members and public and agency input all contributed to the selection and classification of specific routes included in this Plan. This chapter details the specifics of the results of the process.

¹³

IBID, p. 185

Route Selection Criteria

17. Three primary and a number of secondary criteria have been used in the process of selection of bikeways for designation by this Plan. The primary criteria include anticipated usage of the bikeway, safety of the bikeway and cost of construction. These criteria were rated as being of significant importance by most of the respondents to the questionnaire. Although all are considered to be of significant importance, the relative value of each varied from route to route.

BIKEWAY USAGE

The generalized data, cited previously, regarding bicycle user groups and trip length is supported by the results of questionnaire distributed to County groups. This is also consistent with the questionnaire responses which indicated a greater emphasis on utilitarian cycling in such areas. Bikeways which are proposed by this Plan have been mapped to be consistent with this anticipated usage. The moderate distance routes are typically located adjacent or near cities. The longer distance routes often have been located to connect various communities within the County. All recreational routes have, where possible, been looped to provide scenic diversity.

18. In the less densely populated portions of the County, most of the cycling which occurs is recreational. The distances from residential areas to activity centers in rural areas generally are such that utilitarian cycling is not practical.
19. In the more densely populated areas, such as Roseburg, where residential areas are closer to activity centers, utilitarian cycling is more common.
20. The greatest amount of utilitarian cycling occurs within city limits - particularly Roseburg - where densities are the greatest and the distances from residential areas to activity centers are the shortest.
21. It is recognized that the increased interest in jogging and walking has resulted in use of many bikeways by this secondary user group. This secondary use is anticipated to continue and, as a result, has been considered in designation of all bikeways in this Plan.

In all portions of the County bikeways which have the potential of serving utilitarian needs in addition to recreational needs have been considered to be highly desirable. An example of such as bikeway would be one which is primarily recreational, but also provides access to schools or employment centers.

It is recognized that the present emphasis on recreational cycling in Douglas County may change over time. Increased fuel costs, increased interest in healthful activity and/or reduced school budgets for busing could result in increased need for utilitarian routes. It is intended that this Plan be periodically reviewed to ensure that current and anticipated needs will be satisfied.

Few short distance routes are proposed for inclusion in the Bikeway System. Most routes for short distance trips which would receive enough usage to warrant inclusion within the proposed bikeway system are located within city limits. Generally, in unincorporated areas where densities are low, short distance routes would not receive enough use to warrant inclusion. The exceptions to this are the County's urban unincorporated areas - particularly the Tri City portion of the Myrtle Creek Urban Growth Boundary and Green.

22. In all rural areas most bikeways are anticipated to be recreational. However, in the more urban areas of the County, consideration has been given to utilitarian needs as well as recreational needs.
23. The recreational routes which are proposed are intended to serve cyclists of most levels of ability and interest from the occasional cyclist interested in a trip of moderate length involving an hour or less time to the accomplished cyclist interested in long distance trips involving a half day, full day or longer.
24. Utilitarian routes have been mapped to connect major residential areas with activity centers including industrial, commercial, institutional and recreational sites. These routes are located in the urban area around Roseburg and in Green and the Tri City portion of the Myrtle Creek UGB.
25. In unincorporated areas of the County where densities are low, short distance bikeways generally would not receive enough use to warrant inclusion in this Plan. The exceptions to this are the County's urban unincorporated areas - particularly the Tri City portion of the Myrtle Creek UGB and Green.
26. The need for additional short distance bikeways in the County's urban unincorporated areas should be assessed in the future and this Plan amended as appropriate.

Bikeway Safety

Bikeway safety is another of the three primary criteria which have been used in evaluation of potential bikeways. For the purpose of this Plan, the safety of various potential routes has been evaluated in terms of locations and types of past bicycle accidents and generally accepted data regarding motor vehicle-bicycle conflicts. Information regarding bicycle accidents is included in the previous chapter.

Conflicts between motor vehicles and bicycles are evaluated in terms of four factors. The speed of motor vehicle traffic is one of these factors. Although racing cyclists can reach relatively high speeds, cyclists generally travel at speeds of 15 mph or less. The greater the difference between the cyclist's speed and that of the motor vehicle, the more hazardous the situation. Another factor involved is the volume of motor vehicle traffic along the route. The greater this volume, the greater the number of potential conflicts which may occur. Associated with these two factors is the separation of motor vehicle and cycling traffic. Use of a Class III bike lane along a road with high motor vehicle speeds and

volumes in many areas is safer than sharing a roadway with motor vehicles where speeds and volumes are low. The fourth factor used in evaluation of conflicts involves turning and intersection conflicts. Conflicts of these types are most often a result of the low level of visibility of bicycles. Motor vehicles, when entering, leaving or crossing a roadway which is shared with cyclists, often are not looking for cyclists or have their vision of cyclists obscured by parked cars, vegetation, or other types of screens.

The user of the short distance utilitarian bikeways is often less skilled than the long distance cyclist and will not use bikeways which he or she considers to be unsafe. The accomplished long distance cyclist, on the other hand, often times prefers to ride in the automobile travel lane rather than in the shoulder area due to conflicts with vehicles entering and leaving the roadway and greater amounts of rack and debris found in shoulder areas. In some instances, routes which are presently considered to be unsafe, such as the Highway 99 bridge over the North Umpqua River, have been included in the Plan and designated for sufficient improvement to make cycling on them safe. Such routes have been included due to the anticipated amount of use they would receive under safe conditions. In other instances, such as the I-5 freeway and Highway 138 east of Rock Creek, potential routes have not been designated due to their unsafe nature and low levels of use anticipated for them.

27. The significance of safety to the residents of the County was made evident by the responses to the bikeway questionnaires. This criterion was rated as the most significant factor to be used in selection of specific bikeways.
28. Four potential conflicts between motor vehicles and bicycles were evaluated in designating routes along roadways for inclusion within the bikeway system. These four criteria include the speed of motor vehicle traffic, the volume of motor vehicle traffic, the separation of motor vehicle and bicycling traffic and turning and intersection conflicts.
29. The degree to which safety has been considered in designating bikeways in this Plan has varied depending on the type of use a designated route is anticipated to receive. In designating routes intended for short distance school, neighborhood circulation or recreational use, safety has been considered to be a more significant factor than for routes intended for long distance recreational use.

CONSTRUCTION COST

Cost of construction of a bikeway along a given route is the third primary criterion used in designating specific bikeways for incorporation into the County system.

In designating bikeways which are intended to satisfy recreational needs, cost of bikeway construction has been a more significant criterion than for routes intended for utilitarian needs. The routing of recreational bikeways (where cycling is the purpose) is flexible in that the directness of the route and thus its length is not of primary importance as it is for utilitarian bikeways. Thus alternative routes for recreational bikeways which would be less costly to construct may be considered. In the routing of utilitarian bikeways,

on the other hand, directness of the route is very significant if the bikeway is to serve the needs of this group. Thus alternative routes which may be less costly to construct but are longer, may not be appropriate. For this reason, cost of bikeway construction, has been given greater significance in locating bikeways which will receive primarily recreational use than those which will serve utilitarian needs.

In addition to the needs of the primary user group, the physical characteristics of a potential bikeway was considered in evaluating the cost of bikeway construction. The adequacy of the existing width of the road right-of-way and barriers to construction such as steep embankments within the right-of-way were factors in locating all Class I and II bikeways, and the adequacy of the existing pavement width was a factor in locating all Class III bikeways.

With minimal cost in most areas of the County, existing roads and rights-of-way are adequate to accommodate the desired class of bikeway. However, in some areas, such as Highway 99 over the North Umpqua River and the maintenance road under I-5 between the Fairgrounds to Green bikeway, adequate right-of-way and/or pavement width is not available. Bikeways such as these are anticipated to receive sufficient utilitarian use to justify the additional cost involved in their construction.

30. As a criterion in route selection, construction cost includes consideration of the anticipated primary user group and the physical characteristics of the route.
31. The cost of construction has been a more significant criterion in designating recreational bikeways than utilitarian bikeways due to the importance of safety and directness of utilitarian bikeways.
32. The adequacy of road right-a-way width, roadway pavement width and physical barriers to bikeway construction are other factors involved in the evaluation of the cost of bikeway construction.

OTHER FACTORS

33. Often only one roadway exists which would satisfy an identified bikeway need. This is particularly true in rural areas where there are fewer roads.
34. In areas where alternative routes could serve an identified need, five criteria, in addition to anticipated usage, safety and construction cost, were used in the route selection process. These criteria include directness of the route, continuity of the route with other routes or facilities, the grade(s) of the route, the scenic quality of the route and the frequency of required stops along the route. The relative significance of these five criteria in the route selection process varied depending on the anticipated primary usage of the alternative routes under consideration. For utilitarian routes, directness, continuity and grade(s) of the potential alternatives were the more significant criteria. For recreational routes, scenic quality and the number of required stops were given greater consideration.

DETERMINATION OF BIKEWAY CLASSIFICATION

35. This Bikeway Plan includes all three classes of bikeways.

(A description of each class is included in the Definitions section of the Appendix to this Plan.) The first three of these criteria are the same as those used in selection of route locations for all routes. The type of usage has been used as a criterion to differentiate between the needs of differing user groups. For example, well-defined travel lanes were considered important for school trips while little, if any, separation between bicycles and automobiles was considered necessary for routes intended for the accomplished cyclist.

36. The criteria used in determination of the appropriate classification for each route was based on a number of factors including safety, cost of route construction, level of usage anticipated, and type of usage anticipated.
37. Few Class I routes have been proposed by this Plan due primarily to the high cost of construction of this bikeway type. This Class of bikeway is proposed primarily in areas where no other class of route is feasible or where safety requires it. This Class of bikeway is proposed in areas where no other class of route is feasible, such as the maintenance road under I-5 on the Fairgrounds to Green Route #30 or where safety requires it, such as State Highway 99 over the North Umpqua River. (See Bikeway Master Plan Map for location of bikeways.)

Driveway and intersection crossings are hazardous because drivers tend to concentrate their attention on street traffic and do not consider the presence of fast-moving bicycles. Parked cars often interfere with the visibility between vehicle drivers and cyclists. And, for Class II bikeways which utilize sidewalks, curb cuts at intersections and driveway ramps are often sharp enough to discourage bicycling use. Although this type of bikeway is discouraged, it is recognized that under certain circumstances this may be the most appropriate type of bikeway to use.

40. In the determination of the appropriate classification for all routes in the County, emphasis has been placed on designating bikeways for Class III and IIIs improvements. This is due to the generally low cost of development of these types of bikeways and their appropriateness in the more rural portions of the County.
41. Bikeways which have been designated for full Class III improvements (including striping of bike lanes) have received this designation because of the high volumes of automobile traffic they carry and widths of their respective travel lanes, the high volume of existing or

anticipated bicycle ridership on the road and/or the extent of existing or anticipated usage of the bikeway by children.

42. Use of these criteria has resulted in the designation for full Class III improvements to many State highways and roads to schools and parks which are proposed to be included within the bikeway system.
43. Roadways which are proposed for improvement to the Class IIIs bike route standards generally are those routes in rural areas which are relatively long distance and are intended for use by accomplished cyclists, and rural routes with low volumes of vehicular and/or cycling traffic use.

INVENTORY OF DESIGNATED BIKEWAYS

44. Approximately 679 miles of bikeways have been designated by this Plan for unincorporated areas of the County. A breakdown of this mileage by type of bikeway follows:

Designated Bikeways	
Class I	25.8 miles
Class II	1.2 miles
Class III	297.2 miles
Class IIIs	355.4 miles

As can be seen from this table, slightly over 2/3 of the designated routes are Class IIIs. The preponderance of this bikeway class is due to a significant degree to the long distance routes which are intended for use by the accomplished recreational cyclist. Five routes included in the Plan (numbers 5, 6, 10, 22 and part of 51) which are over 15 miles in length one way and which are intended primarily for this user group total 168 miles or approximately half of the Class IIIs mileage. The low mileage of Class II bikeways results from the discouragement of this bikeway type. A map showing the designated bikeways is included in the pocket at the end of this document.

The designation of the specific bikeways included in this Plan is based upon the general data on cycling, questionnaire responses and other input by the Bikeway Plan Steering Committee and public as detailed in this and the preceding chapter of this Plan. In almost all cases, input regarding specific routes which are heavily used or possess some hazard to safe cycling has been used in designating bikeway routes.

45. Of the 60 bikeways designated by this Plan, the total length of four of these and part of an additional three bikeways have been constructed. The total mileage of these constructed bikeways is 27.4 or 5.5% of the overall system.

Table 4 represents a listing of these bikeways:

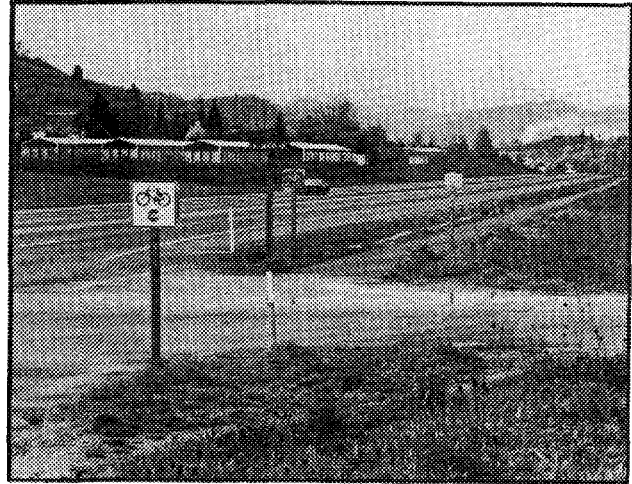
**TABLE 4
EXISTING BIKEWAYS**

Bikeway Route #	Road Name	Limits of Construction	Class	Approx. Mileage
1	US Hwy 101	Northern County limits to Southern County limits	III	22.0
18 (pt)	State Hwy 99	Club St. to Courier Avenue	III	0.2
21	Page Road	State Hwy 99 to Mile Post 0.76	II	0.8
23 (pt)	N. Umpqua Hwy	Glide Loop Rd to river crossing	I	1.6
32	State Hwy 42	Carnes Rd to Winston city limits	I	2.0
37 (pt)	State Hwy 42	Winston city limits to Lookingglass Creek	II	0.2

The bikeways designated by this Plan are physically described on Table 5. The Bikeway Route Number listed in the left-hand column is also used to identify the location of the bikeway on the Bikeway Master Plan Map. Generally, the numbering system begins at the Coast, followed by the North, Central and Southern portions of the County in that order. The Limits of the bikeway refers to the locations where the bikeway begins and ends. In instances where a bikeway along a given road is composed of two or more bikeway classes, each class segment has been separately defined. The jurisdiction of the bikeway refers to the level of government responsible for its construction and maintenance. The approximate mileage listed for each bikeway is based upon prior mapping and has not been field checked for accuracy.

CONSISTENCY WITH OTHER BIKEWAY PLANS

One of the objectives of this Plan is to ensure that the system of bikeways it promotes minimizes duplication with bikeways of other jurisdictions and provides continuity across jurisdictional boundaries. To this end an effort has been made to coordinate this Plan with those of other jurisdictions in the area. The jurisdictions involved in this coordination include the cities within the County, adjacent counties, the State, the United States Forest Service, Bureau of Land Management and Bicycle Travel Association.



An existing Class I Bikeway between Green and Winston.

46. The City of Roseburg adopted a Bikeway Master Plan in July 1988. Only two cities in the County have an adopted bikeway plan. The Roseburg Area Bikeway Plan was originally developed in 1979 by the Umpqua Regional Council of Governments. This plan was adopted in July 1988 and plotted bikeways in the areas of Garden Valley, Roseburg, Green and Winston. This plan was not formally adopted by any of the jurisdictions affected by it. Many of the routes plotted by the Roseburg Area Bikeway Plan have been designated by this Plan. The City of Reedsport developed a bikeway master plan in coordination with Umpqua Regional Council of Governments. This plan was adopted in May of 1990. Although only two bikeway plans, per se, have been adopted by the County and cities, the comprehensive plans of a number of cities have designated future bikeways and addressed the need for their improvement. Where practicable, bikeways designated by this Plan have been located consistent with these city-designated routes.

It is recognized by this Plan that the responsibility for bikeway planning within the corporate limits of the cities within the County rests with those jurisdictions. It is not the intent of this Plan to designate bikeways within the limits of these jurisdictions.

47. Bikeways which are shown on the Bikeway Master Plan Map within cities are either in existence or have been adopted as bikeways by those cities.

48. Bikeways within the urban growth boundaries of the cities have been included in this Plan. These routes, particularly the ones which abut city limits, have been coordinated with the affected cities to ensure continuity through these areas.

There are four routes designated by this Plan which abut adjacent counties: Bikeway Route numbers 1, 5, 8 and 55. Bikeway Route #8, Territorial Highway, extends from Anlauf north to the County limits. This route has been designated as a means of access to the Eugene area for the accomplished cyclist. The other three routes which abut adjacent counties are discussed below.

49. Of the counties which are adjacent to Douglas County, only Jackson and Josephine Counties have adopted bikeway plans. Neither of these plans have designated bikeways which abut Douglas County.

Three bikeways within the State bikeway system passes through Douglas County. The first is a 372 mile bikeway, commonly referred to as the Coast Bicycle Route, follows the Oregon Coast with about 2/3 of the route being located on Highway 101. Through Douglas County this bikeway is located on that Highway. This bikeway is designated by this Plan as Bikeway Route #1. Highway 38 and 42 are also designated state bicycle routes.

50. Three bikeway within the State bikeway system, the Coast Bicycle Route (Hwy. 101), Highway 38 and Highway 42¹⁴, passes through Douglas County. Bicycle facilities should be provided along the sections of Highway 3a from Drain to Elkton and Reedsport to the Elk Viewing area. All three bikeways are included as part of this Plan.
51. There is no comprehensive plan for bikeway development in the Umpqua National Forest. However, the Forest Service has constructed a Class I bikeway that circles Diamond Lake. This proposed bikeway is included as part of this Plan.¹⁵ (Bikeway Route #54 and #56). The Diamond Lake-Crater Lake Route designated by this Plan has not been considered to date in Oregon Department of Transportation plans for this area. The connections from the highway to the lake via Forest Service bike routes were completed. The highway portion has been included as it is considered to provide good recreational opportunities for campers in the Diamond Lake area to visit Crater Lake.

¹⁴ Oregon Corridor 38 and 42 Executive Summary Strategy Report: 1996 Oregon Department of Transportation Region 3; p. 3.3

¹⁵Phone contact - Jim Talburt, Forest Trail Coordinator Umpqua National Forest

52. The Bicycle Travel Association was instrumental in establishing in 1976 the TransAmerica Bicycle Trail from Astoria, Oregon, to Yorktown, Virginia. This 4,250 mile trail is the longest recreational trail in the world. An integral part of this trail is referred to as the Pacific Alternate, a 100.7 mile trail from Winchester Bay to Eugene. This alternate route is also included in this Plan as Bikeway Route #8.

The State Parks Department in its Outdoor Recreation Needs Bulletin 1977 (which is part of the State Comprehensive Outdoor Recreation Plan (SCORP)) has developed a methodology for determining local needs for various types of recreational facilities as a function of population. This document indicates that in 1975 Douglas County had a total of 104 miles of bikeways (both within and outside of cities). This total mileage is 63 miles in excess of the 1980 need projected by SCORP for the County of 39 miles.

These SCORP projections are significantly lower than bikeway mileage included in this Plan (502 miles). The SCORP projections are, however, qualified by the State Plan as having "a low level of reliability". As a result, SCORP also includes the results of public meetings which it held locally to receive input regarding high priority needs for recreational facilities. Bike trails was one of the types of facilities ranked as a high priority at these meetings.

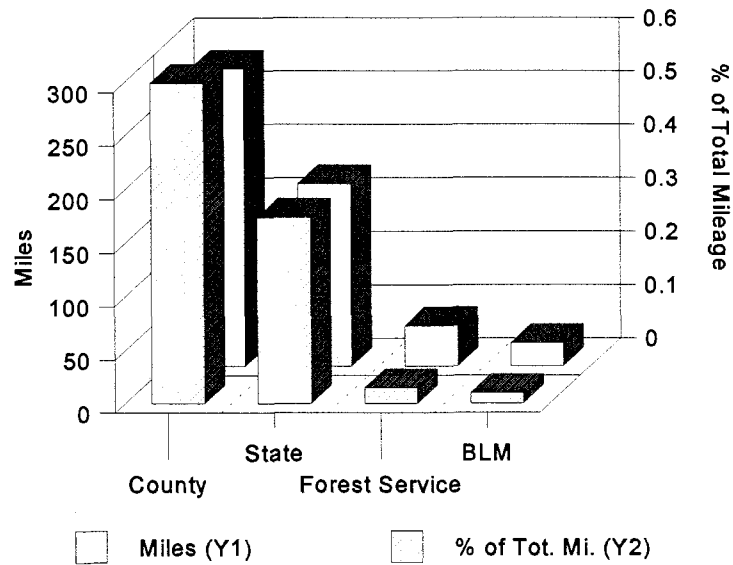
53. The State Comprehensive Outdoor Recreation Plan 1977 (SCORP) published by the State Parks Department, indicates that by 1990 Douglas County will have a need for 44 miles of bikeways. This projection is significantly lower than the mileage included in this Plan. The 1995 SCORP has divided the state into 12 regions, Douglas County is located in Region 6 (Coastal) and Region 9. Region 6 contains 10 miles of bicycle trails with a level of use at 468,740. Region 9 Contains 146 miles of bicycle trails with a level of use at 1,073,070. The Plan projects an increase in use from 1987-2000 of 7% for Region 6 and 71% for Region 9.¹⁶
54. The SCORP projections are qualified by the State Plan as having a "low level of reliability". These projections are countered by the results of local meetings conducted by the State which indicated bike trails to be a high priority.

¹⁶ Recreational Needs Bulletin - Oregon State Comprehensive Outdoor Recreation Plan; 1991, Oregon Parks and Recreation Department

**IMPLEMENTATION
RESPONSIBLE AGENCIES**

The responsibility for improvement and maintenance of the bikeways designated by this Plan lies with those agencies which have jurisdiction over the rights-of-way on which the bikeways are located. These agencies include the County, state and Federal Government including the Forest Service and Bureau of Land Management. A breakdown of the mileage for which each agency is responsible is as shown on the following figure.

Figure 6 Responsibility for Bikeway Construction



Pursuant to ORS Chapter 197, State agency actions related to land use must be consistent with the County's acknowledged Comprehensive Plan. As this Bikeway Master Plan is intended to be part of the Comprehensive Plan, the State will be obligated to ensure that improvement to State highways include the appropriate bikeway improvements.

However, two of the four bikeways designated on Federal lands, as discussed previously, are presently under consideration by the Forest Service (Bikeway Routes 54 and 56), and in that the third route, the Transcontinental Bike Route (#5), has been recognized nationally and the fourth route, the Diamond Lake-Crater Lake Route, is also considered to be of significant recreational value. As these bikeways will help to meet the needs of the recreational cyclists, it is likely that Federal participation in development of these routes will occur.

- 55. The responsibility for improvement and maintenance of the bikeways designated by this Plan lies with those agencies which have jurisdiction over the rights-of-way on which the bikeways are located.

A breakdown of the mileage for which each agency is responsible is as follows:

County	278.6 miles
State	340 miles
Forest Service	38.1 miles
Bureau of Land Management	21.9 miles

56. The Federal government is not statutorily required to take land use actions consistent with County plans and policies. However, it is likely that Federal participation in development of these bikeways under Federal jurisdiction will occur. The bikeways identified in the National Forest will help to meet the needs of the recreational cyclists, as identified in this plan.

GUIDELINES FOR CONSTRUCTION PRIORITIES

57. Priorities for improvement of bikeway facilities were determined through several modes of public input including the questionnaires described previously, and by staff discussions and guests attending committee meetings. Information was also obtained from other agencies involved in bikeway planning and design, from literature on the subject of bikeways, and from existing bikeway trail systems manuals and descriptions. These priorities are as follows:
- a. Recommendation to the State that their long-range highway improvement programs address the inclusion of proposed bikeways in their planning when applicable.
 - b. Timely use of available county bicycle funds in cooperation with other agencies proposing to construct bikeways which fall within the jurisdiction of both agencies.
 - c. Bikeways which presently receive or are anticipated to receive upon improvement a high level of use over those which presently receive or are anticipated to receive low levels of use.
 - d. Application of a cost-benefit ratio determination should be used where appropriate.
 - e. Completion of entire routes or practical route segments at one time.
 - f. Receptiveness and appropriate response to public recommendations and request for improvements.
 - g. Distribution of available funds throughout the County consistent with other considerations.
 - h. Improvement of locations along designated bikeways which have been identified as high accident locations.
 - i. Routes which accommodate utilitarian use in addition to recreational cyclists should generally be given priority over routes which serve only recreational users.

- j. Provision of a skeletal network which serves all areas included in the Plan.
 - k. Timing consistent with roadway improvements. If a designated bikeway may be improved as part of scheduled improvements to a roadway at a cost significantly less than the cost of bikeway improvements if installed independently, improvements of this bikeway should be a high priority.
58. Numerous considerations are to be used in prioritizing bikeways for construction including the following:
- a. Timely use of available county bicycle funds in cooperation with other agencies proposing to construct bikeways which fall within the jurisdiction of both agencies.
 - b. Bikeways which presently receive a high level of use and those bikeways which, upon improvement, are anticipated to receive a high level of use over those which presently receive or are anticipated to receive lower levels of use.
 - c. Distribution of available funds throughout the County consistent with other considerations.
 - d. Timing consistent with roadway improvements. If a designated bikeway may be improved as part of scheduled improvements to a roadway at a cost significantly less than the cost of bikeway improvements if installed independently, improvements of this bikeway should be a high priority.

FUNDING SOURCES

Federal and State funding is generally contingent upon adherence to certain standards for bikeway development. The bikeways designated by this Plan and the standards for their improvement (detailed later in this section) have been designed so as to ensure eligibility for those available funds.

The Federal Highway Administration encourages the construction of bicycle and pedestrian facilities as a part of the regular Federal Aid Highway Program. In its report entitled Bicycle and Pedestrian Facilities in the Federal Aid to Highways Program, April, 1981, construction of bicycle and pedestrian facilities may be eligible for Federal funding where all of the following conditions are addressed:

- a. The facility will not impair the safety of the pedestrian, bicyclist, or motorist.
- b. The facility will connect with existing facilities usable by bicyclists or it will form a segment of a proposed bicycle system.
- c. A public agency has formally agreed to:
 - i. Operate and maintain the facility
 - ii. Ban all motorized vehicles except maintenance vehicles and snowmobiles where snow conditions and state or local regulations permit.
- d. It is reasonably expected that the facility will have sufficient use in relation to cost to justify its construction and maintenance.

The 1971 Oregon Legislature, recognizing a need to provide facilities for both pedestrians and cyclists, enacted legislation creating the first state-funded bikeway and footpath program in the nation. The legislative action, commonly referred to as the "Bicycle Bill" requires that bikeways or footpaths be established as part of all highway projects except where the establishment of such facilities would be contrary to public safety, disproportionate in cost to the need in probable use, or where sparsity of population, other available ways, or other factors indicate an absence of any need or probable use. This action applies to cities and counties as well as the state.

Basically, the Bill requires that not less than one percent of the funds received each year by the Oregon Department of Transportation, or by any city or county from the State Highway Fund, shall be expended to establish footpaths and bicycle trails along newly constructed, reconstructed, or relocated highways. Funds received from the State Highway Fund may also be expended to maintain such footpaths and trails and to establish footpaths and trails along other highways, roads and streets, and in paths and recreation areas.

The primary objective of this Bill is to provide a system of bikeways to serve the needs of those wishing to ride bicycles as an alternative to traveling by automobile or public transportation to work, school, shopping, or for recreation.

59. Funding for improvements of bikeways is available from various sources at the Federal and State levels in addition to County financing.
60. In 1971, the Oregon Legislature adopted the "Bicycle Bill" which requires that not less than one percent of the funds received each year by any county from the State Highway Fund shall be expended to establish footpaths and bicycle trails along newly constructed, reconstructed, or relocated highways.

BIKEWAY DESIGN

Successful bikeway design requires a thorough understanding of the needs of bicyclists, as well as other potential users of bikeway facilities. A properly designed bikeway system should be both practical and useful and allow the benefits of bicycling to be fully realized.

In Douglas County, bikeways are divided into four distinct classifications. These classifications have been determined necessary to provide the overall bikeway facilities required to fulfill the needs of potential users in this County, commensurate with monies available for these facilities.

In order to properly design appropriate bikeway facilities, the designer must also have a complete and thorough understanding of the bikeway classifications and their intended function and use.

Bikeways are classified as follows:

- Class I: A separate trail for joint use of bicyclists and pedestrians. It may be entirely independent of other transportation facilities.
- Class II: A bikeway that is adjacent to the travel lane of motorized traffic, but provides a physically separated through lane for bicycles and pedestrians.
- Class III: A bikeway that shares the roadway with motor vehicles. Routes are designated by signing, striping, and other visual markings. A Bicycle Lane is a Class III Bikeway.
- Class IIIs: A Class III bikeway which is signed only. A Bicycle Route is a Class IIIs Bikeway.

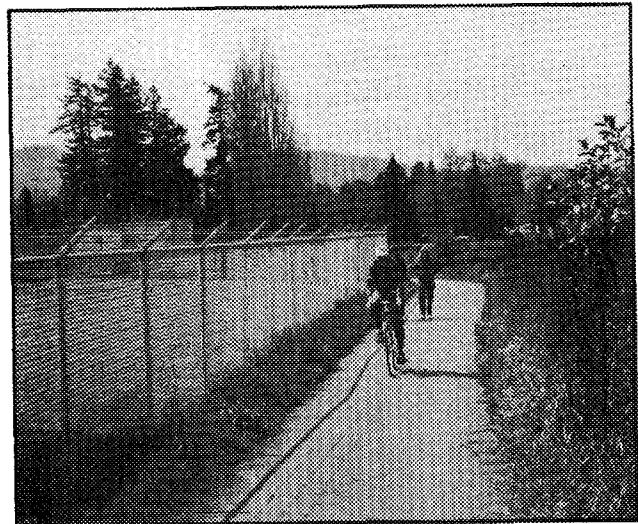
Class I Bikeways

Separate Class I bicycle paths on their own right-of-way along a street or freeway are the ideal bicycle facility.

Because many bike paths are constructed in and around parks or within green belt strips, they are widely utilized for pleasure and recreation. Well-designed and constructed separated bike paths should not only serve the community as recreational assets but also provide high quality directional linkage for utilitarian trip purposes.

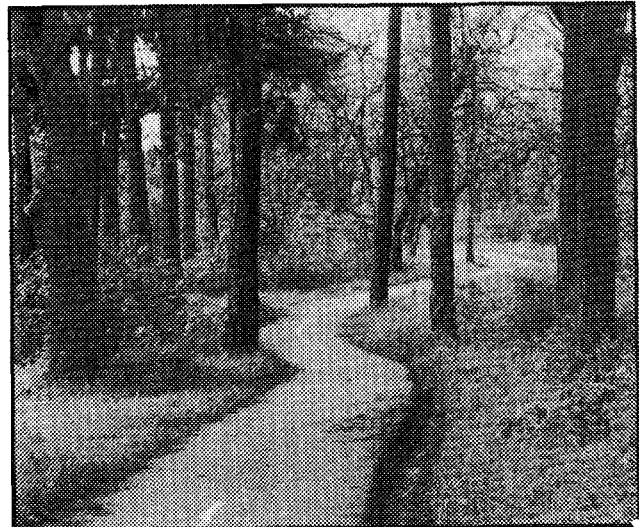
Occasionally, bike paths must be constructed along natural or man-made barriers such as rivers, freeways, or railroads. Bikeways in these locations can also serve effectively if properly oriented in regard to principal origin of trips using the facility and adequate access points are provided.

In the design of bike paths it is important not to subordinate bike path ridability to unnecessary or extravagant landscaping treatments. Generous design regarding bike path curvature and width should be used where site conditions permit.



A Class I Bikeway fenced on both sides to protect the trail from adjacent land users. Stewart Park, Roseburg, OR.

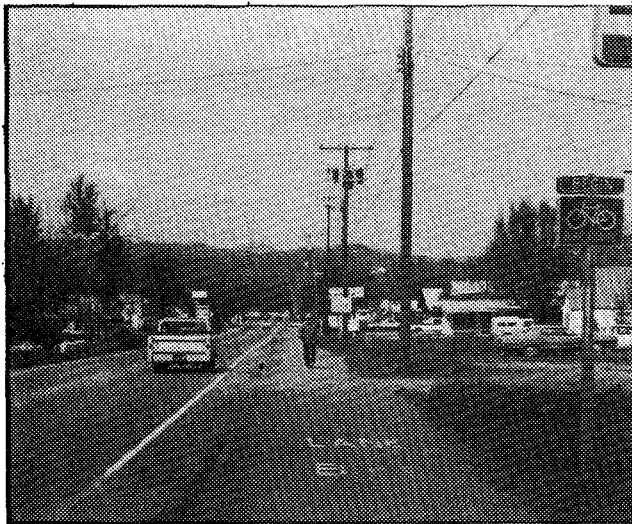
Narrow bike paths are very susceptible to operational problems, especially as usage increases. The minimum widths of popular bike paths should be at least ten feet, and consideration should be given to even wider cross sections to provide ample space to allow riding abreast and sharing with joggers and pedestrians. Bike paths are normally shared with pedestrians, but high levels of pedestrian activity may justify additional width, with uses separated by striping or contrasting pavement. Construction of parallel trails may eventually become necessary for major corridors. When a bike path runs beside a wall or railing, the paving against the wall or railing is unusable space. Additional paved width should be provided to maintain the rideable design width.



A classic example of a well-designed Class I Bikeway. Stewart Park, Roseburg, OR.

All bike paths should be finished by applying a compacted earth backfill flush to the edge of pavement to eliminate a vertical edge and to protect the pavement. It is important to select a backfill material which will not allow gravel or mud to be spread onto the bike path surface when disturbed.

Class II Bikeways A commonly used Class II bikeway treatment involves the adaptation



A Class II Bikeway with concrete curb separating the bike route from lanes for motorized traffic. (Club Avenue to Currier Avenue on Highway 99N.)

of new or existing sidewalks for bike use by constructing curb cuts at intersections. In addition to planned treatments, de facto sidewalk bikeways result from the mandate to install curb cuts to assist the travel of handicapped persons. Sidewalk bikeways are occasionally considered a desirable treatment, for the reason that bicycles are physically separated from traffic lanes and facilities can be provided without removing parking. However, except for special situations, sidewalk bikeways are at best a temporary solution, and should be considered only when other alternatives are available. When using sidewalk bikeways, the following areas of concern should be addressed:

1. Driveway crossings are hazardous. Drivers exiting from a driveway are concentrating on the street traffic stream which they are about to enter and do not expect fast-moving bicycles on the sidewalk at three to five times pedestrian speed. This situation is worsened when the sidewalk is set back from the street because a driver will normally cross such a sidewalk faster, planning to stop at the curb line. The driver's line of sight, directed principally toward oncoming traffic, does not scan the sidewalk further than is needed to determine the absence of immediately adjacent pedestrians. Reduced vision range due to drivers backing out and sight distance obstruction by shrubbery are also factors.
2. Curb cuts at intersections and driveway ramps are usually so sharp that they cannot be comfortably ridden at speed. Consequently, the cyclist frequently prefers to ride in the street and avoid the sidewalk in order to achieve reasonable travel speed. When cyclists prefer to ride in the traffic lanes rather than on sidewalk bikeways, traffic friction is increased, and potential benefits from the bikeway investment are not realized.
3. Parked cars interfere with visibility relationships between vehicle drivers and cyclists. So when cyclists enter the street, drivers are confronted with a point of conflict rather than a linear passage smoothed by a period of approach visibility. Cyclists ride nonstop at speed from sidewalk into the street, which surprises drivers and increases the hazard potential at the point of conflict.
4. Sidewalk bikeways, unfortunately, are often ridden two-way, thus aggravating hazards arising from directional expectation.
5. Pedestrian crossing controls create confusion for bicyclists at some intersections. Some cyclists press the pedestrian phase actuation buttons and key their crossings on the pedestrian-directed signal heads, while others simply rely upon motor vehicle-directed signal indication.

Some early bikeways used sidewalks for both pedestrian and bicyclists. While in rare instances this type of facility may be necessary or desirable for use by small children, in most cases it should be avoided.¹⁷

Sidewalks are not suited for cycling for several reasons:

- Cyclist face conflicts with pedestrians;
- There may be conflicts with utility poles sign posts, benches, etc.
- Bicyclists face conflicts at driveways, alleys and intersections

¹⁷1995 Oregon Bicycle and Pedestrian Plan, An Element of the Oregon Transportation Plan: Oregon Department of Transportation; p. 71

- Bicyclists are put into awkward situations at intersections where they cannot safely act like a vehicle but are not in the pedestrian flow either, which creates confusion for other road users.

Cyclists are safer when they are allowed to function as roadway vehicle operators, rather than as pedestrians.¹⁸

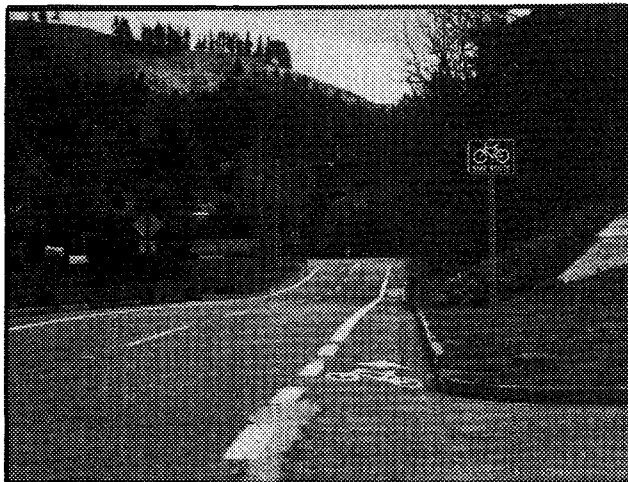
Where constraints do not allow full-width walkways and bikeways, solutions should be sought to accommodate both modes (e.g. narrowing travel lanes or reducing on-street parking). In some urban situations, preference may be given to accommodating pedestrians. Sidewalks should not be signed for bicycle use - the choice should be left to the users.¹⁹

Where there is also an appreciable pedestrian activity, sidewalk demarcation may be used. This can consist of contrasting pavement surfaces, or a paint line with the bike stencil on the left-hand portion. On new construction, a nine-foot sidewalk should be provided, divided into a five-foot bike path and a four-foot walk. Thus a typical existing five-foot asphalt or concrete strip.

Frequently, it is necessary to provide a bikeway transition, usually between a bike lane and a length of sidewalk and bikeway, such as at an obstruction, bridge, or at the approach to an intersection.

Class III Bikeways

Striping Class III bike lanes on the street adds legitimacy and credence to the



A Class III Bikeway with a white stripe which separates the bike lane from lanes for motorized traffic. Eugene, OR

cyclists' presence on the road and defines a physical area for cycle riding. The application of designated space for cyclists, with proper dimensions, minimizes the tendency for cyclists to distribute themselves over the roadway cross section and gives the cyclist a sense of security. Bike lane striping is a visual reminder to both cyclist and motorist which reinforces cyclist obedience to the rules of the road, encourages more predictable behavior while stimulating motorist consciousness relative to the presence of cyclists. Establishment of a predictable cyclist position on the roadway appears to have a positive effect on traffic flow and capacity.

¹⁸IBID, p. 71

¹⁹IBID, p. 71

Motorists appear to be less inclined to slow down or shy away from cyclists when designated lanes are present than in conditions where there are no bike lanes.

Bike lane striping should be uniform in similar circumstances to promote consistent user behavior.

Where existing street cross sections permit, bike lane widths of six feet are desirable, as they allow side-by-side riding, an important contribution to the sociability of bike riding. Where bike lanes are striped between parked cars and moving traffic, a minimum width of five feet should be provided.

The parking lane adjacent to a bike lane should be a minimum of eight feet in width to provide shy distance around larger vehicles and protruding mirrors as well as to provide recovery space for cyclists in the event of a car door opening into the bike lane. The maximum width of a bike lane adjacent to traffic should be eight feet, since lanes wider than that are apt to be confused by drivers for travel lanes.

A common problem with bike lane installation is the need to remove one or both lanes of parking. The precedents for doing this are clear. The public right-of-way is intended for traffic and the use of street space for other purposes, such as parking, is a privilege which is permissible only as long as travel along the street is not disadvantaged. Thus, where parking is found to interfere with traffic flow, and where it is detrimental to safety, it is prohibited.

It is intended that all proposed Class III bikeways be ultimately improved to their full designated standards, which would include signing, lane striping, and stenciling of symbols and word messages on the pavement.

In order to allow safe and practical phase development of Class III bikeways, they must not be signed as Class III bikeways until all the criteria for this latter class has been met. Particular attention should always be given to the safety of the cyclists keeping in mind the particular reasons for the ultimate classification selection.

Class IIIs Bikeways

This is a treatment whereby certain streets in the street network are designated as Bike Routes, and bikes share the roadway with auto, but without bike lanes.

Properly used, however, the signed bike route is a very effective tool to provide specific designated linkage within the framework of the Bikeway Plan along streets of low volume which, because of their locations, serve a cyclist's purpose. Before signing a street as a Bike Route, hazards to cyclists such as gaping inlet grading, potholes, ragged pavement, and critical sight distance restrictions should be corrected.

The basic signed Bike Route utilizes a street without modification to existing regulatory traffic control devices. However, there are signed routes along which traffic control devices should be investigated for possible revision to enhance bicycling by minimizing delays. This may require rearranging, or placing stop signs to give it priority over all streets having an equal or lower importance in the street hierarchy. Yield signs are not adequate for this purpose because a driver customarily looks for other vehicles and may not perceive the cyclist who has the right-of-way. Even if each operator sees the other, there is an element of bluff in who is to yield to whom, and this is not conducive to a cyclist's comfort or safety.

A Bike Route should be signed:

- To lead another facility forming part of a through route,
- To indicate a street or street sequence where traffic signs have been adjusted to give the street a priority at intersections which its level of auto use alone would not warrant.
- To indicate an intent to protect suitability of a route for bike travel by such means as may be necessary.
- To indicate a route on which a particular effort has been made to identify and remove hazards to bike traffic.
- To connect discontinuous segments of bike lanes.

Maintenance of bike routes should be at a higher standard than that of other comparable streets (e.g., more frequent street sweeping).

61. In Douglas County, bikeways are divided into four distinct classifications which have been determined necessary to provide the overall bikeway facilities required to fulfill the needs and potential users in this County, commensurate with monies available for these facilities. These bikeways are classified as follows:

- Class I: A separate trail for joint use of bicyclists and pedestrians. It may be entirely independent of other transportation facilities.
- Class II: A bikeway that is adjacent to the travel lane of motorized traffic, but provides a physically separated through lane for bicycles and pedestrians.
- Class III: A bikeway that shares the roadway with motor vehicles. Routes are designated by signing, striping, and other visual markings. A Bicycle Lane is a Class III Bikeway.
- Class IIIs: A Class III bikeway which is signed only. A Bicycle Route is a Class IIIs Bikeway.

- 62. Separate Class I bicycle paths on their own right-of-way along a street or freeway are the ideal bicycle facility.
- 63. The minimum widths of bike paths should be at least ten feet, and consideration should be given to even wider cross sections to provide

- ample space to allow riding abreast and sharing with joggers and pedestrians.
64. A commonly used Class II bikeway treatment involves the adaptation of new or existing sidewalks for bike use by constructing curb cuts at intersections.
 65. Some early bikeways used sidewalks for both pedestrian and bicyclists. While in rare instances this type of facility may be necessary or desirable for use by small children, in most cases it should be avoided.²⁰
 66. Sidewalks are not suited for cycling for several reasons:
 - Cyclist face conflicts with pedestrians;
 - There may be conflicts with utility poles sign posts, benches, etc.
 - Bicyclists face conflicts at driveways, alleys and intersections
 - Bicyclists are put into awkward situations at intersections where they cannot safely act like a vehicle but are not in the pedestrian flow either, which creates confusion for other road users.Cyclists are safer when they are allowed to function as roadway vehicle operators, rather than as pedestrians.²¹
 67. Where constraints do not allow full-width walkways and bikeways, solutions should be sought to accommodate both modes (e.g. narrowing travel lanes or reducing on-street parking). In some urban situations, preference may be given to accommodating pedestrians. Sidewalks should not be signed for bicycle use - the choice should be left to the users.²²
 68. Striping Class III bike lanes on the street adds legitimacy and credence to the cyclists' presence on the road and defines a physical area for cycle riding.
 69. Bike lane striping is a visual reminder to both cyclist and motorist which reinforces cyclist obedience to the rules of the road, encourages more predictable behavior while stimulating motorist consciousness relative to the presence of cyclists.
 70. It is intended that all proposed Class III bikeways be ultimately improved to their full designated standards, which would include signing, lane striping, and stenciling of symbols and word messages on the pavement.

²⁰1995 Oregon Bicycle and Pedestrian Plan, An Element of the Oregon Transportation Plan: Oregon Department of Transportation; p. 71

²¹IBID, p. 71

²²IBID, p. 71

71. In order to allow safe and practical phase development of Class III bikeways, they must not be signed as Class IIIs bikeways until all the criteria for this latter class has been met.
72. A Class IIIs Bikeway is a treatment whereby certain streets in the street network are designated as Bike Routes, and bikes share the roadway with auto, but without bike lanes.
73. Properly used, however, the signed bike route is a very effective tool to provide specific designated linkage within the framework of the Bikeway Plan along streets of low volume which, because of their location, serve a cyclist's purpose.

DESIGN STANDARDS

The design of bikeway improvements in Douglas County shall, in general, conform to standards set forth in the 1991 American Association of State Highway and Transportation Officials' Guide for Development of New Bicycle Facilities, dated October 1991.

These standards are intended to provide appropriate guidance for the design and construction of bikeways within the right-of-way of streets and roads under the maintenance jurisdiction of public agencies within the County. They shall also apply as minimum requirements to all new development in Douglas County where bikeway facilities are proposed or required by the governing authority.

The following constitute supplements and exceptions to the October 3, 1983 edition of the "Guide for Development of New Bicycle Facilities".

Signing and Marking

1. All bicycle signing and markings shall be in conformance with the signing and markings as shown in Figure 7 in Appendix to the Plan. Any signing or markings not shown in these drawings, but which is deemed necessary and required for the bicycle facility, shall conform to the Manual on Uniform Traffic Control Devices as adopted by the Oregon Transportation Commission.
2. The standard width longitudinal painted solid line separating the vehicle travel way and a shoulder bike lane shall be as required by OAR 734-20-055.
3. The desirable width for a one-way bike lane is six feet. Where six feet is not practical to achieve because of physical or economic constraints, a minimum width of four feet may be designated as a bicycle lane.

Definitions

For purposes of this rule and the Guide, the definitions on page two of the Guide shall control, rather than any conflicting statutory or rule definitions. Terms not defined in the Guide shall be given their ordinary everyday interpretation, even if defined otherwise for use in specific chapters in the Oregon Revised Statutes.

Oregon Law

In addition to the standards defined above, certain provisions of the Oregon Revised Statutes establish minimum construction standards for facilities related to bikeways. These statutes are listed below:

327.043	State Financing of Elementary and Secondary Education
366.460	Construction of Sidewalks, Bicycle Paths, Footpaths, or Horse Trails
447.310	Standards for Curbing - Curb Cuts
483.552	Definitions - Public Way, Street Drain
483.556	Construction Guidelines

Additional statutory provisions regarding bicycles and bicycling are discussed in the Bicycle Laws and Legislation chapter of this Plan.

74. The design of bikeway improvements in Douglas County shall, in general, conform to standards set forth in the American Association of State Highway and Transportation Officials' Guide for Development of New Bicycle Facilities, dated October 3, 1991.

75. These standards are intended to provide appropriate guidance for the design and construction of bikeways within the right-of-way of streets and roads under the maintenance jurisdiction of public agencies within the County. They shall also apply as minimum requirements to all new development in Douglas County where bikeway facilities are proposed or required by the governing authority.

BIKEWAY OPERATION AND MAINTENANCE

In order to achieve a practical and effective Bikeway System, the costs involved with its operation and maintenance should be considered and budgeted for in the planning stages. Neglected maintenance will render a bicycle facility unrideable, and the facility will become a liability rather than an asset.

Roads and highways with bicycle traffic often require a higher level of maintenance than other highways. Debris such as glass, sand, and bark accumulate in areas where bicyclists ride and must be regularly swept. The roadway pavement surface must be kept free from potholes and other irregularities, and the pavement edges should be held uniform. Trees, clearances and sight distances, and signs and pavement markings should be inspected regularly and kept in good condition.

After the establishment of each bikeway in Douglas County, an effort should be made to determine actual annual maintenance costs required to keep it in a safe and enjoyable condition for the user.

Jurisdictions responsible for bikeways identified in this Plan should budget sufficient funds each year from available bikeway revenues to accomplish the annual maintenance of all bikeways under their jurisdiction.

It is anticipated that once the system envisioned by this Bikeway Master Plan is fully implemented, most, if not all, of the bikeway revenues from State gasoline tax will be spent on operation and maintenance of the system. This will mean that future construction of bikeways by Douglas County will have to be funded through State and Federal grants or by local funds. The appendix contains a listing of projects suggested to improve the County's Bikeway System.

76. Roads and highways with bicycle traffic often require a higher level of maintenance than other highways.
77. Neglected maintenance will render a bicycle facility unridable, and the facility will become a liability rather than an asset.
78. Once the system envisioned by this Bikeway Master Plan is fully implemented, most, if not all, of the bikeway revenues from State gasoline tax will be spent on operation and maintenance of the system.

BICYCLE SAFETY EDUCATION

Bicycle safety education is a continual process. Currently the bicyclist learns from friends, parents, and an occasional visit by a police officer to the school. There seems to be no structured educational program that is positive for the bicyclist. No organized bicycle safety education program to broaden the rider's knowledge and skill exists in Douglas County.

SCHOOLS

The existing bicycle education programs in Douglas County are primarily taught by law enforcement officers at the invitation of area schools. This type of education has not been conducted on a regular basis. A class may be conducted one year, but not the following year. In addition, each school has its particular way of instructing this material with no consistency between schools. Presently, the Sheriff's Department only offers bicycle safety instruction at the invitation of the County's schools.

School District No. 4, Roseburg, is currently implementing a "Health Safety Program". Bicycle safety will be one of the topics of this Program, which will be taught in the first through sixth grades. In addition, bicycle safety is presently part of the curriculum at schools in both Sutherlin and Winston. By working with one of these school districts, it may be possible to implement a good instructional format that can be introduced into the other school districts in the future. The County is interested in assisting these districts in the development of such an educational program which can be used on an ongoing basis throughout the area.

PARENTS

The majority of the parents consider a bicycle a toy for their child. This concept needs to be changed to a recognition of the bicycle as a means of transportation. Rarely is age considered in the decision of purchasing a bicycle. A parent will not let a child walk to school, but will allow the child to ride a bicycle after school unsupervised. Frequently, children receive bicycles before they are mentally or physically prepared to properly ride them. Reaching this prime influence group can be achieved through school handouts and child education.

MAINTENANCE

Riders need to become familiar with their equipment. Properly functioning equipment will promote better bicycling.

SPECIAL PROGRAMS

A special campaign to promote Douglas County bicycle routes can be implemented through public service messages, television, radio, newspapers and poster campaigns. Each time a new area is opened for bicycles, the basic campaign information should be provided to the news media. As part of this campaign, bicycling needs to be stressed as a mode of transportation as well as a form of recreation.

Use of bike path signs along designated bikeways will increase public awareness - particularly operators of motor vehicles - of the possibility of bicyclists in the area.

LAW ENFORCEMENT

Law enforcement is a necessary component of bicycle safety. Stricter enforcement can limit both intentional and unintentional infractions. As with any law, lack of enforcement leads to a general disregard of the law. Local police officers should be willing to enforce the motor vehicle code with bicyclists and motorists.

The mobility of a bicycle and lack of a system of identification, such as license plates, is a deterrent to enforcement. Patrol vehicles do not move through traffic, across sidewalks, and down one-way streets as well as bicycles. This can be corrected in the future by educating the cyclist.

At this point, the court system seems adequate to handle the violations. The County's size and decentralized nature discourages a bicycle court concept.

SAFETY EDUCATION PROGRAM

A comprehensive bicycle safety education program is badly needed in Douglas County. An effective program of this type should be developed which incorporates all of the topics discussed in this chapter. Such a program would be a significant aid in the education of cyclists and contribute to a decrease in the number of accidents.

79. An organized bicycle safety education program to broaden the rider's knowledge and skill is needed in Douglas County.
80. The existing bicycle programs in Douglas County are primarily taught by law enforcement officers at the invitation of area schools.
81. The majority of parents consider a bicycle a toy for their child. This concept needs to be changed to recognition of the bicycle as a means of transportation.
82. Reaching parents can be achieved through school handouts and child education.
83. Riders need to become familiar with their equipment. Properly functioning equipment will promote better bicycling.
84. Use of the bike path sign along designated bikeways will increase public awareness - particularly operators of motor vehicles, of the possibility of bicyclists in the area.

85. Law enforcement is a necessary component of bicycle safety. Stricter enforcement can limit both intentional and unintentional infractions. As with any law, lack of enforcement leads to a general disregard of the law. Local police officers should be willing to enforce the motor vehicle code with bicyclists and motorists.²³
86. At this point, the court system seems adequate to handle the violations. The County's size and decentralized nature discourages a bicycle court concept.
87. A comprehensive bikeway safety education program should be developed as a means of promoting safe bicycling in Douglas County.

BICYCLE LAWS AND LEGISLATION

LAWS

Douglas County utilizes the Oregon Revised Statutes (ORS) in its regulation of bicycles and their use in the County. No additional regulation has been adopted which further addresses this topic. A summary of Oregon laws regarding bicycles and bicycling follows:

- Bicycle riders must know and obey the rules of the road except those which cannot apply to bicycles. Bicyclists have the same rights and duties as drivers of motor vehicles. Both bicyclists and drivers need to know these rules.

Equipment

- Bicycles must have a brake so the rider can make the braked wheels skid on dry, level, clean pavement (ORS 483.549)

²³IBID, p. 189

- Sirens or whistles are not allowed on a bicycle (ORS 483.549)
- At night or when people or vehicles are not clearly seen at least 500 feet ahead, the bicycle, or its rider, must have a headlight visible 500 feet to the front. A red reflector or red light, large enough and mounted on the rear so that it can be seen from all distances up to 600 feet when directly in front of headlights on low beam, is also needed. (ORS 483.549)
- A parent or guardian may be cited for knowingly letting a child ride a bicycle that is not legally equipped. (ORS 483.547)

Riding Rules

- Bicyclists must ride on or astride a permanent and regular seat attached to the bicycle (ORS 487.760)
- No more people may ride on a bicycle than it is built or equipped to carry. (ORS 487.760)
- A rider must have at least one hand on the handle bars with full control of the bicycle at all times. (ORS 487.760)
- Bicyclists shall not ride more than two abreast. (ORS 487.765)
- Bicyclists shall use care when passing a standing or moving vehicle headed in the same direction as the bicyclist. (ORS 487.765)
- Bicyclists shall keep to the right of the road, except on one-way roads in cities where they may ride either to the extreme left or right as close as possible to the side. (ORS 487.765)
- If a bicycle lane or path near a road is available, the bicyclist shall use the path or lane and shall not use the roadway if it is safe for bicycling at a reasonable speed. (ORS 487.765)

Right-of-Way

- Drivers of motor vehicles are not to drive on a bicycle lane except when making a turn, entering or leaving an alley, private road or driveway, or when necessary as an official duty, such as delivering the mail. (ORS 487.770)
- Farm equipment may briefly pull into a bike lane to allow other traffic to go around this slow-moving equipment. (ORS 487.770)

- Drivers turning across or on a bicycle lane must yield to bicycles in bicycle lanes. (ORS 487.770)
 - Bicycle lanes do not continue through intersections.
 - Drivers of motorized vehicles are not to drive or park on a bicycle path which has provided for exclusive use of bicyclists. (ORS 487.775)
 - Bicyclists riding on sidewalks shall audibly warn pedestrians before passing them and shall yield right-of-way to all pedestrians. (ORS 487.785)
 - Bicyclists may use any highway or throughway except where specifically prohibited. (ORS 487.870)
88. Douglas County utilizes the Oregon Revised Statutes in its regulation of bicycles and their use in the County. No additional regulation has been adopted by the County which further addresses this topic.
 89. Bicyclists must know and obey the rules of the road except for those which cannot apply to bicycles.
 90. Bicyclists have the same rights and duties as drivers of motor vehicles.
 91. There are additional rules which apply to bicyclists.

LEGISLATION

Both the Federal Government and State of Oregon during the past ten to fifteen years have recognized the significance of bicycling by enacting various Bills and other legislative rules relating to this activity.

Federal

An Overview of Federal Bicycle Legislation since the spring of 1978 is as follows:

National Energy Conservation Policy Act: Part E, Sec. 299: Directs the Secretary of Transportation to complete a study of the energy conservation potential of bicycle transportation.

Clean Air Act Amendment of 1977: Provides for employer participation in programs to encourage bicycling, bicycle storage facilities, bicycle lanes, and other facilities for the convenience and protection of bicyclists.

Bikeway Transportation Act, 1977: Authorizes allocation of \$45,000,000 in grants (80/20) match for the construction of bikeways.

Federal Transportation Act, 1977: To encourage the multiple use of rights-of-way including the development, improvement and use of rights-of-way for bicycle transportation.

American Youth Hostel Act 1976: To provide funds to renovate existing structures for the use as youth hostels to further the development of a national youth hostel system and increase the opportunity for outdoor recreation and educational travel.

Surface Transportation Assistance Act of 1977: Provides assistance for development of forest, public land and park trails. Also, clarifies the Federal share of highway funding. Raises the Federal share of Highway Safety (402) Program funds from 70% to 90%.

National Trails Act Amendment: To amend the National Trails System Act to authorize a feasibility study for the establishment of certain bicycle trails.

National Park Service Transportation Act: To encourage use of transportation modes other than personal motor vehicles for travel to and in national parks.

State of Oregon

The Oregon Legislature has also enacted major legislation regarding recreation trails and more particularly bike trails. The passage of the Oregon Recreation Trails System Act of 1971 was a significant milestone in Oregon regarding the importance of a state trails system. The purpose of the Act is to establish a state trails system for hiking, horseback riding, and bicycling. The law emphasizes the need to provide trails where people are, in and near the cities. Responsibility for carrying out the provisions of the Act was assigned to the Oregon Department of Transportation. The Oregon Recreation Trails Advisory Council, an eight member citizens' group appointed by the Governor, advises the Commission in the administration of the Act. Administration is handled in the Parks and Recreation Division of the Department of Transportation by a Recreation Trails Coordinator.

The 1971 Oregon Legislature, recognizing a need to provide facilities for both pedestrians and cyclists, enacted legislation creating the first state-funded bikeway and footpath program in the nation. The legislative action, commonly referred to as the "Bicycle Bill" requires that bikeways or footpaths be established as part of all highway projects except where the establishment of such facilities would be contrary to public safety, disproportionate in cost to the need in probable use, or where sparsity of population, other available ways, or other factors indicate an absence of any need or probable use. This action applies to cities and counties as well as the state.

Basically, the Bill requires that not less than one percent of the funds received each year by the Oregon Department of Transportation, or by any city or county from the State Highway Fund, shall be expended to establish footpaths and bicycle trails along newly constructed, reconstructed, or relocated highways. Funds received from the State Highway Fund may also be expended to maintain such footpaths and trails and to establish

footpaths and trails along other highways, roads and streets and in paths and recreation areas.

The primary objective of this Bill is to provide a system of bikeways to serve the needs of those wishing to ride bicycles as an alternative to traveling by automobile or public transportation to work, school, shopping, or for recreation.

92. Both the Federal Government and State of Oregon during the past ten to fifteen years have recognized the significance of bicycling by enacting various Bills and other legislative rules relating to this activity.
93. The Oregon Recreational Trails System Act of 1971 established a State trails system for hiking, horseback riding, and bicycling.
94. In 1971, the Oregon Legislature enacted the "Bicycle Bill" which requires that bikeways or footpaths be established as part of all highway projects except where the establishment of such facilities would be contrary to public safety, disproportionate in cost to the need in probable use, or where sparsity of population, other available ways, or other factors indicate an absence of any need or probable use.

GOALS, OBJECTIVES AND POLICIES

The Goal and Objectives for the Bikeway Plan were developed in the initial stage of work by the Bikeway Plan Steering Committee. The Objectives were intended to generally establish the scope of this planning effort and the intent of the County with respect to future cycling in this area. As development of the Plan progressed, these Objectives were refined to better reflect the task before the Committee. In addition, Policies were developed to provide more specific direction and to elaborate upon the Goal and Objectives of the Bikeway Plan.

The Objectives and Policies listed below are intended to establish a clear statement of the County's intent with respect to the Oregon Bicycle and Pedestrian Plan and the implementation of the County's Goal of providing and encouraging a safe, convenient and efficient bikeway network throughout Douglas County. The following goals and policies were drafted as part of the original Bikeway Master Plan. Most plans are fluid and change from the original adoption form. The current goals and policies are found in the Transportation Element of the Comprehensive Plan.

GOAL: To provide a safe, convenient, and efficient bikeway network for Douglas County which addresses both transportation concerns and recreation needs.

OBJECTIVE A: To develop a system of bikeways throughout the County which meets the needs for all types of users consistent with the demand for each.

POLICIES:

1. Bikeways shall be provided which satisfy recreational needs - both long distance and local.
2. Bikeways shall be provided which satisfy utilitarian needs by connecting major residential areas to major activity areas (recreational, employment, institutional, commercial) within the County.
3. Strong emphasis shall be placed on providing bikeways which satisfy both recreational and utilitarian needs.
4. Bikeways shall be provided which connect communities within the County.
5. Bikeways shall be provided which are capable of serving the needs of secondary users such as joggers and hikers.
6. Emphasis shall be placed on providing bikeways which satisfy recreational needs over utilitarian needs particularly in the less densely populated portions of the County.
7. The need for short distance bikeways in the County's urban unincorporated areas should be assessed and, as appropriate, the Plan amended to accommodate identified needs.
8. This Bikeway Plan should be periodically reassessed to ensure its consistency with identified needs is maintained.

OBJECTIVE B: To designate specific, cost efficient, bikeways in the unincorporated portions of the County which satisfy the needs of each bicycle user group.

POLICIES:

1. In the designation of specific bikeway routes, safety, cost of route construction and potential usage both by cyclists and other users shall be the primary criteria.
2. In instances where more than one route in an area would serve an identified need, the criteria used in selection of the most appropriate route shall include (in addition to safety, cost of construction and potential usage) directness, continuity, grade(s) and aesthetic quality of the route and frequency of required stops.
3. Emphasis shall be placed on designation of Class III and Class IIIs bikeways where practicable due to the high cost of constructing Class I and relatively undesirable aspects of Class II bikeways.
4. the designation and construction of Class II bikeways shall be discouraged due to the dangerous interface they create between cyclists and motor vehicles.

OBJECTIVE C: To provide a system of bikeways which is coordinated with other jurisdictional bikeway plans.

POLICIES:

1. The County shall coordinate with other jurisdictions and agencies to ensure

development of routes which are continuous across jurisdictional boundaries and which serve the needs of all Douglas County residents.

2. The County shall coordinate the designation and improvement of bikeways within urban growth boundaries with the affected cities.

OBJECTIVE D: To encourage safe bicycling and a safe bikeway system throughout the County.

POLICIES:

1. The County shall develop a comprehensive bicycle safety education program.
2. Safety shall be a primary consideration in designation of bikeways, particularly those intended primarily for short distance recreational and school use.
3. The County shall, within its means, assist school districts in the establishment of an ongoing bicycle safety education program.

OBJECTIVE E: To develop a set of standards for bikeway development and establish a system for prioritization of bikeway construction.

POLICIES:

1. All bikeways designated in this Bikeway Plan shall be developed to meet the appropriate County Bikeway Improvement Standards.
2. All Class III bikeways (excluding Class IIIs) shall ultimately include full Class III improvements including land striping. However, to allow phasing of development of this Plan, signing of Class III bikeways shall take place as soon as a route meets minimum standards for signing, its construction is practicable, and the route is considered safe for use.
3. To facilitate the use of Class I bikeways by joggers, such bikeways, where feasible, should be constructed with a maximum 2% cross slope.
4. The State of Oregon Department of Transportation is encouraged to appropriate bikeway improvements on highways and roads under their jurisdiction (and within their maintenance system) as improvement projects are conducted on designated county bikeways.
5. The State of Oregon should include in their Six Year Improvement Program provisions for implementation of County bikeway designations on State highways selected for improvement, construction or reconstruction.
6. The County shall develop a program of capital improvements for designated bikeways on the County maintained road system.
7. Funds for development of bikeways should be expended throughout the County consistent with other considerations.
8. Bikeways which presently receive or are anticipated to receive upon improvement a high level of use should be improved prior to those which presently receive or are anticipated to receive lower levels of use

9. Emphasis shall be placed on timely use of available County bikeway funds in cooperation with other agencies proposing to construct bikeways which fall within the jurisdiction of both agencies.
10. Emphasis shall be placed on improvement of locations along designated bikeways which have been identified as high accident locations.
11. In instances when a designated bikeway may be improved as part of scheduled improvements to a roadway at a cost significantly less than the cost of improving the bikeway independently, the bikeway should be improved as part of the roadway improvements.
12. No bikeway shall be signed, striped, or otherwise physically improved so as to indicate it is available for or encouraged to be used by bicyclists until such time as the entire route or a logical segment of its meets County Bikeway Improvement Standards.
13. In the event that development of a Class I or III bikeway is impractical, a Class II bikeway may serve to implement designations of this Plan.
14. In maintenance of County roads, an emphasis should be placed on those roads which also have been designated as bikeways by this Plan.
15. After the establishment of each bikeway in Douglas County, an effort should be made to determine actual maintenance costs required to keep it in a safe and enjoyable condition for the user.
16. Jurisdictions responsible for bikeways identified in this Plan should budget sufficient funds each year from available bikeway resources to accomplish the annual maintenance of all bikeways under its jurisdiction.
17. Federal agencies should include within their respective land use programs the provision for implementation of bikeways designated by this Plan which are within their jurisdiction.
18. New points of vehicular access to roads which have been designated as bikeways shall, as practicable, be minimized.

SUPPORTIVE TEXT

HISTORY OF BICYCLING

The bicycle was invented in 1816 when Baron Karl Von Drais of Germany constructed his two-wheeled vehicle out of scrap lumber. It has no pedals or gearing mechanism of any kind. The two wheels were connected by a wooden framework with a saddle mounted between the wheels. In order to propel himself, the Baron simply straddled the seat and pushed along the ground with his feet.



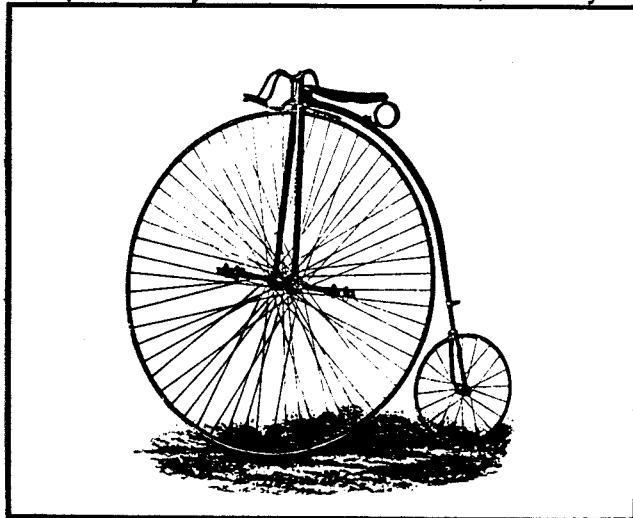
Karl von Drais, the father of the bicycle, astride his Draisine. From an original sketch

Twenty years later, a Scotsman named Kirkpatrick Macmillan built a similar vehicle, but he added pedals to the front wheels and was able to propel himself without touching the ground with his feet.

Other bikes of various designs were developed, with pedals and crank rods also connected to the front wheel, similar to today's tricycles. Others used shuttle-type pedals, which operated connecting rods that turned the rear wheel, somewhat like old-time steam

and piston locomotives. But with no drive chain, toothed cogs or gearing mechanisms, speed was limited since the rider had to make one full turn of the pedals for each revolution of the wheel.

Despite many obvious limitations, the bicycle fad spread throughout Europe. In 1869, the



The Columbia Light Roadstar of the first type made in America. By Colonel Albert A. Pope in 1878 at Hartford, Connecticut.

first "velocipedes" were introduced in the United States. Called "boneshakers", they had wooden wheels, steel rims, and rigid frames. Although these bicycles cost about \$300, they soon became a social phenomenon. However, they were not popular with everybody. They rattled down the streets spooking horses, enraging dogs, and generally disturbing the peace. Some people considered the bicycle a dangerous nuisance. Special police were often employed to pursue the two-wheeled monsters.

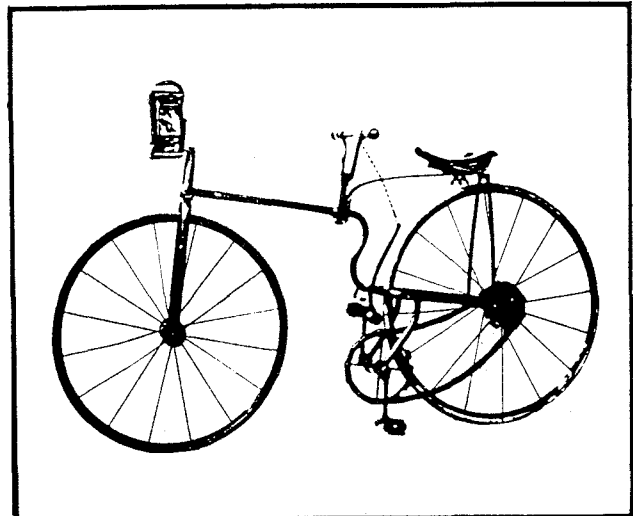
Bicycle improvements developed rapidly during the next several years.

Someone determined that the larger the front wheel, the greater the distance that could be covered with each turn of the pedals. Thus, the classic high-wheeler, called the "ordinary", came into being. The "ordinary" pioneered several improvements, including wire-spoke wheels which replaced wooden wheels, solid rubber tires which replaced steel ones, and ball bearing hubs.

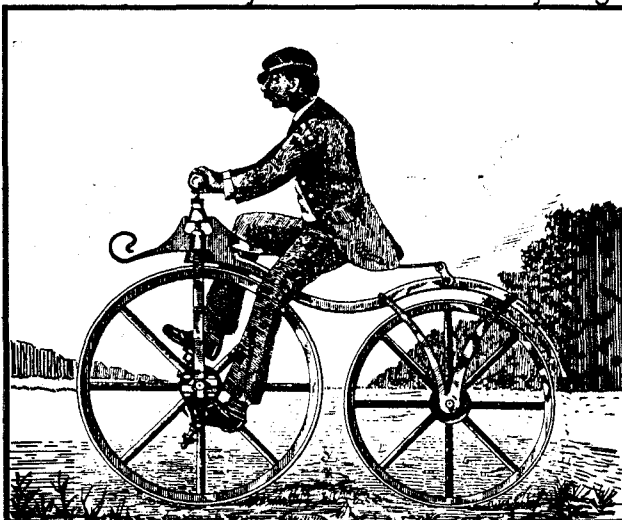
This particular bike was often referred to as the "skullcracker". The front wheel often was more than five feet in diameter, while the rear wheel was about one foot in diameter. The rider had to be tall to reach the pedals, so his head was usually about nine feet above the ground. If the cyclist lost his balance, most often he was in trouble. Yet a skilled rider could travel about twenty miles per hour on a high-wheeled "ordinary". It was still in use through the early 1900's, racing, wobbling, and flopping all over the landscape.

By 1890, a new small-wheeled, chain driven bike called a "safety" was produced in both Europe and America. The "safety" was produced in both Europe and America. The "safety" had moderate-sized wheels of equal diameter. The cranks and pedals were mounted on the bike frame instead of on the front wheel. A forward sprocket was connected by a chain to a smaller rear sprocket. In effect, this formed a geared transmission whereby a single revolution of the pedals translated into several rotations of the wheel. In turn this produced more speed and distance for the same amount of effort.

The second major revolution in bicycling



Shevgold 'safety' bicycle, 1878, with longlink drive chain, a forerunner of the Diamond-Block and Roller types.



"Improvement in Velocipedus." Pierre Lallement on his 1866 velocipede with flat, weighted pedals.

occurred in 1889 when John B. Dunlop of Ireland invented the air-inflated pneumatic tire. Once pneumatic tires began to be mass produced, no other covering was ever put on bicycle rims, as was later true of automobiles.

The "safety" bicycle with its small wheels and low center of gravity was easy to ride and very stable. It was easy to learn to use. Soon it replaced all other types and became popular with women as well as with men.

During the last decade of the nineteenth century, the bicycling fad in the United States and abroad reached new

peaks. The bicycle became a way of life. People were not staying home. They were spending parts of their food budgets to buy the more expensive bicycles. Merchants began to worry that funds were not being spread evenly due to the fact that everybody wanted to purchase a bicycle. By the mid-1890's there were

four hundred bicycle manufacturers in the United States. They produced about two million bikes a year, an impressive number considering that the population was less than a third of what it is today.

At the turn of the century, when the term bicycle came into use (a combination of the Latin prefix "bi", meaning two, and the Greek word "kyklos", wheel), practically everyone - young and old, large and small - was bicycling. Clubs were formed for group pleasure as well as for group defense against opponents to cycling.

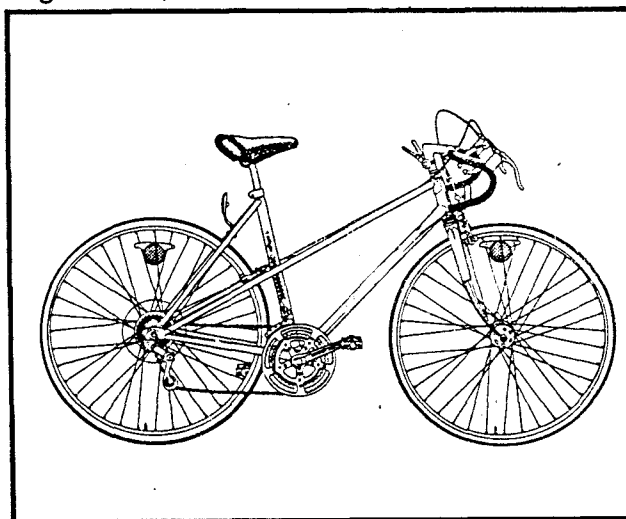
One of the first such cycling organizations was the League of American Wheelmen (LAW), formed in 1880 and still active as a nationwide fraternity of bikers who promote "pedal power". Other groups are also presently active throughout the United States who promote cycling safety and foster ecologically beneficial biking procedures.

In the early 1900's the bicycle boom began to decline as the use of the automobile increased. The two-wheeler quickly became relegated to the status of a child's toy.

For the next several decades the bicycle remained a simple, single-speed, coaster-brake vehicle. Then, during World War II, American servicemen in Europe became acquainted with the so-called English racer. These bikes were much lighter than those available in the United States. The Europeans had also perfected a three-speed hub, which could be shifted in a low gear for hill climbing and a high gear for accelerating downhill. As these bikes were introduced in the States, a renewed interest developed in cycling.

Other countries were refining the bicycle further. Hand brakes began to replace coaster brakes. Derailleur gearshifting systems of five, ten and fifteen speeds were developed. A Derailleur, the French word for gearshift, is a device which shifts the bike chain from one set of sprockets, both front and rear, to another.

During the past forty years, the development of the bicycle has become a history of refinement, culminating in today's highly efficient machines, which are as good to look at as to ride. Today, there are available a variety of bicycles for every need and use. Some of these are designed to go almost anywhere. Continued improvements through modern technology will help to ensure the future popularity of the bicycle, which has been in evidence during the past one hundred fifty plus years.



A popular, modern, twelve speed, medium weight bicycle.

Bicycle Usage

QUESTIONNAIRE

To assist in determination of the characteristics of bicycle ridership in Douglas County and the consistency of this ridership with the generalized information presented in the preceding chapter, questionnaires were distributed to all schools, parent-teacher organizations (PTO's), cities, planning advisory committees (PACs), major employers (those with 50 or more employees), cycling and track clubs in the County. (See the Appendix for copies of these questionnaires.) A total of 177 questionnaires were mailed. Ninety questionnaires were sent to schools and PTO's , 52 to major employers, 29 to cities and PACs, and 6 to bicycle and track clubs. In all, 73 questionnaires were returned, or 42 percent of those mailed. This information is depicted on Figure 1, which follows.

The specific intent of the questionnaires was to determine the following:

- Which user groups presently ride bicycles and which would ride bicycles if an adequate bicycle system were provided.
- The relative importance of each type of trip or user group (i.e., recreational trips, school trips, trips to and from work and neighborhood circulation trips).
- Which class of bikeways do the bicycle riders prefer: Class I, Class II, or Class III. (These class types are defined in the Definitions section of the Appendix to this Plan.)
- The relative importance of various criteria in the selection of bikeway routes.
- The identification of major bicycling destinations, roads on which there are high volumes of bicycle traffic and hazards to safe cycling.
- Priorities for bikeway construction.

The responses to the questionnaires are included in this and the following chapter of this Plan. A tabular summary of the results is included in the Appendix.

APPENDIX

DEFINITIONS

- BICYCLE** - A device propelled by human power upon which any person may ride, having two tandem wheels either of which is more than 14 inches in diameter, or having three wheels, all of which are more than 14 inches in diameter (ORS 481.004).
- BICYCLE FACILITIES** - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, maps, all bikeways, and shared roadways not specifically designated for bicycle use.
- BICYCLE LANE** - A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists allowing one-directional bicycle traffic only, flowing with motorized traffic. A Bicycle Lane is a Class III Bikeway.
- BICYCLE PATH** - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. A Bicycle Path may be either a Class I or Class II Bikeway.
- BICYCLE ROUTE** - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers. A Bicycle Route is a Class IIIs Bikeway.
- BIKEWAY** - Any road, path or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.
- CLASS I BIKEWAY** - A separate trail for joint use of bicyclists and pedestrians. It may be entirely independent of other transportation facilities.
- CLASS II BIKEWAY** - A bikeway that is adjacent to the travel lane of motorized traffic, but provides a physically separated through lane for bicycles and pedestrians.
- CLASS III BIKEWAY** - A bikeway that shares the roadway with motor vehicles. Routes are designated only by signing, striping and other visual markings. A Bicycle Lane is a Class III Bikeway.
- CLASS IIIs BIKEWAY** - A Class III bikeway which is signed only. A Bicycle Route is a

Class IIIs Bikeway.

HIGHWAY - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

RIGHT-OF-WAY - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

RIGHT-OF-WAY - The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian.

ROADWAY - The portion of the highway, including shoulders, for vehicle use.

SHARED ROADWAY - Any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

SIDEWALK - The portion of a highway designed for preferential or exclusive use by pedestrians.

Bicycle Route Analysis
Listing of Identified Deficiencies

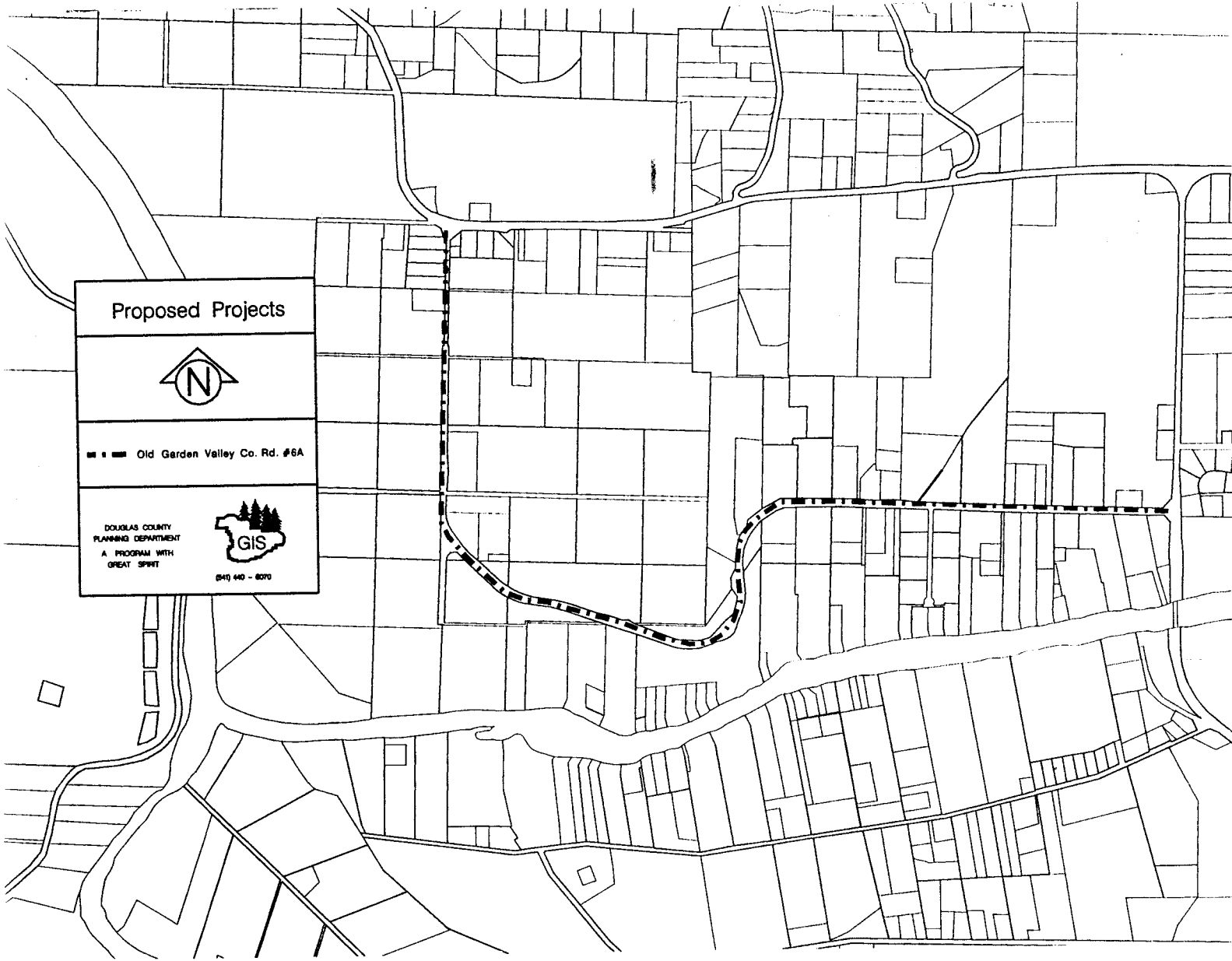
A majority of bikeways through out Douglas County are Class IIIs. The design standards for bikeways identify the desirable width for a one-way bike lane is six feet. Where the six feet is not practical to achieve because of physical or economic constraints, a minimum width of four feet may be designated as a bicycle lane.

Class IIIs Bikeways exist on roads with paved shoulders where the paved shoulder is at least four feet wide. On higher volume roadways a six foot paved should is a desirable width. Any roadways that are reconstructing should include shoulders widened to a minimum of six feet though out the County Roadway System.


The following is a listing of projects suggested to improve the County's Bikeway System:

	Project	Description	Cost	Anticipated Timing
1	Old Garden Valley	County Road #6a	\$ 300,000	Construction Year 1997
2	Wilbur Winchester	County Road #388	\$ 700,000	Construction Year 1999
			\$ 1,000,000	
3	Glide Loop	County Road #4G	\$ 500,000	Construction Year 1998
			\$ 500,000	
4	Tiller Trail Highway	County Road #1	\$ 20,000,000	Construction Years 1999-2009
5	South Pacific Highway	County Road #386	\$ 10,000,000	Construction Years 2000-2005
6	Main Street Canyonville	County Road #1	\$ 500,000	Construction Year 2003
			\$ 30,500,000	
Grand Total			\$ 32,000,000	

PROPOSED PROJECTS (NORTH COUNTY AREA)




Proposed Projects

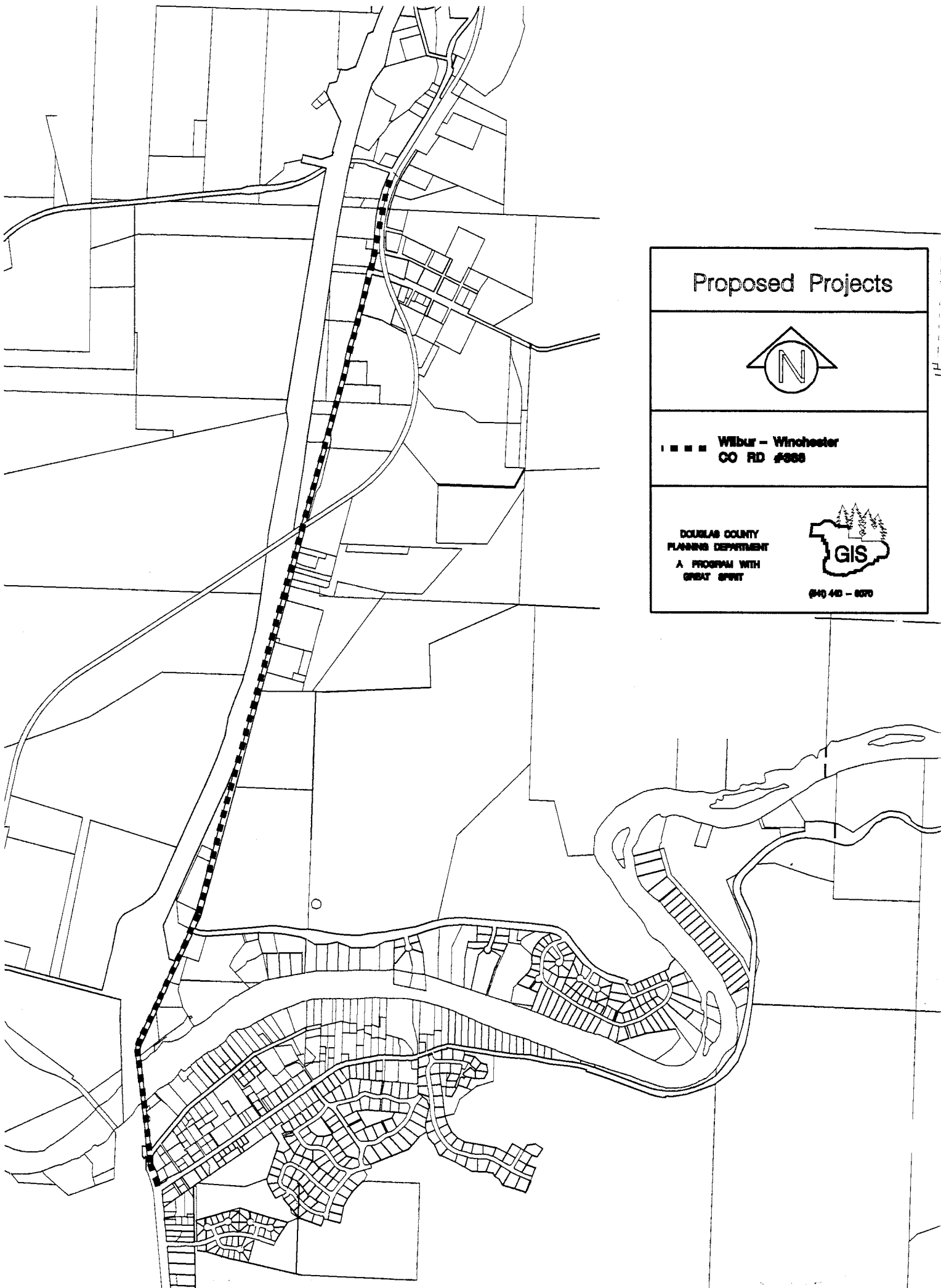


--- Old Garden Valley Co. Rd. #6A

DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT



847 440 - 8270



Proposed Projects



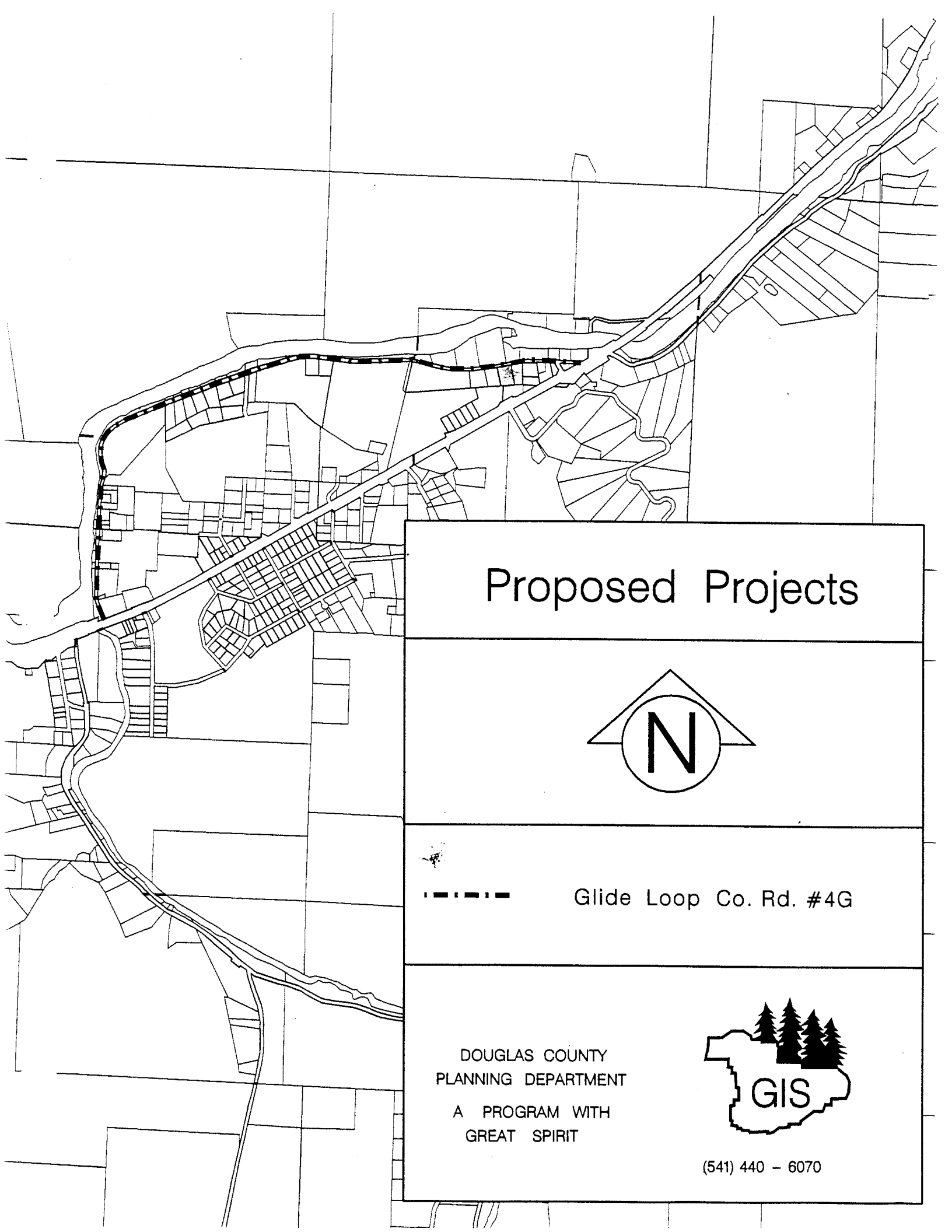
■ ■ ■ ■ Wilbur - Winchester
CO RD #388

DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT

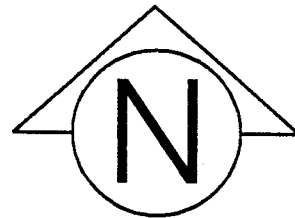


(940) 442 - 8870

PROPOSED PROJECTS (EAST COUNTY AREA)



Proposed Projects



Glide Loop Co. Rd. #4G

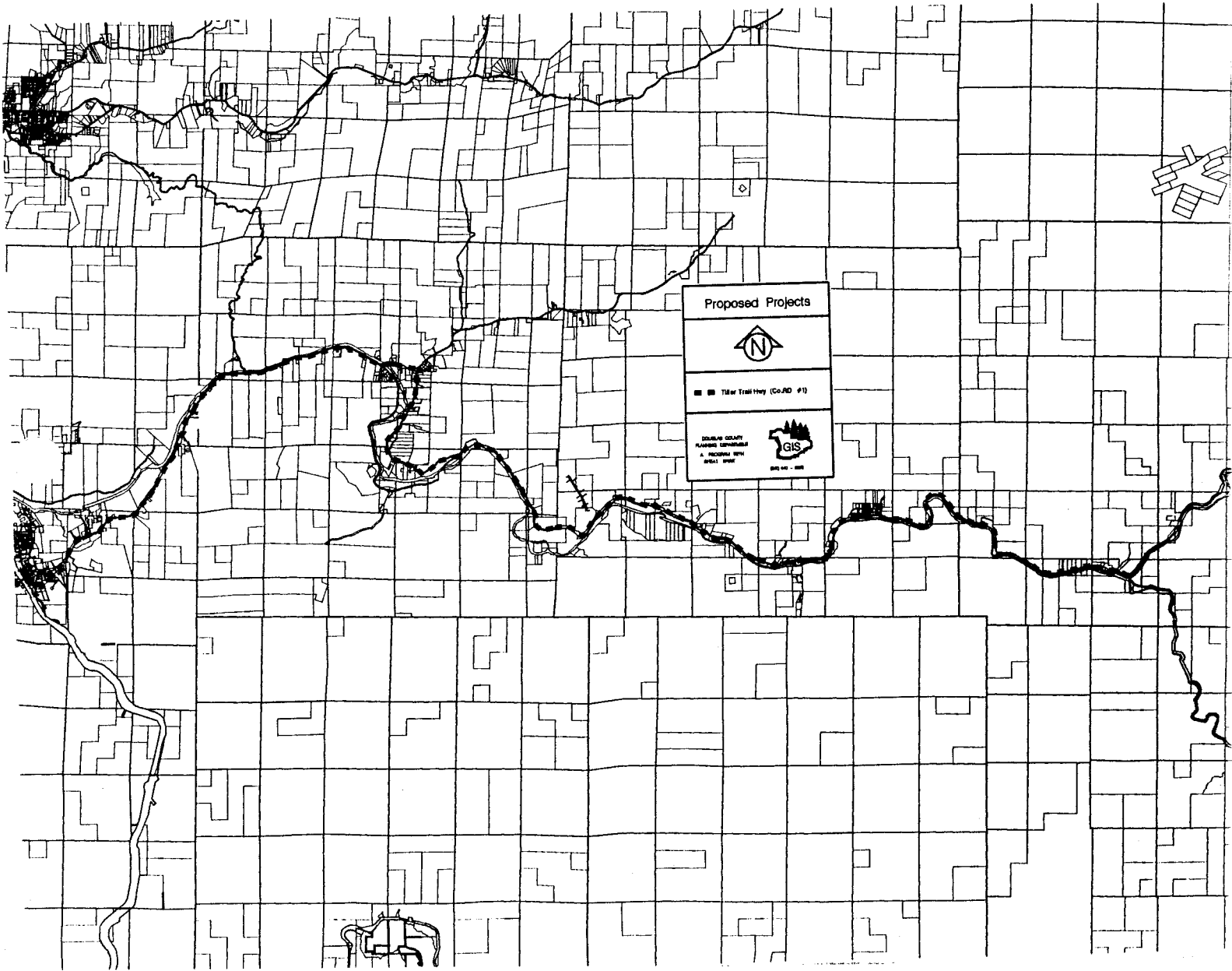
DOUGLAS COUNTY
PLANNING DEPARTMENT

A PROGRAM WITH
GREAT SPIRIT




(541) 440 - 6070

PROPOSED PROJECTS (SOUTH COUNTY AREA)




Proposed Projects



■ Tular Trail Hwy (Co RD #1)

SUTTER COUNTY
PLANNING DEPARTMENT
A REGIONAL SERV
BUREAU
2004 - 2005



BIKEWAY QUESTIONNAIRES

Four different questionnaires were used as part of the bikeway survey. This allowed for tailoring of the questionnaire to the interests and concerns of the various groups which were surveyed. The groups which received the same questionnaires are as follows:

- schools and parent-teacher organizations (PTOs)
- cities and planning advisory committees (PACs)
- cycling and track clubs
- major employers

Approximately 2/3 of the questions asked in each of the first three questionnaires were the same. The standard questions are outlined in the Bicycle Usage chapter of this Plan. The types of questions included which varied according to the group to which it was sent dealt with such specific topics as:

- school enrollment and ridership
- availability of bike racks
- months of bicycle ridership
- club membership
- preferred surfaces (for jogging)
- need for support facilities
- number of employees and estimated commuter cycling

The fourth questionnaire (which was sent to major employers) was more limited in its scope. This questionnaire was specifically concerned with the number of employees and percent who bicycle to work and the number of employees who would bicycle to work if adequate bikeways were provided.

A copy of the questionnaire distributed to cities and planning advisory committees follows. This questionnaire is considered to be most representative of the four types. Copies of the other three questionnaires are available for review at the County Planning Department.

DOUGLAS COUNTY
TRAFFIC SAFETY COMMISSION

3/13/82
P

SAFETY SIMON DOUGLAS COUNTY BIKEWAY PLAN

Questionnaire

Name of group or agency: _____

1. The Bikeway Steering Committee is proposing that the following Goal and Objectives be adopted and used as a guide for development of a Bikeway Plan for Douglas County. Please add any additional Goals or Objectives which you feel should guide the development of this Plan. Place a check mark within the parentheses next to each Goal and Objective (including any which you added to the list) which best reflects the importance of each.

Goal	Importance of Goal(s) & Objectives		
	Very Important	Important	Not Important
To provide & encourage a safe, convenient, & efficient bikeway network for Douglas County which addresses both Transportation concerns & Recreation needs.	()	()	()

Additional Goals (please list)

	Objectives Importance of Goal(s) & Objectives		
	Very Important	Important	Not Important
To develop a system of bikeways which meets the needs for all types of cycling consistent with the demand for each.	()	()	()

To consider secondary uses such as walking, jogging and other recreational uses for the bikeway system.	()	()	()
To develop a system of bikeways in the unincorporated portions of the County which is coordinated with bikeway plans for the jurisdictions in the area.	()	()	()
To develop a comprehensive bicycle safety program.	()	()	()
To develop a set of standards for bikeway construction.	()	()	()
To develop a list of priorities for bikeway construction.	()	()	()

Additional Objectives (please list)

2. Please rank the following types of bicycling trips by their relative frequency in your area. Rank each type from 1 to 5 (1 being the most frequent type of bicycling trip, 5 being the least frequent type of bicycling trip).

Types	Ranking
School Trips	()
Commuter trips	()
Recreational trips where the objective is to reach a specific destination	()
Recreational trips where bike riding is the objective	()
Neighborhood circulation trips (e.g., shopping, visiting friends, etc.)	()

3. Bikeway facilities are generally divided into three classifications according to the degree to which they are physically separated from motor vehicle traffic. These classifications are listed below:

"Class I Bikeway" - a facility completely separated from motorized traffic, except at highway crossings or intersections, for bi-directional movements of bicycles or pedestrians. This Class is generally considered to be the safest type of bikeway for cyclists. Cost of construction of this Class of bikeway varies between \$50,000 and \$75,000 per mile.

"Class II Bikeway" - a facility contiguous to the roadway, physically separated from motorized traffic by a barrier or curbing, for bi-directional bicycle and pedestrian usage. Disagreement exists as to whether this Class or Class III is safer for cyclists due to increased interface with pedestrian and motor vehicle traffic. The cost of construction of this Class of bikeway varies considerably between that for Class I and Class III bikeways.

"Class III Bikeway" - a lane established on the highway shoulders for bicycles and delineated from the lanes of motorized vehicles by painted striping, pavement stenciling or other delineators and signing, for one-directional bicycle traffic consistent with motorized traffic flow. If agreement exists as to whether this Class or Class II is the safer for cyclists due to the increased interface with motor vehicle traffic. Cost of construction of this Class of bikeway varies between \$500 and \$1,000 per mile.

Please rank these three Classes of bikeways according to their priority for receiving available funds for construction (1 being the highest priority and 3 being the lowest).

Class I () Class II () Class III ()

4. Assuming adequate bikeway facilities (Class I, II, III) were installed in your area, rank the following types of bicycling trips by what you believe would be their relative frequency in your area. Rank these types from 1 to 5 in the same manner as for Question #2.

Types	Ranking
School trips	()
Commuter trips	()
Recreational trips where the objective is to reach a specific destination.	()
Neighborhood circulation trips (e.g., shopping, visiting friends, etc.)	()

5. Please rank the following types of bicycling trips by their importance in your area. Rank these types from 1 to 5 (1 being the most important and 5 being the least important).

Types	Ranking
School trips	()
Commuter trips	()
Recreational trips where the objective is to reach a specific destination.	()
Neighborhood circulation trips (e.g., shopping, visiting friends, etc.)	()

6. The Bikeway Steering Committee is proposing that the following criteria be used as a guide for locating specific bikeway routes between two points. Please add to this list any additional criteria which you feel should be considered in the route selection process. Now place a check mark within the set of parentheses to the right of each criteria (including any which you added to the list) which best reflects the importance of each.

	Objectives		
	Importance of Goal(s) & Objectives		
	Very Important	Important	Not Important
Directness of route.	()	()	()
Safety of route (considering parallel and cross traffic of motor vehicles and pedestrians, vehicles speed, visibility, lane width, etc.)	()	()	()

Cost of construction of route (considering right-of-way availability, pavement width, barriers to construction, etc.)	()	()	()
Continuity of route.	()	()	()
Grades of route.	()	()	()
Projected usage.	()	()	()
Potential for multiple cycling use (recreational and utilitarian)	()	()	()
Potential for multiple non-cycling use (hikers, joggers, etc.)	()	()	()
Consistency with future land use and transportation plans	()	()	()
Consistency with other adopted bikeway systems (city, state, or other County)	()	()	()
Proximity to parks or other recreational areas	()	()	()
Image ability of route (leaves a vivid memory)	()	()	()
Scenic quality of route	()	()	()
Suitability for intended primary usage	()	()	()

Additional criteria (please list)

7. Do you believe ridership would increase in your area if adequate bikeways were provided for all types of bicycle trips? _____
8. Would the installation of bike racks at cycling destinations increase bike usage in your area?

9. Please list what you believe are the major bicycling destinations in your area.
10. If adequate bikeway facilities were provided throughout your area, would there be any additional major bicycling destinations in your area (not listed in response to Question #10)?

11. Please list any significant hazards or obstacles to safe bicycling and areas or routes not considered safe for bicycling in your area (if any). Include such hazards as known locations where bicycling accidents have occurred and areas or routes where a significant amount of cycling would occur if it were safe (e.g., Highway 99 bridge over the North Umpqua).
12. Please indicate what you consider to be the highest priority project for bikeway construction or improvement in your area.
13. Please list any major employers within your area who we should contact regarding commuter bicycling.

SUMMARIES OF RESPONSES

Following are summaries to the four questionnaires used in the bikeway survey. Responses from all groups except major employers have been tabulated as a unit due to the similarities in these questionnaires. Responses from major employers have been tabulated separately. Responses to localized questions regarding major bicycling destinations, hazards to safe cycling and priorities for bikeway improvement have not been tabulated due to the variety of responses. All returned questionnaires are on file at the Douglas County Planning Department for review of these localized and other responses.

**BIKEWAY PLAN
QUESTIONNAIRE SUMMARY**

DISTRIBUTION OF QUESTIONNAIRE AND RESPONSES

Group	#Mailed	#Returned	%Returned
Schools	53	29	54
PTA's	37	5	13.5
Cities	12	9	75
PAC's	17	10	59
Bike & Track Clubs	6	4	67
TOTAL	125	57	46

RATINGS OF PROPOSED GOALS AND OBJECTIVES BY DEGREE OF IMPORTANCE

Objectives
Importance of Goal(s) & Objectives

Very Important	Important	Not Important	NR*
-------------------	-----------	------------------	-----

Goal:

to provide and encourage a safe, convenient and efficient bikeway network for Douglas County which addresses both Transportation concerns and recreation needs.

(32)	(21)	(4)	(1)
------	------	-----	-----

Additional Goals: (added by respondents)

1. The most bikeways for the money
2. Ease of maintenance
3. Safety

*NR = No Response

Objectives
Importance of Goal(s) & Objectives

	Very Important	Important	Not Important	NR*
Objectives:				
to develop a system of bikeway which meets the needs for all types of cycling consistent with the demand for each.	(14)	(34)	(4)	(5)
to consider secondary uses such as walking, jogging and other recreational uses for the bikeway system.	(22)	(26)	(6)	(3)
to develop a system of bikeways in the unincorporated portions of the County which is coordinated with bikeway plans for the jurisdictions in the area.	(24)	(19)	(11)	(3)
to develop a comprehensive bicycle safety program.	(26)	(16)	(11)	(4)
to develop a set of standards for bikeway construction.	(25)	(22)	(6)	(4)
to establish a list of priorities for bikeway construction.	(29)	(19)	(4)	(5)

Additional Objectives (added by respondents)

1. Provide for horses.
2. Keep costs at a minimum.

*NR = No Response

RATING OF PROPOSED ROUTE SELECTION CRITERIA BY DEGREE OF IMPORTANCE

	Objectives Importance of Goal(s) & Objectives			
	Very Important	Important	Not Important	NR*
Route Criteria:				
Directness of route.	(15)	(26)	(10)	(6)
Safety of route (considering parallel and cross traffic of motor vehicles and pedestrians, vehicle speed, visibility, lane width, etc.)	(45)	(8)	(0)	(4)
Cost of construction of route (considering right-of-way availability, pavement width, barriers to construction, etc.)	(31)	(22)	(0)	(4)
Continuity of route.	(19)	(33)	(2)	(3)
Grades of route.	(15)	(24)	(13)	(6)
Projected usage.	(17)	(35)	(0)	(5)

Potential for multiple cycling use (recreational and utilitarian)	(29)	(22)	(3)	(3)
Potential for multiple non-cycling use (hikers, joggers, etc.)	(28)	(21)	(5)	(3)
Consistency with future land use and transportation plans.	(23)	(25)	(7)	(3)
Consistency with other adopted bikeway systems (city, state or other County)	(17)	(26)	(10)	(4)
Proximity to parks or other recreational areas.	(22)	(26)	(6)	(3)
Image ability of route (leaves a vivid memory)	(7)	(20)	(24)	(6)
Scenic quality of route.	(11)	(25)	(18)	(3)
Suitability for intended primary use.	(28)	(23)	(2)	(4)

Additional Criteria:

None submitted.

*NR = No Response

RANKING OF EXISTING BICYCLING TRIPS BY RELATIVE FREQUENCY (1 being most frequent, 5 being least)

Type of Trip	1	2	3	4	5
School trips	(11)	(5)	(6)	(4)	(23)
Commuter trips	(2)	(3)	(7)	(19)	(18)
Recreational trips where the objective is to reach a specific destination	(11)	(16)	(7)	(10)	(5)
Recreational trips where bike riding is the objective	(18)	(8)	(13)	(4)	(6)
Neighborhood circulation trips (e.g., shopping, visiting friends, etc.)	(9)	(14)	(13)	(6)	(7)

RANKING OF FUTURE BICYCLING TRIPS (WITH ADEQUATE FACILITIES) BY RELATIVE FREQUENCY (1 being most frequent, 5 being least)

Type of Trip	1	2	3	4	5
School trips	(17)	(5)	(6)	(6)	(16)
Commuter trips	(3)	(8)	(6)	(16)	(17)
Recreational trips where the objective is to reach a specific destination	(8)	(19)	(11)	(9)	(3)
Recreational trips where bike riding is the objective	(21)	(7)	(14)	(3)	(5)

Neighborhood circulation trips (e.g., shopping, visiting friends, etc.) (8) (17) (12) (10) (3)

RANKING OF BICYCLING TRIPS BY RELATIVE IMPORTANCE (1 being most important, 5) being least)

Type of Trip	1	2	3	4	5
School trips	(17)	(5)	(3)	(6)	(19)
Commuter trips	(1)	(6)	(4)	(21)	(18)
Recreational trips where the objective is to reach a specific destination	(6)	(18)	(15)	(9)	(3)
Recreational trips where bike riding is the objective	(18)	(8)	(12)	(6)	(6)
Neighborhood circulation trips (e.g., shopping, visiting friends, etc.)	(11)	(10)	(12)	(10)	(7)

RANKING OF TYPES OF BIKEWAYS BY PRIORITY FOR FUNDING (1 being highest priority, 3 being lowest)

Class	Priority		
	1	2	3
Class I	20	5	23
Class II	7	29	12
Class III	22	11	16

PERCENTAGE OF STUDENTS RIDING BICYCLES TO SCHOOL

3%

LIKELIHOOD OF INCREASED BICYCLING/JOGGING IF ADEQUATE FACILITIES PROVIDED

Yes 45
 No 4
 Uncertain 6

LIKELIHOOD OF INCREASED BICYCLING IF BIKERACKS PROVIDED

Yes 29
 No 21
 Uncertain 5

PREFERRED SURFACES FOR JOGGERS

- Sawdust (2)
- Barkmulch (1)
- Cinders (1)

DOUGLAS COUNTY BIKEWAY PLAN SUMMARY OF RESPONSES TO QUESTIONNAIRE BY PRIVATE INDUSTRY	
Number of Questionnaires mailed	52
Number of Questionnaires returned	16
Percentage of Questionnaires returned	31%
Number of persons employed by firms which returned questionnaires	3165
Number of persons employed by these firms who presently ride bicycles to work	85
Number of persons employed by these firms who would ride bicycles to work if adequate bikeways were provided	175
Percentage increase in ridership if adequate bikeways were provided	106%
Percentage of total number of employees who would ride bicycles to work if adequate bikeways were provided	5.5%

Figure 7a

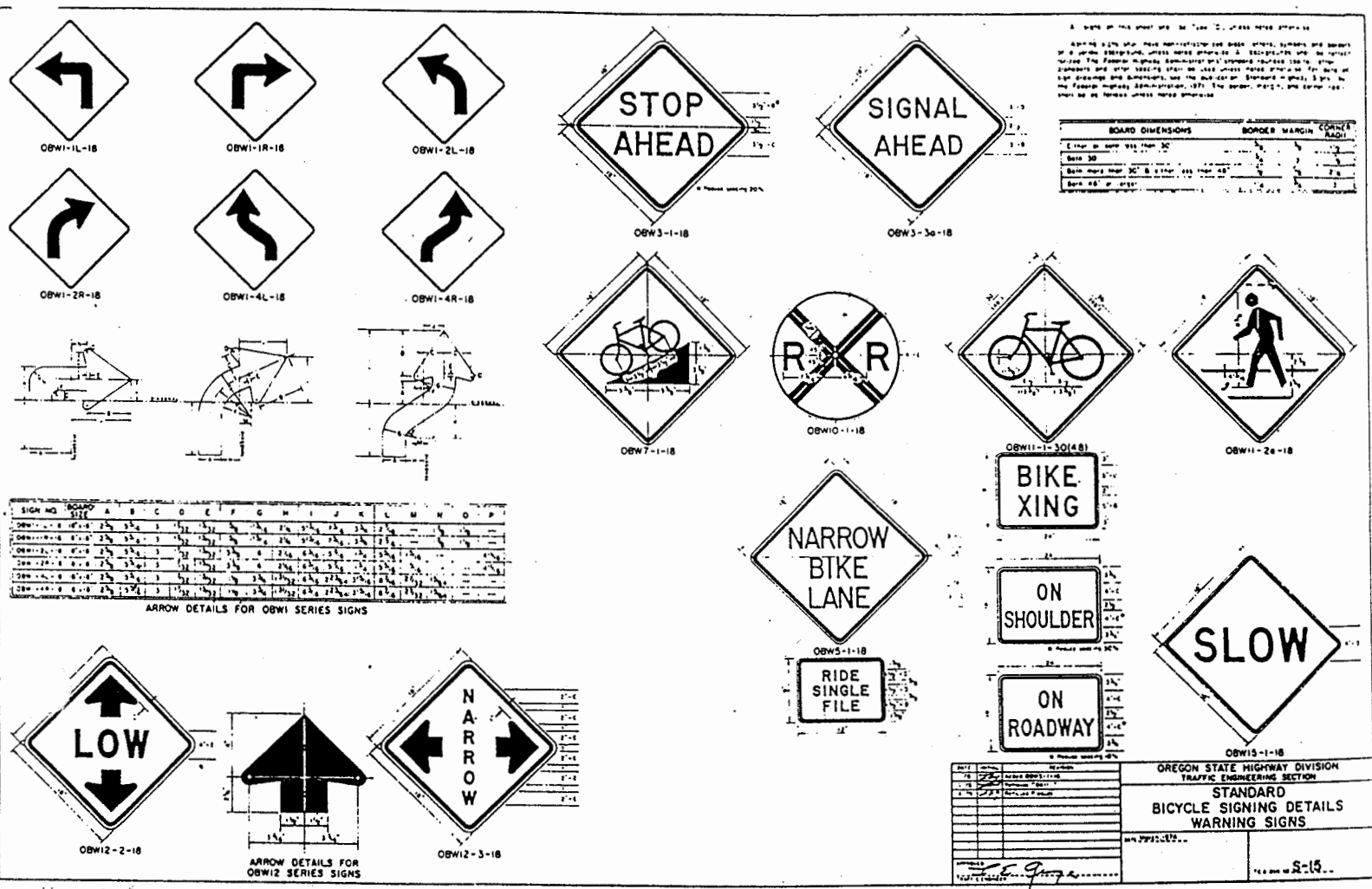


TABLE 5. DESIGNATED BIKEWAY ROUTES. (Revised 11/25/87)

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
COAST						
1	US Hwy 101	101	Northern City limits to Southern City limits	I	State	22.0
2	Sparrow Pk Rd	247	US Hwy 101 to end (beach)			3.5
3	Salmon Hrbr Dr	251	US Hwy 101 to end (beaches)		County, State & Federal	4.0
4	Lighthouse Rd	87	US Hwy 101 to Salmon Harbor Dr #251	I or	County, State & Federal	1.5
5	Transcontinental Bike Route					
	Smith River Rd	48	US Hwy 101 to BLM Rd 20-11-36.0	III	County	13.0
	BLM Rds	20-11-36.0	End of Smith River Rd #48 to beginning of BLM Rd 20-8-17.0	III	Federal	28.0
	BLM Rd	20-8-17.0	BLM Rd 20-11-36.0 to Northern County limits	III	Federal	11.0
6	Reedsport-Sutherlin Route					
	State Hwy	38	Reedsport city limits to Elkton city limits	III	State	35.0
	State Hwy	138	Elkton city limits to Sutherlin city limits	III	State	24.0
NORTH COUNTY						
7	State Hwy Drain Yoncalla Hwy Goodrich Hwy	99 389 126A	Pass Crk Prk to Rice Hill (excluding sections within Drain city limits)	III	State & County	18.0
8	Territorial Hwy	116	State Hwy 99 to northern County limits (Gravel)	III	County	5.6
9	Hayhurst Route					
	State Hwy	38	Drain city limits to Hayhurst Rd #24	III	State	1.5
	Hayhurst Rd	24	State Hwy 38 to Yoncalla city limits	III	County	8.0
10	The Dr. Al Morelang Aerobic Route					
	Elkhead Rd	7	Drain Yoncalla Hwy 389 to beginning Elkhead Rd #50	III	County	10.0
	Elkhead Rd	50	End of Elkhead Rd #7 to Driver Valley Rd #22	III	County	8.0
11	Scotts Valley Rd	22	Elkhead Rd #7 to Scotts Valley School	III	County	0.6
CENTRAL COUNTY						
12	Dr. Warren Kadas Scenic Loop					
	Driver Valley Rd	22	Oakland city limits to Fair Oaks Rd #22A (southerly intersection)	III	County	13.0
	Fair Oaks Rd	22A	Driver Valley Rd #22 to Driver Valley Rd #22 (link)	III	County	4.0
	Sutherlin-Driver Valley Route					

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
	Nonpareil Rd	19	Sutherlin city limits to Plat K Rd #75	III	County	3.0
	Plat K Rd	75	Nonpareil Rd #19 to Fair Oaks Rd #22A	III	County	1.4
14	Cooper Creek Access					
	Southside Rd	120	Sutherlin city limits to Cooper Crk Rd #305	III	County	0.9
	Southside Rd	120	Nonpareil Rd #19 to Cooper Crk Rd #305	III	County	1.1
	Cooper Crk Rd	305	Southside Rd #120 to end (Cooper Crk Reservoir)	III	County	2.4
15	The Ron Hjort-Rochester Bridge Loop					
	Green Valley Rd	23A	Oakland city limits to beginning of Green Valley Rd #23	III	County	0.4
	Green Valley Rd	23	End of Green Valley Rd 23A to Rochester Rd #76	III	County	2.4
	Rochester Rd	76	Green Valley Rd #23 to Rolling Ridge Rd #10	III	County	1.0
	Rolling Ridge Rd	10	Rochester Rd #76 to State Hwy #138	III	County	0.4
	Stearns Lane	10A	Rolling Ridge Rd #10 to Oakland city limits	III	County	3.4
16	Oakland-Sutherlin Route					
	Oakland Underpass	10B	Stearns Ln #10A to State Hwy #99	III	County	0.1
	Oakland Shady Hwy	338	Oakland Underpass #108 to Sutherlin city limits	III	State	0.7
17	Church Rd	9A	State Hwy #138 to Ft McKay Rd #6	III	County	0.5
18	Sutherlin-Garden Valley-Winchester Route					
	Ft Mckay Rd	9	Sutherlin city limits to Garden Valley Rd #6	III	County	6.2
	Garden Valley Rd	6	Ft McKay Rd #9 to River Forks Park	III	County	7.4
	Old Garden Valley Rd	6	River Forks Prk to Garden Valley Rd #6 (east)	III	County	1.4
	Garden Valley	31A	Garden Valley Rd #6 (north) to Del Rio Rd #31	III	County	0.6
	Del Rio Rd	31	Garden Valley Rd #31A to Del Rio Rd #115	III	County	4.2
	Del Rio Rd	115	Del Rio Rd #31 to State Hwy #99	III	County	2.0
18A	Wilbur Rd	31	Del Rio Rd #31 to Oakland Shady Hwy #338	III	County	2.2
	Oakland Shady Hwy #338	338	Sutherlin city limits to College Rd #284	III	County	4.4
	State Hwy	99	College Rd #284 to Roseburg city limits excluding North Umpqua Bridge & segment between Club and Courier (North Roseburg)	III	State	3.7
	State Hwy	99	Bridge over North Umpqua River	III	State	0.1
	State Hwy	99	Club St to Currier Ave (North Roseburg)	II	State	0.2
18B	Garden Valley Rd	31	Garden Valley Rd #6 to Del Rio Rd #31	III	County	1.2

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
19	Garden Valley Rd	6	Roseburg city limits to Garden Valley Rd #31A	III	County	3.4
20	Umpqua College Rd	284	Oakland Shady Hwy #338 to UCC	III	County	1.7
21	Page Rd	115A	State Hwy #99 to Mile Post 0.76	II	County	0.8
22	North Bank Rd	200	Oakland Shady Hwy #338 to N Umpqua Hwy #138	IIIs	County	17.0
22.5	Sunshine Rd	58	North Bank Rd #200 to N Umpqua Hwy #138 (No access across river)	IIIs	County	5.0
23	North Umpqua Route					
	Douglas Ave	4A	Roseburg city limits to N Umpqua Hwy #138	III	County	1.0
	N Umpqua Hwy	138	Douglas Ave #4A to Glide Loop Rd #4G	III	State	13.7
	N Umpqua Hwy	138	Glide Loop Rd #4G to river crossing	I	State	1.6
	N Umpqua Hwy	138	River crossing to Swiftwater Rd #361	IIIs	State	4.4
	N Umpqua Hwy	138	Swiftwater Rd to Diamond Lake	IIIs	State	61
	Swiftwater Rd	361	N Umpqua Hwy #138 to Swiftwater Park	IIIs	County	0.4
	Glide Loop Rod	4G	N Umpqua Hwy #138 to N Umpqua Hwy #138 (alternate route)	IIIs	County	2.0
24	Buckhorn Road Route					
	Buckhorn Rd	4	N Umpqua Hwy #138 to Dixonville Rd #16	III	County	0.7
	Buckhorn Rd	17	Dixonville Rd #16 to O.C. Brown Park	III	County	1.1
	Buckhorn Rd	17	O.C. Brown Park to Little River Rd #17A	IIIs	County	10.2
	Little River Rd	17A	Buckhorn Rd #17 to N Umpqua Hwy #138	IIIs	County	1.2
25	Whistler's Bend Park Access					
	Whistler's Lane	223	N Umpqua Hwy #138 to Whistler's Bend Pk Rd 224	IIIs	County	2.0
	Whistler's Bend Pk Rd	244	Whistler's Ln #223 to Whistler's Bend Pk	IIIs	County	2.0
26	Roseburg-Melrose Route					
	Melrose Rd	167	Garden Valley Rd #6 to Melrose Rd #13	III	County	1.2
	Melrose Rd	13	Melrose Rd #167 to Melrose Rd #51	III	County	0.2
	Melrose Rd	51	Melrose Rd #13 to Colonial Rd #52	IIIs	County	1.8
26.5	Harvard Ave Extension		Roseburg city limits to Garden Valley Rd #6 (No Access across river)	III	County	2.5
27	The Craig Glass Fun Run-Bike Route					
	Melqua Rd	13A	Melrose Rd #13 to Cleveland Hill Rd #59	IIIs	County	4.2
	Cleveland Hill Rd	59	Melqua Rd #13 to Melrose Rd #51	IIIs	County	4.0
27.5	Cleveland Hill-Umpqua Route					
	Melqua Rd	13 & 13A	Cleveland Hill Rd #59 to Hubbard Ck Rd #6	IIIs	County	5.8

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
	Hubbard Ck Rd	6	Melqua Rd #13A to Ft McKay Rd #9	IIIs	County	1.2
28	Melrose-Lookingglass-Roseburg Route					
	Flournoy Valley Rd	51	Colonial Rd #52 to Reston-Lookingglass Rd #5	IIIs	County	6.3
	Reston-Lookingglass Rd	5	Flournoy Valley Rd #51 to Roseburg city limits	IIIs	County	9.5
	Old Melrose Rd	13	Roseburg city limits to Melrose Rd #167	IIIs	County	3.0
	Roseburg-Green Route					
	State Hwy		Roseburg city limits to Carnes Rd #16	III	State	2.5
	Carnes Rd		State Hwy #99 to Roberts Crk Rd #16	III	County	2.0
29.5	Portland Ave	56A	State Hwy #99 to I-5 Interchange #123 (No access across river)	III	County	0.3
30	Fairgrounds-Green Route		Fairgrounds to Carnes Rd #16	I	County & State	1.9
31	Green-Dixonville Route					
	Roberts Crk Rd	16	State Hwy #99 to Dixonville Rd #16	IIIs	County	10.0
	Dixonville Rd	16	Roberts Crk Rd #16 to Hatfield Dr #4D	IIIs	County	3.2
	Hatfield Dr	4D	Dixonville Rd #16 to N Umpqua Hwy #138	IIIs	County	0.7
32	State Hwy	42	Carnes Rd #16 to Winston city limits	I	State	2.0
33	Winston Loop					
	Winston Rd	111	State Hwy #99 to Winston Prk Rd #266	IIIs	County	1.5
	Winston Prk Rd	266	Winston Rd #111 to Winston city limits	IIIs	County	0.5
34	Lookingglass-Winston Route					
	Lookingglass Rd	47	Reston-Lookingglass Rd #5 to Lookingglass Rd #107	IIIs	County	5.0
	Lookingglass Rd	107	Lookingglass Rd #47 to Winston city limits	IIIs	County	0.8
35	Brockway Rd	47	Lookingglass Rd #107 to Dillard Hwy #387	IIIs	County	0.8
36	Happy Valley Rd	26	Lookingglass Rd #47 to Carnes Rd #16	IIIs	County	4.7
37	State Hwy	42	Winston city limits to Lookingglass Crk	II	State	0.2
	State Hwy	42	Lookingglass Crk to Olalla-Tenmile Rd #141	III	State	8.8
38	Berry Crk Access					
	Olalla-Tenmile Rd	141	State Hwy #42 to Olalla-Coos Bay Rd #140	IIIs	County	1.1
	Olalla-Coos Bay Rd	140	Olalla-Tenmile Rd #141 to Berry Crk Access Rd #365	IIIs	County	1.0
	Berry Crk Access Rd	365	Olalla-Coos Bay Rd #140 to Berry Crk Reservoir	IIIs	County	2.0
39	State Hwy	42	Upper Camas Rd #128 to South Camas Rd #131S	III	State	1.2
40	Main Camas Rd	131 W	State Hwy #42 to Camas Valley Elementary School	III	County	.2

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
41	Winston-Myrtle Crk Route					
	Dillard Hwy	387	Winston city limits to Dole Rd #14	III	County	6.0
SOUTH COUNTY						
	Dole Rd	14	Dillard Hwy #387 to Myrtle Crk city limits (Gravel)	III	County	5.6
42	South Myrtle Route					
	South Myrtle Rd	18	Myrtle Crk city limits to Lower South Myrtle Rd #18A	III	County	1.2
42	Lower South Myrtle Rd	18A	South Myrtle Rd #18 to Myrtle Crk city limits	III	County	½
43	Covered Bridge Route					
	Days Crk Cutoff Rd	42	Myrtle Crk city limits to Neal Ln #124	III	County	0.6
	Neal Ln	124	Days Crk Cutoff Rd #42 to Myrtle Crk city limits	III	County	0.2
44	Myrtle Crk Hwy	386	Myrtle Crk city limits to I-5 Interchange #103	III	County	3.9
45	Chadwick Rd	20B	Myrtle Crk Hwy #386 to South Umpqua High School	III	County	0.6
46	Tri City-Riddle Route					
	Pruner Rd	20	I-5 Interchange #103 to Riddle Bypass Rd #263	III	County	0.6
	Riddle Bypass	263	Pruner Rd #20 to Glenbrook Loop Rd #39 (excluding section within Riddle city limits)	III	County	2.4
47	Glenbrook Loop Rd	39	Riddle city limits to Hanna Nickel entrance	III	County	2.7
48	Canyonville-Riddle Rd	21	Riddle city limits to Canyonville city limits	III	County	4.8
49	Yokum Rd	20A	Riddle city limits to I-5 Interchange #101	III	County	2.4
50	Tiller Trail Hwy	1	I-5 Interchange #101 to Canyonville city limits	III	County	
51	Tiller Trail Hwy	1	Canyonville city limits to Herbert's Pond Park	III	County	0.7
	Tiller Trail Hwy	1	Herbert's Pond Park to Tiller-South Umpqua Rd #46	III	County	22.0
52	Canyonville Park Rd	215	Tiller Trail #1 to Canyonville Co Park	III	County	0.4
53	Windy Crk Park Access					
	Azalea-Glen Rd	12B	Glendale city limits to Azalea-Glen Road #12	III	County	0.3
	Azalea-Glen Rd	12	Azalea-Glen Rd #12B to Windy Crk Rd #28	III	County	0.2
	Windy Crk Rd	28	Azalea-Glen Rd #12 to end County	III	County	5.7
	State Forestry Rd	32-6-13	End County Rd to Windy Crk County Pk	III	State	0.6
54	Diamond Lake Loop		Route circles Diamond Lake	I	Federal	10.4
55	Diamond Lake-Crater Lake Route					

No.	Route Name	Rd. #	Limits	Class	Authority	Approx Mileage
	Forest Service	271	Diamond Lake Loop to State Hwy #230	III	Federal	0.7
	State Hwy	230	Forest Service Road #271 to State Hwy #138	III	State	0.4
	State Hwy	138	State Hwy #230 to Southern County limits	III	State	4.4
56	Diamond Lake-Lemolo Lake Bike Trail		Diamond Lake to Lemolo Lake	I	Federal	8.4
57	Glendale/Powers State Bike Trail		Glendale to County Line Bike Trail	III	State	21
58	Interstate - 5		Lane County to Jackson County	III	State	88

DOUGLAS COUNTY PLANNING DEPARTMENT

This 1983 Bikeway Master Plan was prepared through the joint efforts of the following COUNTY DEPARTMENTS:

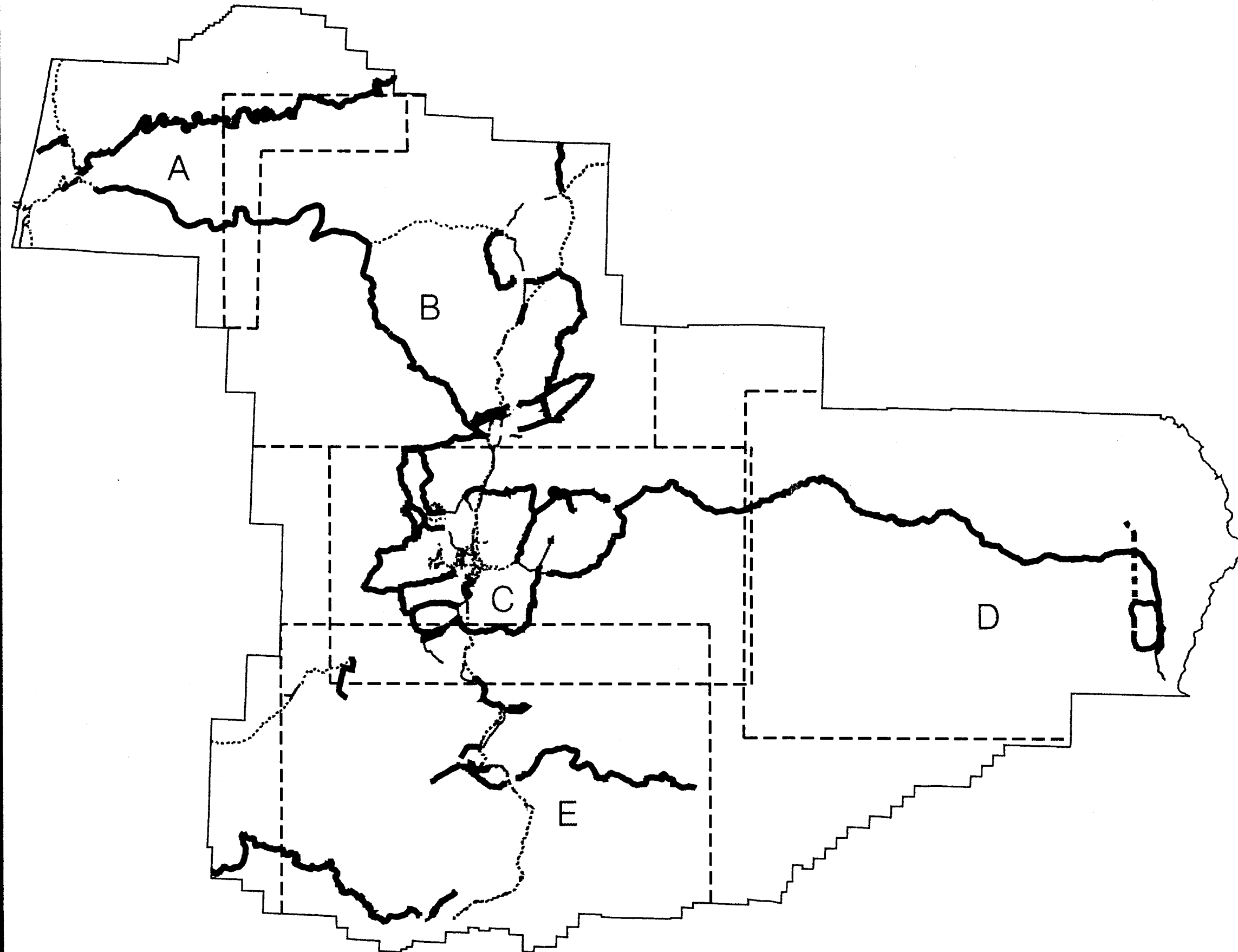
Parks Department - Tom Keel, Director
 Sheriff's Department - Norm Neal, Sheriff
 Engineering and Design Department - Ken Erickson, County Engineer
 Planning Department - Keith Cubic, Director

Participating STAFF MEMBERS included:

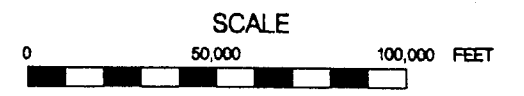
David Bischoff, Planning Department
 Keith Cubic, Planning Department
 Jerry Hassler, Parks Department
 Ron Hjort, Parks Department
 Warren Poland, Engineering and Design Department
 Trudy Reynolds, Sheriff's Department
 Barbara Patitz, Typist
 Suzanne Beckley, Typist
 Gelean Metz, Typist
 Gordon Coons, Graphics
 Pat Johnson, Graphics
 Lyle Miller, Graphics

TRANSPORTATION ELEMENT

BIKEWAY CLASSES INDEX



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNED ONLY)
- STATE /CITY



DOUGLAS COUNTY
PLANNING DEPARTMENT
A PROGRAM WITH
GREAT SPIRIT



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TRANSPORTATION
ELEMENT
MAP A

BIKEWAY
CLASSES



- CLASS 1
- CLASS 3
(SIGNED AND STRIPED)
- CLASS 3 (SIGNEND ONLY)
- STATE /CITY

SCALE
0 18,000 FEET

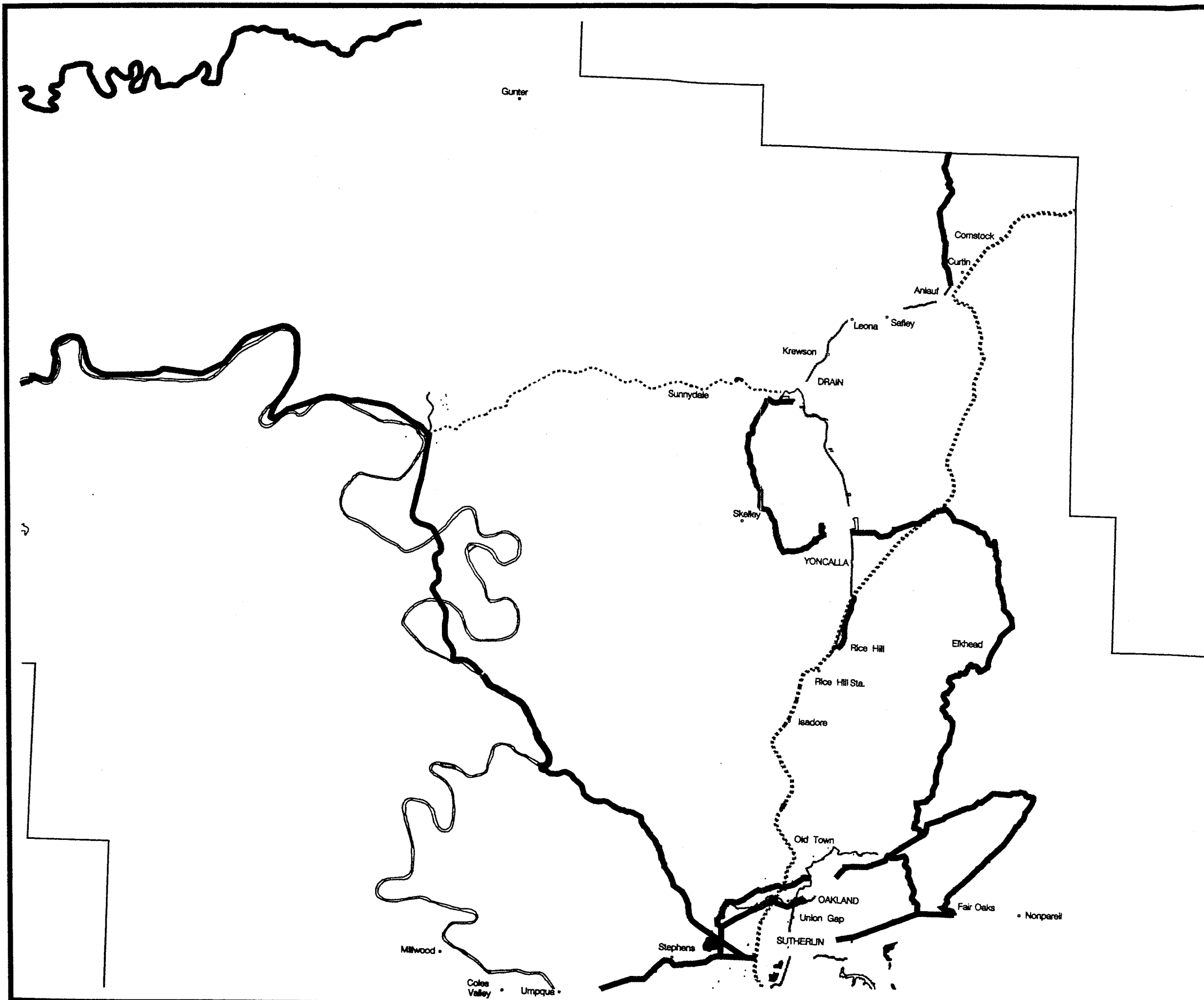
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TRANSPORTATION
ELEMENT
MAP B

BIKEWAY
CLASSES



SCALE
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- CLASS 3
(SIGNED AND STRIPED)
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- STATE /CITY

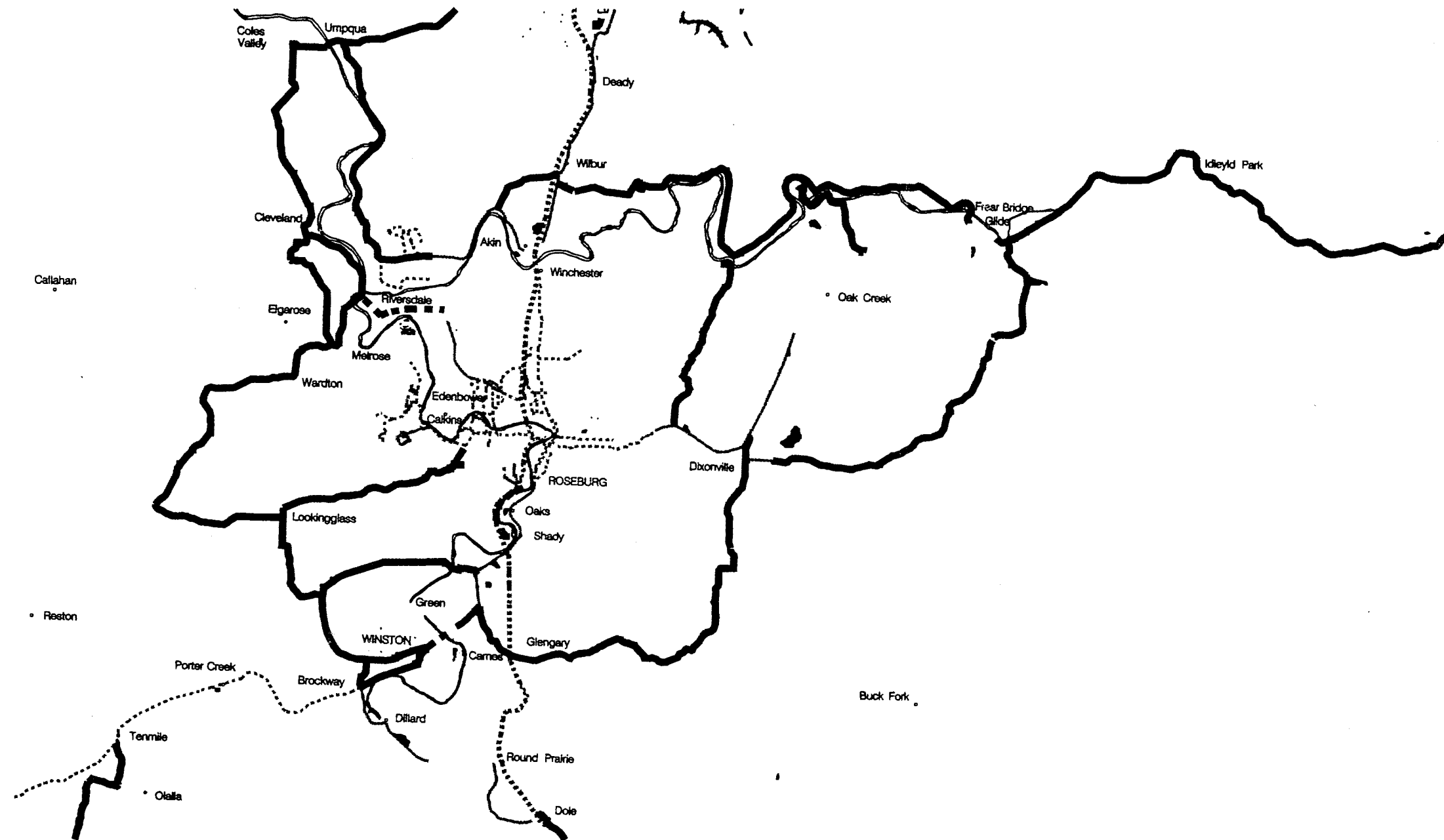
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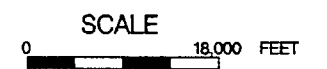
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TRANSPORTATION
ELEMENT
MAP C

BIKEWAY
CLASSES



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- CLASS 3
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- CLASS 3 (SIGNEND ONLY)
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MAP D

BIKEWAY
CLASSES



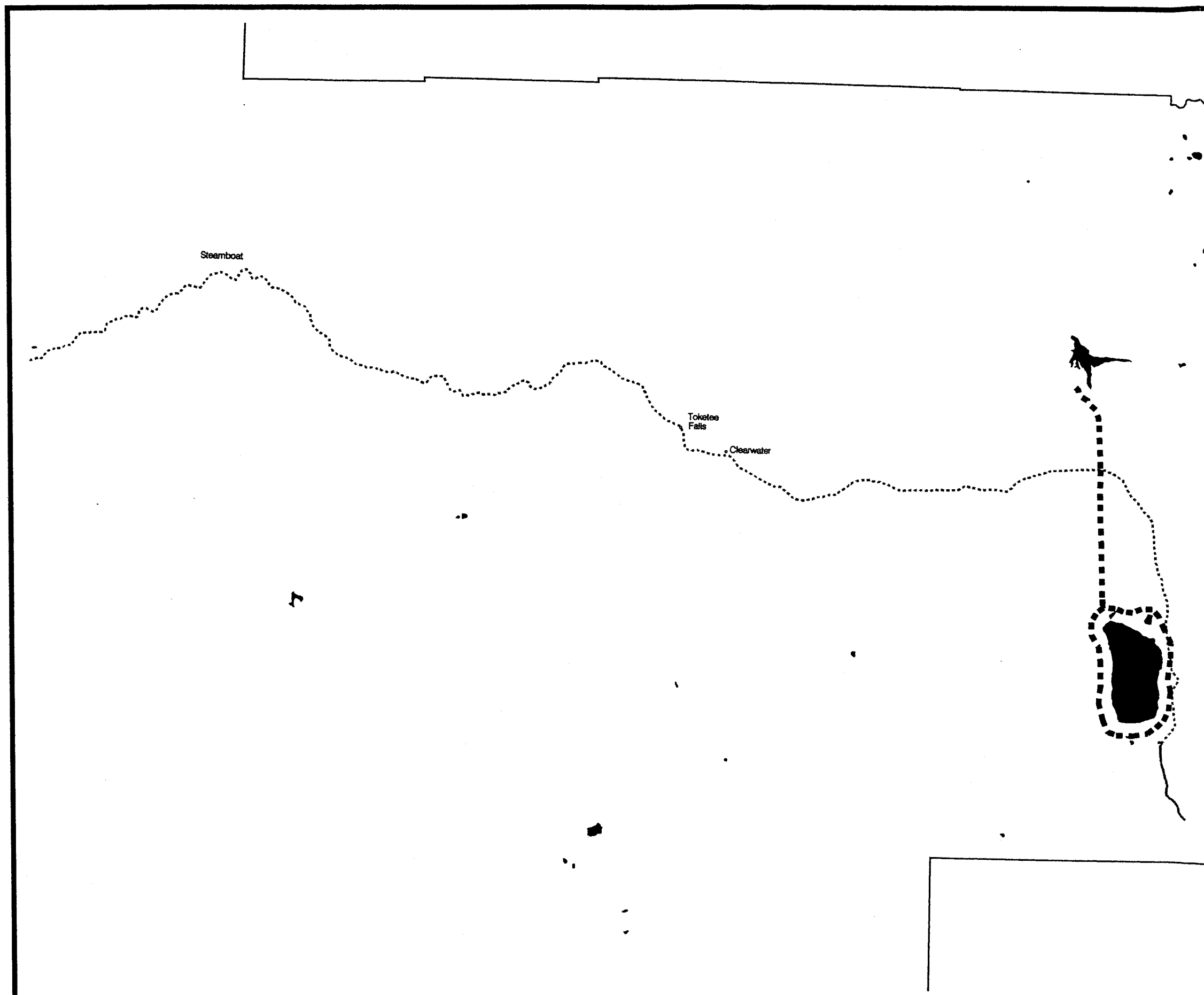
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TRANSPORTATION
ELEMENT
MAP E

BIKEWAY
CLASSES



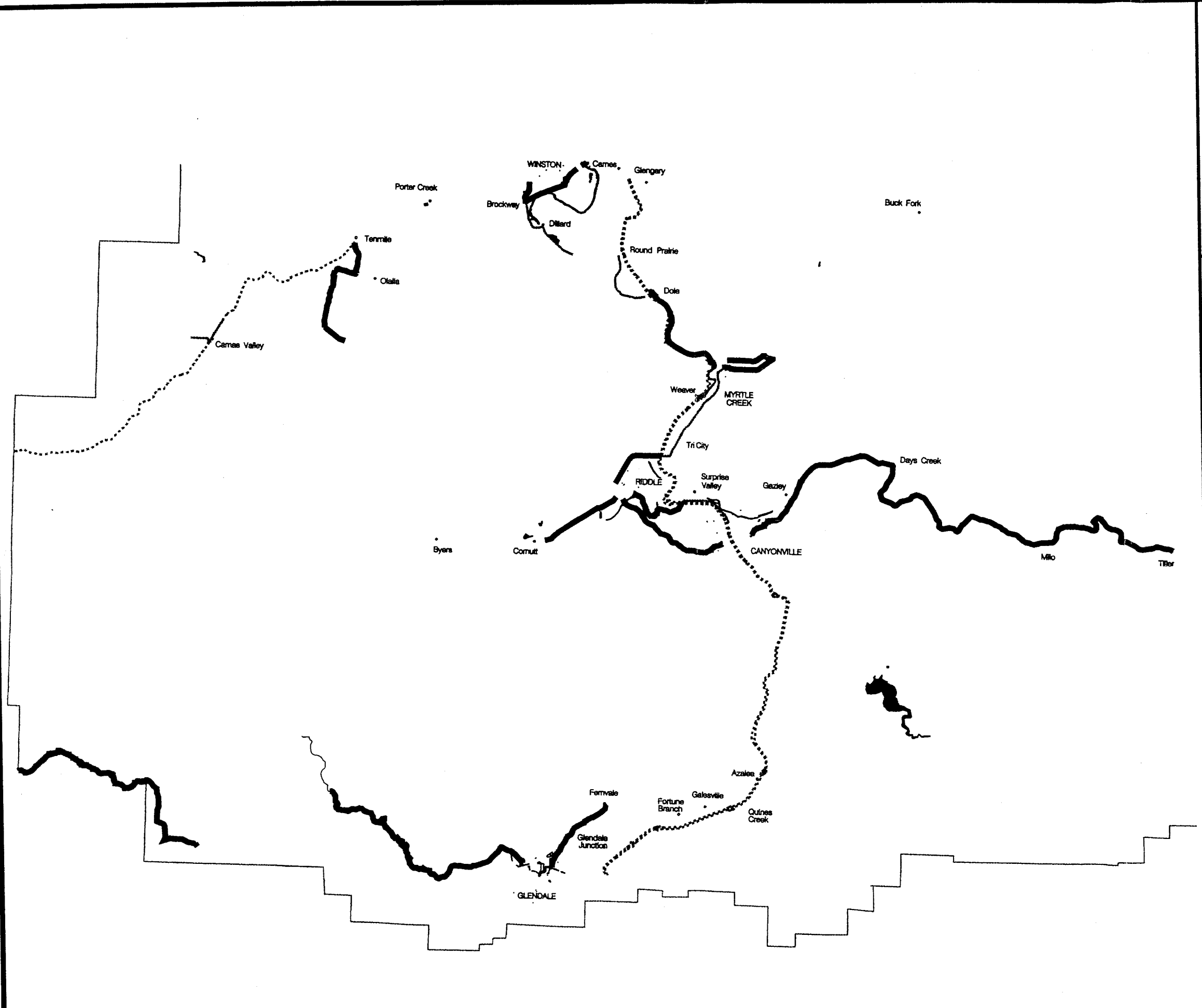
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GENERAL REFERENCES

REFERENCE

- Public Works Department, Construction and Engineering Division, Average Daily Traffic Counts, 1996 Edition

Location - Planning Department Library

- Integrated Road Information System: computerized roadway inventory database for Douglas County

Location - Douglas County Public Works Engineering Department

- Oregon Administrative Rule 660-12: Transportation Planning Rule

Transportation Planning Rule

Division 12

660-12-000 The purpose of the division is to implement Statewide Planning Goal 12 (Transportation). It is also the purpose of this division to explain how local governments and state agencies responsible for transportation planning demonstrate compliance with other statewide planning goals and to identify how transportation facilities are provided on rural lands consistent with the goals. The division sets requirements for coordination among affected levels of government for preparation, adoption, refinement, implementation and amendment of transportation system plans. Transportation system plans adopted pursuant to this division fulfill the requirements for public facilities planning required under ORS 197.712(2)(e), Goal 11 and OAR Chapter 660, Division 11, as they relate to transportation facilities. Through measures designed to reduce reliance on the automobile, the rule is also intended to assure that the planned transportation system supports a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country. The rules in this Division are not intended to make local government determinations "land use decisions" under ORS 197.015(10). The rules recognize, however, that, under existing statutory case law, many determinations relating to the adoption and implementation of transportation plans will be land use decisions.

OAR 660-12-005 Definitions For the purposes of this division, the definitions in ORS 197.015, the Statewide Planning Goals and OAR Chapter 660 shall apply. In addition the definitions listed below shall apply.

- (1) Access Management: means measures regulating access to streets, roads, and highways from public roads and private driveways. Measures may include but are not limited to restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls, such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.
- (2) Accessway: means a walkway that provides pedestrian and or bicycle passage either between streets or from a street to a building or other destinations such as a school, park, or transit stop. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right-of-way, to provide clearance and separation between the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees and lighting. Where accessways cross driveways, they are generally raised, paved or marked in a manner which provides access for pedestrians.
- (3) Affected local government: means a city, county or metropolitan service district that is directly impacted by a proposed transportation facility or improvement.
- (4) At or near a major transit stop: "At" means a parcel or ownership which is adjacent to or includes a major transit stop generally including portions of such parcels or ownerships that are within 200 feet of a transit stop. "Near" generally means a parcel or ownership that is within 300 feet of a major transit stop. The term "generally" is intended to allow local governments through their plans and ordinances to adopt more specific definitions of these terms considering local needs and circumstances consistent with the overall objective and requirement to provide convenient pedestrian access to transit.
- (5) Committed Transportation Facilities: means those proposed transportation facilities and improvements which are consistent with the acknowledged comprehensive plan and have approved funding for construction in a public facilities plan or the Six Year Highway or Transportation Improvement Program.
- (6) Demand Management: means actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. Methods may include but are not included to the use of alternative modes, ride-sharing and vanpool programs, and trip-reduction ordinance.
- (7) Local Street Standards: include but are not limited to standards for right-of-way, pavement width, travel lanes, parking lanes, curb turning radius, and accessways.
- (8) Major: means, in general, those facilities or development which, considering the size of the urban or rural area and the range of size, capacity or service level of similar facilities or developments in the area, are either larger than average, serve more than neighborhood needs or have significant land use or traffic impacts on more than the immediate neighborhood.
"Major" as it modifies transit corridors, stops, transfer stations and new transportation facilities means those facilities which are most important to the functioning of the system or which provide a high level, volume or frequency of service.
"Major" as it modifies industrial, institutional and retail development means such developments which are larger than average, serve more than neighborhood needs or which have traffic impacts on more than the immediate neighborhood.
Application of the term "major" will vary from area to area depending upon the scale of transportation improvements, transit facilities and development which occur in the area. A facility considered to be major in a smaller or less densely developed area may, because of the relative significance and impact of the facility or development, mp be considered a major facility in a larger or more densely developed area with larger or more intense development or facilities.
- (9) "Major Transit stop" means
 - (a) Existing and planned light rail stations and transit transfer stations and transit transfer stations, except for temporary facilities.
 - (b) Other planned stops designated as major transit stops in a transportation system plan and existing stops which:
 - (A) Have or are planned for an above average frequency of scheduled, fixed route service when compared to region wide service. In urban areas of 1,000,000 or more population major transit stops are generally located along routes that have or are planned for 20 minute service during the peak hour; and
 - (B) Are located in a transit oriented development or within 1/4 mile of an area planned and zoned for:
 - (i) medium or high density residential development; or,
 - (ii) intensive commercial or institutional uses within 1/4 mile of (i); or
 - (iii) uses likely to generate a relatively high level of transit ridership.
- (10) Metropolitan Planning Organization (MPO): an organization located within the State of Oregon and designated by the Governor to coordinate transportation planning in an urbanized area of the state including such designations made subsequent

to the adoption of this rule. The Longview-Kelso-Rainier MPO is not considered an MPO for the purposes of this rule.

(11) ODOT: means the Oregon Department of Transportation.

(12) Parking spaces: means on and off street spaces designated for automobile parking in areas planned for industrial, commercial, institutional or public uses. The following are not considered parking spaces for the purposes of 660-12-045(5)(c)" park and ride lots, handicapped parking, and parking spaces for carpools and vanpools.

(13) Pedestrian connection: means a continuous, unobstructed, reasonably direct route between two points that is intended and suitable for pedestrian use. Pedestrian connections include but are not limited to sidewalks, walkways, accessways, stairways, and pedestrian bridges. On developed parcels, pedestrian connections are generally hard surfaced. In parks and natural areas, pedestrian connections may be soft-surfaced pathways. On undeveloped parcels and parcels intended for redevelopment, pedestrian connections may also include rights-of-way or easements for future pedestrian improvements.

(14) Pedestrian district: means a comprehensive plan designation or implementing land use regulations, such as an overlay zone, that establish requirements to provide a safe and convenient pedestrian environment in an area planned for a mix of uses likely to support a relatively high level of pedestrian activity. Such areas include but are not limited to:

(a) Lands planned for a mix of commercial or institutional uses near lands planned for medium to high density housing, or,

(b) Areas with a concentration of employment and retail activity, and ;

(c) Which have or could develop a network of streets and accessways which provide convenient pedestrian circulations.

(15) Pedestrian Plaza: means a small semi-enclosed area usually adjoining a sidewalk or a transit stop which provides a place for pedestrians to sit, stand or rest. They are usually paved with concrete, pavers, bricks or similar material and include seating, pedestrian scale lighting and similar pedestrian improvements. Low walls or planters and landscaping are usually provided to create a semi-enclosed space and to buffer and separate the plaza from adjoining parking lots and vehicle maneuvering areas. Plazas are generally located at a transit stop, building entrance or an intersection and connect directly to adjacent sidewalks, walkways, transit stops and buildings. A plaza including 150-250 square feet would be considered "small".

(16) Pedestrian scale: means site and building design elements that are dimensionally less than those intended to accommodate automobile traffic, flow and buffering. Examples include ornamental lighting of limited height; bricks, pavers or other modules of paving with small dimensions; a variety of planting and landscaping materials, arcades or awnings that reduce the height of walls; and signage on signposts details that can only be perceived from a short distance

(17) Planning Period: means the twenty year period beginning with the date of adoption of a TSP to meet the requirements of this rule.

(18) Preliminary Design: means an engineering design which specifies in detail the location and alignment of a planned transportation facility or improvement.

(19) Reasonably direct: means either a route that does not deviate unnecessarily from a straight line or route that does not involve a significant amount of out-of-direction travel for likely users.

(20) Refinement Plan: an amendment to the transportation system plan, which resolves, at a systems level, determinations on function, mode of general location which were deferred during transportation system planning because detailed information needed to make those determinations could not reasonably be obtained during that process.

(21) Roads: means streets, roads, and highways.

(22) Transit-oriented development (TOD): means a mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use. The key features of transit oriented development include

(a) a mixed use center at the transit stop, oriented principally to transit riders and pedestrian and bicycle travel from the surrounding area;

(b) high density of residential development proximate to the transit stop sufficient to support transit operations and neighborhood commercial uses within the TOD.

(c) a network of roads and bicycle and pedestrian paths to support high levels of pedestrian access within the TOD and high levels of transit use.

(23) Transportation facilities: means any physical facility that moves or assists in the movement of people and goods including facilities identified in 660-12-020 but excluding electricity, sewage and water systems.

(24) Transportation system management measures: means techniques for increasing the efficiency, safety, capacity or level of service of transportation facility without increasing its size. Examples include, but are not limited to, traffic signal improvements, traffic control devices including installing medians and parking remove, channelization, access management, ramp metering, and restriping for high occupancy vehicle (HOV) lanes.

(25) Transportation Needs: means estimates of the movement of people and goods consistent with acknowledged comprehensive plan and the requirements of this rule. Needs are typically based on projections of future travel demand resulting from a continuation of current trends as modified by policy objectives, including those expressed in Goal 12 and this rule, especially those for avoiding principal reliance on any one mode of transportation.

(26) Transportation Needs, Local: means needs for movement of people and goods within communities and portions of counties and the need to provide access to local destinations.

(27) Transportation Needs, Regional: means needs for movement of people and goods between and through communities and accessibility to regional destinations within a metropolitan area, county or associated within a metropolitan area, county or associated group of counties.

(28) Transportation Needs, State: means needs for movement of people and goods between and through regions of the state and between the state and other states.

(29) Transportation Project Development: means implementing the transportation system plan (TSP) by determining the precise location, alignment, and preliminary design of improvements included in the TSP based on site-specific engineering and environmental studies.

(30) Transportation Service: means a service for moving people and goods, such as intercity bus service and passenger rail service.

(31) Transportation System Plan (TSP): means a plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.

(32) Urban Area: means lands within an urban growth boundary or two or more contiguous urban growth boundaries.

(33) Urban Fringe: means (a) Areas outside the urban growth boundary that are within 5 miles of the urban growth boundary of an MPO area; and (b) Areas outside the urban growth boundary within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

(34) Walkway: means a hard surfaced area intended and suitable for use by pedestrians, including sidewalks and surfaced portions of accessways.

OAR 660-125-010 Transportation Planning (1) As described in this division, transportation planning shall be divided into two phases: transportation system planning and transportation project development. Transportation system planning establishes land use controls and a network of facilities and services to meet overall transportation needs. Transportation project development implements the TSP by determining the precise location, alignment, and preliminary design of improvements included in the TSP.

(2) It is not the purpose of this division to cause duplication of or to supplant existing applicable transportation plans or to supplant existing applicable transportation plans or programs. Where all or part of an acknowledged comprehensive plan, TSP either of the local government or appropriate special district, capital improvement program, regional functional plan or similar plan or combination of plans meets all or some of the requirements of this division, those plans or programs may be incorporated by reference into the TSP required by this division. Only those referenced portions of such documents shall be considered to be a part of the TSP and shall be subject to the administrative procedures of this division and ORS Chapter 197.

OAR 660-12-015 Preparation and coordination of TSP (1) ODOT shall prepare, adopt and amend a state TSP in accordance with ORS 184.618, its program for state agency coordination certified under ORS 197.180, and OAR 660-12-030, 035, 050, 065 and 070. The state TSP shall identify a system of transportation facilities and services adequate to meet identified state transportation needs.

(a) The state TSP shall include the state transportation policy plan, modal system plans and transportation facility plans as set forth in OAR 731, Division 15.

(b) State transportation project plans shall be compatible with acknowledged comprehensive plans as provided for in OAR 731, Division 15. Disagreements between ODOT and affected local governments shall be resolved in the manner established in that division.

(2) MPO's and counties shall prepare and amend regional TSPs in compliance with this division. MPO's shall prepare regional TSP's for facilities of regional significance within their jurisdiction. Counties shall prepare regional TSPs for all other Areas and facilities.

(a) Regional TSPs shall establish a system of transportation facilities and services adequate to meet identified regional transportation needs and shall be consistent with adopted elements of the state TSP.

(b) Where elements of the state TSP have not been adopted, the MPO or county shall coordinate the preparation of the regional TSP with ODOT to assure that state transportation needs are accomplished.

(c) Regional TSPs prepared by MPOs other than metropolitan service districts shall be adopted by the counties and cities within the jurisdiction of the MPO. Metropolitan service districts shall adopt a regional TSP for areas within their jurisdiction.

(d) Regional TSPs prepared by counties shall be adopted by the county.

(3) Cities and counties shall prepare, adopt and amend local TSPs for lands within their planning jurisdiction in compliance with this division.

(a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP.

(b) Where the regional TSP or elements of the state TSP have not been adopted, the city or county shall coordinate the preparation of the local TSP with the regional transportation planning body and ODOT to assure that the regional and state transportation needs are accommodated.

(4) Cities and counties shall adopt regional and local TSPs required by this division as part of their comprehensive plans. Transportation financing programs required by OAR 660-12-0040 may be adopted as a supporting document to the comprehensive plan.

(5) The preparation of TSPs shall be coordinated with affected state and federal agencies, local governments, special districts, and private providers of transportation services.

(6) Mass transit, transportation, airport, and port districts shall participate in the development of TSPs for those transportation facilities and services they provide. These districts shall prepare and adopt plans for transportation facilities and services they provide. Such plans shall be consistent with and adequate to carry out relevant portions of applicable regional and local TSPs. Cooperative agreements executed under ORS 197.185(2) shall include the requirements that mass transit, transportation, airport and port districts adopt a plan consistent with the requirements of this section.

(7) Where conflicts are identified between proposed and regional TSPs and acknowledged comprehensive plans, representatives of affected local governments shall meet to discuss means to resolve the conflicts. These may include:

(a) Changing the draft TSP to eliminate the conflicts; or

(b) Amending acknowledged comprehensive plan provisions to eliminate the conflict;

For MPO's which are not metropolitan service districts, if conflicts persist between regional TSPs and acknowledged comprehensive plans after efforts to achieve compatibility, an affected local government may petition the Commission to resolve the dispute.

660-12-020 Elements of Transportation System Plans (1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs.

(2) The TSP shall include the following elements:

(a) A determination of transportation needs as provided in 660-12-030.

(b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSPs shall be consistent with functional classifications of roads in state and regional TSPs and shall provide for continuity between adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-12-045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for layout of local streets shall address:

(A) Extension of existing streets:

(B) Connections to existing or planned streets, including arterials and collectors; and

(C) Connections to neighborhood destinations.

(c) A public transportation plan which:

(A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies.

(B) Describes intercity bus and passenger rail service and identifies the location of terminals.

(C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.

(D) For areas within an urban area containing a population greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at buildout. Where a transit system is determined to be feasible, the plan shall meet the requirements of subsection 2(c)(C) of this section.

(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.

(e) An air, rail, water and pipeline transportation plan which identifies where the public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations.

(f) For areas within an a urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management.

(g) A parking plan in MPO areas as provided in 660-12-045(5)(c)

(h) Policies and land use regulations for implementing the TSP as provided in 660-12-045

(i) For areas within an urban growth boundary containing a population greater than 2500 persons, a transportation financing program as provided in 660-12-040.

(3) Each element identified in subsection (2)(b) - (d) of this section shall contain:

(a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition.

(A) The transportation capacity analysis shall include information on:

(i) The capacities of existing and committed facilities;

(ii) The degree to which those capacities have been reached or surpassed on existing facilities; and,

(iii) The assumption upon which these capacities are based.

(B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency.

(C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g. very good, good, fair, poor, very poor).

(b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and levels of service.

(c) A description of the location of planned facilities, services and major improvements, establishing the general corridor within which the facilities, services or improvements may be sited. This shall include a map showing the general location of proposed transportation improvements, a description of the facility parameters such as minimum and maximum road right of way width and the number and size of lanes, and any other additional description that is appropriate.

(d) Identification of the provider of each transportation facility or service.

660-12-025. Complying with the Goals in preparing the TSPs (1) Except as provided in subsection (3) of this section,

adoption of a TSP shall constitute the land use decision regarding the need for transportation facilities, services, and major improvements and their function, mode, and general location.

(2) Findings of compliance with the applicable statewide planning goals and acknowledged plan policies and land use regulations shall be developed in conjunction with the adoption of the TSP.

(3) A local government or MPO may defer decisions regarding function, general location and mode of a refinement plan if findings are adopted which:

- (a) Identify the transportation need for which decisions regarding function, general location or mode are being deferred.
- (b) Demonstrate why information required to make final determinations regarding function general location, or mode cannot reasonably be made available within the time allowed for preparation of the TSP;
- (c) Explain how deferral does not invalidate the assumptions upon which the TSP is based or preclude implementation of the remainder of the TSP;
- (d) Describe the nature of the findings which will be needed to resolve issues deferred to a refinement plan; and
- (e) Demonstrate that the refinement effort will be completed within three years or prior to initiation of the periodic review following adoption of the TSP.

(4) Where a Corridor EIS is prepared pursuant to the requirements of the National Environmental Policy Act of 1969, the development of the refinement plan shall be coordinated with the preparation of the Corridor EIS. The refinement plan shall be adopted prior to the issuance of the Final EIS.

660-12-030 Determination of Transportation Needs (1) The TSP shall identify transportation needs relevant to the planning area and the scale of the transportation network being planned including:

- (a) State, regional, and local transportation needs;
- (b) Needs of the transportation disadvantaged;
- (c) Needs for the movement of goods and services to support industrial and commercial development planned pursuant to OAR 660-09 and Goal 9 (Economic Development).

(2) Counties or MPOs preparing regional TSPs shall rely on the analysis of state transportation needs in adopted elements of the state TSP. Local governments preparing local TSPs shall rely on the analysis of the state and regional transportation needs in adopted elements of the state TSP and adopted regional TSPs.

(3) Within UGBs the determination of local and regional transportation needs shall be based upon:

- (a) Population and employment forecasts consistent with the acknowledged plan, including those policies which implement Goal 14, including Goal 14's requirement to encourage urban development on urban lands prior to conversion of urbanizable lands. Forecasts and distributions shall be for 20 years and, if desired, for longer periods.
- (b) Measures adopted pursuant to 660-12-045 to encourage reduced reliance on the automobile.

(4) In MPO areas, calculation of local and regional transportation needs also shall be based upon accomplishment of the requirement in 660-12-035(4) to reduce reliance on the automobile.

660-12-035 Evaluation and Selection of Transportation System Alternatives (1) The TSP shall be based upon evaluation of potential impacts of system alternatives that can reasonably be expected to meet the transportation needs in a safe manner and at a reasonable cost with available technology. The following shall be evaluated as components of system alternatives:

- (a) Improvements to existing facilities or services;
- (b) New facilities and services including differing modes that could reasonably meet transportation needs;
- (c) Transportation system management measures;
- (d) Demand management measures; and
- (e) A no-build system alternative required by the National Environmental Policy Act of 1969 or other laws.

(2) Local governments in MPO areas of larger than 1,000,000 population shall and other governments may also evaluate alternate land use designations, densities and design standards to meet local and regional transportation needs. Local governments preparing such a strategy shall consider:

- (a) Increasing residential densities and establishing minimum residential densities within one quarter mile of transit lines, major regional employment areas and major regional retail shopping areas;
- (b) Increasing densities (i.e. minimum floor area ratios) in new commercial office and retail developments;
- (c) Designating lands for neighborhood shopping centers within convenient walking and cycling distance of residential areas;
- (d) Designating land uses to provide a better balance between jobs and housing considering:
 - (A) The total number of jobs and total of number of housing units expected in the area or subarea;
 - (B) The availability of affordable housing in the area or subarea; and,
 - (C) Provision of housing opportunities in close proximity to employment areas.
- (e) Establishing maximum parking limits for office and institutional developments consistent with 660-12-045(5)(c) which reduce the amount of parking available at such developments.

(3) The following standards shall be used to evaluate and select alternatives:

- (a) The transportation system shall support urban and rural development by providing types and levels of transportation facilities appropriate to serve the land uses identified in the acknowledged comprehensive plan.
- (b) The transportation system shall be consistent with state and federal standards for protection of air, land and water quality including the State Implementation Plan under the Federal Clean Air Act and the State Water Quality Management Plan;
- (c) The transportation system shall minimize adverse economic social, environmental and energy consequences.
- (d) The transportation system shall minimize conflicts and facilitate connections between modes of transportation.

- (e) The transportation system shall avoid principal reliance on any one mode of transportation and shall reduce principal reliance on the automobile. In MPO areas this shall be accomplished by selecting transportation alternatives which meet the requirements in 660-12-035(4).
- (4) In MPO areas, regional and local TSPs shall be designed to achieve the following objectives for reducing automobile vehicle miles travelled (VMT) per capita for the MPO area:
 - (a) No increase within 10 years of adoption of a plan as required by OAR 660-12-055(1);
 - (b) A 10% reduction within 20 years of adoption of a plan as required by OAR 660-12-055(1); and
 - (c) Through subsequent planning efforts, a 20% reduction within 30 years of adoption of a plan as required by OAR 660-12-055(1).
- (5) Regional TSPs shall specify measurable objectives for each of the following and demonstrate how the combination selected will accomplish the objectives in subsection 4:
 - (a) An increase in the modal share of non-automobile trips (ie transit, bicycle, pedestrian); for example, a doubling of the modal share of non-automobile trips;
 - (b) An increase in average automobile occupancy (ie persons per vehicle) during; for example, an increase to an average of 1.5 persons per vehicle; and,
 - (c) Where appropriate, a decrease in the number or length of automobile vehicle trips per capita due to demand management programs, rearranging of land uses or other means.
- (6) Regional and local TSPs shall include interim benchmarks to assure satisfactory progress towards meeting the requirements of this section at five year intervals over the planning period. MPOs and local governments shall evaluate progress in meeting interim benchmarks at five year intervals from adoption of the regional and local TSPs. Where interim benchmarks are not met, the relevant TSP shall be amended to include new or additional efforts adequate to meet the requirements of this section.
- (7) The Commission shall, at five year intervals from the adoption of this rule, evaluate the results of efforts to achieve the reduction in VMT and the effectiveness of the standard in achieving the objective of reducing reliance on the automobile. This shall include evaluating the requirements for parking plans and a reduction in the number of parking spaces per capita.
- (8) Where existing and committed transportation facilities and services have adequate capacity to support the land uses in the acknowledged plan, the local government shall not be required to evaluate alternatives as provided in this section.
- (9) Transportation uses or improvements listed on OAR 660-12-065(3)(d) to (g) and (o) and located in an urban fringe may be included in the TSP only if the improvement project identified in the transportation system plan as described in section (11) of this rule, will not significantly reduce peak hour travel time for the route as determined pursuant to subsection (1) of this rule, or the jurisdiction determines that the following alternatives can not reasonably satisfy the purpose of the improvement project:
 - (a) Improvements to transportation facilities and services within the urban growth boundary;
 - (b) Transportation system management measures that do not significantly increase capacity; or
 - (c) Transportation demand management measures. The jurisdiction needs only to consider alternatives that are safe and effective, consistent with applicable standards and that can be implemented at a reasonable cost using available technology.
- (10) An improvement project significantly reduces peak hour travel time when, based on recent data, the time to travel the route is reduced more than 15% during the weekday peak hour conditions over the length of the route within the urban fringe. For purposes of measuring travel time, a route shall be identified by the predominant traffic flows in the project area.
- (11) A "transportation improvement project" described in subsection (9) of this rule;
 - (a) Is intended to solve all of the reasonably foreseeable transportation problems within a general geographic location, within the planning period; and
 - (b) Has utility as an independent transportation project.

660-12-040 Transportation Financing Program (1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation financing program.

- (2) The transportation financing program shall include:
 - (a) A list of planned transportation facilities and major improvements
 - (b) A general estimate of the timing for planned transportation facilities and major improvements
 - (c) Determination of the rough cost estimates for the transportation facilities and major improvements identified in the TSP.
- (3) The determination of rough cost estimates is intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged plan and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms. In addition to including rough cost estimates for each transportation facility and major improvement, the transportation financing plan shall include a discussion of the facility provider;s existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each transportation facility and major improvement. These funding mechanisms may also be described in terms of general guidelines or local plans.
- (4) Anticipated timing and financing provisions in the transportation financing program are not considered land use decisions as specified in ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or ORS 197.835(4).
- (5) The transportation financing program shall implement comprehensive plan policies that provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of urbanizable areas or conversion of rural lands to urban uses.
- (6) Local governments which have or adopt impact fees or system development charges to fund improvements to transportation facilities shall establish lesser fees or charges for developments located in transit oriented developments,

pedestrian districts, and other developments which, through enhanced pedestrian, bicycle or transit facilities or related design features, or demand management measures, are demonstrated to reduce vehicle trip generation.

- 660-12-045 Implementation of the TSP (1) Each local government shall amend its land use regulation to implement the TSP:
- (a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use:
 - (A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;
 - (B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards;
 - (C) Uses permitted outright under ORS 215.213(1)(m) through (p) and 215.283(1)(k) through (n), consistent with the provisions of OAR 660-12-065; and
 - (D) Changes in frequency of transit, rail and airport services.
 - (b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy legal judgement;
 - (c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with OAR 660-12-050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.
- (2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:
- (a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;
 - (b) Standards to protect future operation of roads, transitways and major transit corridors;
 - (c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;
 - (d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
 - (e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
 - (f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of:
 - (A) Land use applications that require public hearings;
 - (B) Subdivision and partition applications;
 - (C) Other applications which affect private access to roads; and
 - (D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations.
 - (g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP.
- (3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel:
- (a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park and ride lots;
 - (b) On-site facilities shall be provided with accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.
 - (A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers;
 - (B) Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways;
 - (C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section;

- (D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel;
- (E) Streets and accessways need not be required where one or more of the following conditions exist:
 - (i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided;
 - (ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or
 - (iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.
- (c) Where off site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors.
- (d) For purposes of subsection (b) of this section, "safe and convenient" means bicycle and pedestrian routes, facilities and improvements which:
 - (A) Are reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage pedestrian or cycle travel for short trips;
 - (B) Provide a reasonably direct route of travel between destinations such as between a transit stop and a store; and
 - (C) Meet travel needs of cyclists and pedestrians considering destination and length of trip; and considering that the optimum trip length of pedestrians is generally 1/4 to 1/2 mile.
- (e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.
- (4) To support transit in urban areas containing a population greater than 25,000, where the area is already served by a public transit system or where a determination has been made that a public transit system is feasible, local governments shall adopt land use and subdivision regulations as provided in subsection (a) thru (f) of this section:
 - (a) Transit routes and transit facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometrics, on-road parking restrictions and similar facilities, as appropriate;
 - (b) New retail, office and institutional buildings at or near major transit stops shall provide for convenient pedestrian access to transit through the measures listed in paragraphs (A) and (B) of this subsection:
 - (A) Walkways shall be provided connecting building entrances and streets adjoining the site;
 - (B) Pedestrian connections to adjoining properties shall be provided except where such a connection is impracticable as provided for in OAR paragraph (3)(b)(E) of this rule. Pedestrian connections shall connect the on site circulation system to existing or proposed streets, walkways, and driveways that abut the property. Where adjacent properties are undeveloped or have potential for redevelopment, streets, accessways and walkways on site shall be laid out or stubbed to allow for extension to the adjoining property;
 - (C) In addition to paragraphs (4)(A) and (B) of this rule, on sites at major transit stops provide the following:
 - (i) Either locate buildings within 20 feet of the transit stop, a transit street or an intersecting street or provide a pedestrian plaza at the transit stop or a street intersection;
 - (ii) A reasonably direct pedestrian connection between the transit stop and building entrances on the site;
 - (iii) A transit passenger landing pad accessible to disabled persons;
 - (iv) An easement or dedication for a passenger shelter if requested by the transit provider; and
 - (v) Lighting at the transit stop.
 - (c) Local governments may implement paragraphs (4)(b)(A) and (B) of this rule through the designation of pedestrian districts and adoption of appropriate implementing measures regulating development within pedestrian districts. Pedestrian districts must comply with the requirements of paragraph (4)(b)(C) of this rule.
 - (d) Designated employee parking areas in new developments shall provide preferential parking for carpools and vanpools;
 - (e) Existing development shall be allowed to redevelop a portion of existing parking areas for transit oriented uses, including bus stops and pullouts, bus shelters, park and ride stations, transit oriented developments, and similar facilities, where appropriate;
 - (f) Road systems for new development shall be provided that can be adequately served by transit, including provisions of pedestrian access to existing and identified future transit routes. This shall include, where appropriate, separate accessways to minimize travel distances;
 - (g) Along existing or planned transit routes, designation of types and densities of land uses adequate to support transit.
- (5) In MPO areas, local governments shall adopt land use and subdivision regulations to reduce reliance on the automobile which:
 - (a) Allow transit oriented developments (TODs) on lands along transit routes;
 - (b) Implements a demand management program to meet the measurable standards set in the TSP in response to OAR 660-12-035(4);

- (c) Implements a parking plan which:
- (A) Achieves a ten percent reduction in the number of parking spaces per capita in the MPO area over the planning period. This may be accomplished through a combination of restrictions on development of new parking spaces and requirements that existing parking spaces be redeveloped to other uses;
- (B) Aids in achieving the measurable standards set in the TSP in response to OAR 660-12-035(4);
- (C) Includes land use and subdivision regulations setting minimum and maximum parking requirements; and
- (D) Is consistent with demand management programs, transit-oriented development requirements and planned transit service.
- (d) Require all major industrial, institutional, retail and office developments to provide either a transit stop on site or connection to a transit stop along a transit trunk route when the transit operator requires such an improvement.
- (6) In developing a bicycle and pedestrian circulation plan as required by OAR 660-12-020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity center (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.
- (7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Notwithstanding sections (1) or (3) of this rule, local street standards adopted that meet this requirement need not be adopted as land use regulations.

Transportation Project Development 660-12-050 (1) For projects identified by ODOT pursuant to OAR Chapter 731, Division 15, project development shall occur in the manner set forth in that Division.

- (2) Regional TSPs shall provide for coordinated project development among affected local governments. The process shall include:
 - (a) Designation of a lead agency to prepare and coordinate project development;
 - (b) A process for citizen involvement, including public notice and hearing, if project development involves land use decision-making. The process shall include notice to affected transportation facility and service providers, MPOs and ODOT;
 - (c) A process for developing and adopting findings of compliance, with applicable statewide planning goals, if any. This shall include a process to allow amendments to acknowledged comprehensive plans where such amendments are necessary to accommodate the project;
 - (d) A process for developing and adopting findings of compliance with applicable acknowledged comprehensive plan policies and land use regulations of individual local governments, if any. This shall include a process to allow amendments to acknowledged comprehensive plans or land use regulations where such amendments are necessary to accommodate the project.
 - (3) Project development involves land use decision-making to the extent that issues of compliance with applicable requirements remain outstanding at the project development phase. Issues may include, but are not limited to, compliance with regulations protecting or regulating development within floodways and other hazard areas, identified Goal 5 resource areas, estuarine and coastal shoreland areas, and the Willamette River Greenway. Where project development involves land use decision-making, all unresolved issues of compliance with applicable acknowledged comprehensive plan policies and land use regulations shall be addressed and findings of compliance adopted prior to project approval. To the extent compliance has already been determined during transportation system planning, including adoption of a refinement plan, affected local governments may rely on and reference the earlier findings of compliance with applicable standards.
 - (4) Where an Environmental Impact Statement (EIS) is prepared pursuant to the National Environmental Policy Act of 1969, project development shall be coordinated with the preparation of the EIS. All unresolved issues of compliance with applicable acknowledged comprehensive plan policies and land use regulations shall be addressed and findings of compliance adopted prior to issuance of the Final EIS.
 - (5) If a local government decides not to build a project authorized by the TSP, it must evaluate whether the needs that the project would serve could otherwise be satisfied in manner consistent with the TSP. If identified needs cannot be met consistent with the TSP, the local government shall initiate a plan amendment to change the TSP or the comprehensive plan to assure that there is an adequate transportation system to meet transportation needs.
 - (6) Transportation project development may be one concurrently with preparation of the TSP or a refinement plan.
- Timing of Adoption and Update of Transportation System Plans; Exemptions 660-12-055** (1) MPOs shall compete regional TSPs for their planning areas by May 8, 1996. For those areas within an MPO, cities and counties shall adopt local TSPs and implementing measures within one year following completion of the regional TSP. Urban areas designated as MPOs subsequent to the adoption of this rule shall adopt TSPs in compliance with applicable requirements of this rule within three years of designation.
- (2) For areas outside an MPO, cities and counties shall complete and adopt regional and local TSPs and implementing measures by May 8, 1997.
 - (3) By November 8, 1993 affected cities and counties shall, for non-MPO urban areas of 25,000 or more, adopt land use

and subdivision ordinances or amendments required by OAR 660-12-045(3), (4)(a) - (f) and (5)(d). By May 8, 1994 affected cities and counties within MPO areas shall adopt land use and subdivision ordinances or amendments required by OAR 660-12-045(3), (4)(a)-(e) and (5)(d). Affected cities and counties which do not have acknowledged ordinances addressing the requirements of this section by the deadlines listed above shall apply OAR 660-12-045(3), (4)(a)-(f) and (5)(d) directly to all land use decisions and all limited land use decisions.

- (4) (a) Affected cities and counties that either:
- (A) Have acknowledged plans and land use regulations that comply with this rule as of May 8, 1995, may continue to apply those acknowledged plans and land use regulations; or
 - (B) Have plan and land use regulations adopted to comply with this rule as of April 12, 1995, may continue to apply the provisions of this rule as they existed as of April 12, 1995, and may continue to pursue acknowledgement of the adopted plans and land use regulations under those same rule provisions provided such adopted plans and land use regulations are acknowledged by April 12, 1996. Affected cities and counties that qualify and make this election under this subsection shall update their plans and land use regulations to comply with the 1995 amendments to OAR 660-12-045 as part of their transportation system plans.
- (b) Affected Cities and counties that do not have acknowledged plans and land use regulations as provided in subsection (a) of this section, shall apply relevant sections of this rule to land use decisions and limited land use decisions until land use regulations complying with this amended rule have been adopted.
- (5) Affected cities and counties shall update their TSPs and implementing measures as necessary to comply with this division at each periodic review subsequent to initial compliance with this division. This shall include a reevaluation of the land use designations, densities and design standards in the following circumstances:
- (a) If the interim benchmarks established pursuant to OAR 660-12-035(6) have not been achieved; or
 - (b) If a refinement plan has not been adopted consistent from the requirements of OAR 660-12-025(3).
 - (6) The director may grant a whole or partial exemption from the requirement of this division to cities under 2,500 population outside MPO areas and counties under 25,000 population. Eligible jurisdictions may, within five years following the adoption of this rule or at subsequent periodic reviews, request that the director approve an exemption from all or part of the requirements in this division until the jurisdiction's next periodic review:
 - (a) The director's decision to approve an exemption shall be based upon the following factors:
 - (A) Whether the existing and committed transportation system is generally adequate to meet likely transportation needs;
 - (B) Whether the new development or population growth is anticipated in the planning area over the next five years;
 - (C) Whether major new transportation facilities are proposed which would affect the planning areas;
 - (D) Whether deferral of planning requirements would conflict with accommodating state or regional transportation needs; and
 - (E) Consultation with the Oregon Department of Transportation on the need for transportation planning in the area, including measures needed to protect existing transportation facilities.
 - (b) The director's decision to grant an exemption under this section is appealable to the Commission as provided in OAR 660-02-020 (Delegation of Authority Rule).
- (7) Portions of TSPs and implementing measures adopted as part of comprehensive plans prior to the responsible jurisdiction's periodic review shall be reviewed pursuant to OAR Chapter 660, Division 18, Post Acknowledgement Procedures.

Plan and Land Use Regulation Amendments 660-12-060 (1) Amendments to functional plans, acknowledged comprehensive plans, and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and level of service of the facility. This shall be accomplished by either:

- (a) Limiting allowed land uses to be consistent with the planned function, capacity and level of service of the transportation facility;
 - (b) Amending the TSP to provide transportation facilities adequate to support the proposed land uses consistent with the requirements of this division; or
 - (c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.
- (2) A plan or land use regulation amendment significantly affects a transportation facility if it:
- (a) Changes the functional classification of an existing or planned transportation facility;
 - (b) Changes standards implementing a functional classification system;
 - (c) Allows types or levels of land uses which would result in levels of travel or access which are inconsistent with the functional classification of a transportation facility; or
 - (d) Would reduce the level of service of the facility below the minimum acceptable level identified in the TSP.
- (3) Determinations under sections (1) and (2) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.
- (4) The presence of a transportation facility or improvement shall not be a basis for an exception to allow residential, commercial, institutional or industrial development on rural lands under this division or OAR 660-04-022 and 660-04-028.

Transportation Improvements on Rural Lands 660-12-065 (1) This rule identifies transportation facilities, services and improvements which may be permitted on rural lands consistent with Goals 3,4,11 and 14 without a goal exception.

- (2) For the purposes of this rule, the following definitions apply:
- (a) "Access Roads" means low volume public roads that principally provide access to property or as specified in an

- acknowledged comprehensive plan;
- (b) "Collectors" means public roads that provide access to property and that collect and distribute traffic between access roads and arterials or as specified in an acknowledged comprehensive plan;
 - (c) "Arterials" means state highways and other public roads that principally provide service to through traffic between cities and towns, state highways and major destinations or as specified in an acknowledged comprehensive plan;
 - (d) "Accessory Transportation Improvements" means transportation improvements that are incidental to a land use to provide safe and efficient access to the use;
 - (e) "Channelization" means the separation or regulation of conflicting traffic movements into definite paths of travel by traffic movements into definite paths of travel by the traffic islands or pavement markings to facilitate the safe and orderly movement of both vehicles and pedestrians. Examples include, but are not limited to, left turn refuges, right turn refuges including the construction of islands at intersections to separate traffic, and raised medians at driveways or intersections to permit only right turns. "Channelization" does not include continuous median turn lanes;
 - (f) "Realignment" means rebuilding an existing roadway on a new alignment where the new centerline shifts outside the existing right of way, and where the existing road surface is either removed, maintained as an access road or maintained as a connection between and realignment roadway and a road that intersects the original alignment. The realignment shall maintain the function of the existing road segment being realigned as specified in the acknowledged comprehensive plan;
 - (g) "New Road" means a public road or road segment that is not a realignment of an existing road or road segment.
- (3) The following transportation improvements are consistent with goals 3,4,11, and 14 subject to the requirements of this rule:
- (a) Accessory transportation improvements for a use that is allowed or conditionally allowed by ORS 215.213, 215.283 or OAR 660, Division 6 (Forest Lands);
 - (b) Transportation improvements that are allowed or conditionally allowed by ORS 215.213, 215.283, OAR 660, Division 6 (Forest Lands);
 - (c) Channelization not otherwise allowed under subsections (a) or (b) of this section;
 - (d) Realignment of roads not otherwise allowed under subsection (a) or (b) of this section;
 - (e) Replacement of an intersection with an interchange;
 - (f) Continuous median turn lane;
 - (g) New access roads and collectors within a built or committed exception area, or in other areas where the function of the road is to reduce local access to or local traffic on a state highway. These roads shall be limited to two travel lanes. Private access and intersections shall be limited to rural needs or to provide adequate emergency access.
 - (h) Bikeways, footpaths and recreation trails not otherwise allowed as a modification or part of an existing road;
 - (i) Park and ride lots;
 - (j) Railroad mainlines and branchlines;
 - (k) Pipelines;
 - (l) Navigation channels;
 - (m) Replacement of docks and other facilities without significantly increasing the capacity of those facilities;
 - (n) Expansions or alterations of public use airports that do not permit service to a larger class of airplanes; and
 - (o) Transportation facilities, services and improvements other than those listed in this rule that serve local travel needs. The travel capacity and level of service of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the acknowledged comprehensive plan or to provide adequate emergency access.
- (4) Accessory transportation improvements required as a condition of development listed in subsection (3)(a) of this rule shall be subject to the same procedures, standards and requirements applicable to the use to which they are accessory.
- (5) For transportation uses or improvements listed in subsection (3)(d) to (g) and (o) of this rule within an exclusive farm use (EFU) or forest zone, a jurisdiction shall, in addition to demonstrating compliance with the requirements of ORS 215.296:
- (a) Identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost, not considering raw land costs, with available technology. Until adoption of a local TSP pursuant to the requirements of OAR 660-12-035, the jurisdiction shall consider design and operations alternatives within the project area that would not result in a substantial reduction in peak hour travel time for projects in the urban fringe that would significantly reduce peak hour travel time. A determination that a project will significantly reduce peak hour travel time is based on OAR 660-12-035(10). The jurisdiction need to consider alternative that are inconsistent with applicable standards or not approved by a registered professional engineer;
 - (b) Assess the effects of the identified alternatives on farm and forest practices, considering impacts to farm and forest practices, considering impacts to farm and forest lands, structures and facilities, considering the effects of traffic on the movement of farm and forest vehicles and equipment and considering the effects of access to parcels created on farm and forest lands;
 - (c) Select from the identified alternatives, the one, or combination of identified alternatives, that has the least impact on lands in the immediate vicinity devoted to farm or forest use.

- (6) Notwithstanding any other provision of this division, if a jurisdiction has not met the deadline for TSP adoption set forth in OAR 660-12-055, or any extension thereof, a transportation improvement that is listed in section (5) of this rule and that will significantly reduce peak hour travel time as provided in OAR 660-12-035(10) may be allowed in the urban fringe only if the jurisdiction applies either:
- (a) The criteria applicable to a "reasons" exception provided in Goal 2 and OAR 660, Division 4; or
 - (b) The evaluation and selection criteria set forth in OAR 660-12-035.

Exceptions for Transportation Improvements on Rural Land 660-12-070 (1) Transportation facilities and improvements which do not meet the requirements of OAR 660-12-065 require an exception to be sited on rural lands.

- (2) Where an exception to Goals 3,4,11, or 14 is required, the exception shall be taken pursuant to ORS 197.732(1)(c), Goal 2, OAR Chapter 660, Division 4 and this division.
- (3) An exception adopted as part of a TSP or refinement plan shall, at a minimum, decide need, mode, function and general location for the proposed facility or improvement:
 - (a) The general location shall be specified as a corridor within which the proposed facility or improvements is to be located, including the outer limits of the proposed location. Specific sites or areas within the corridor may be excluded from the exception to avoid or lessen likely adverse impacts;
 - (b) The size, design and capacity of the proposed facility or improvement shall be described generally, but in sufficient detail to allow a general understanding of the likely impacts of the proposed facility or improvement. Measures limiting the size, design or capacity may be specified in the description of the proposed use in order to simplify the analysis of the effects of the proposed use;
 - (c) The adopted exception shall include a process and standards to guide selection of the precise design and location within the corridor and consistent with the general description of the proposed facility or improvement. For example, where a general location or corridor crosses a river, the exception would specify that a bridge crossing would be built but would defer to project development decisions about precise location and design of the bridge within the selected corridor subject to requirements to minimize impacts on riparian vegetation, habitat values, etc.;
 - (d) Land use regulations implementing the exception may include standards for specific mitigation measures to offset unavoidable environmental, economic, social or energy impacts of the proposed facility or improvement or to assure compatibility with adjacent uses.
- (4) To address Goal 2, Part II(c)(1) the exception shall demonstrate that there is a transportation need identified consistent with the requirements of OAR 660-12-030 which cannot reasonably be accommodated through one or a combination of the following measures not requiring an exception:
 - (a) Alternative modes of transportation;
 - (b) Traffic management measures; and
 - (c) Improvements to existing transportation facilities.
- (5) To address Goal 2, Part II(c)(2), the exception shall demonstrate that non-exception locations cannot reasonably accommodate the proposed transportation improvement or facility.
- (6) To determine the reasonableness of alternatives to an exception under sections (4) and (5) of this rule, cost, operational feasibility, economic dislocation and other relevant factors shall be addressed. The thresholds chosen to judge whether an alternative method or location cannot reasonably accommodate the proposed transportation need or facility must be justified in the exception.
- (7) To address Goal 2, Part II(c)(3), the exception shall:
 - (a) Compare the economic, social, environmental and energy consequences of the proposed location and other alternative locations requiring exceptions;
 - (b) Determine whether the net adverse impacts associated with the proposed exception site are significantly more adverse than the net impacts from other locations which would also require an exception. A proposed exception location would fail to meet this requirement only if the affected local government concludes that the impacts associated with it are significantly more adverse than the other identified exception sites;
 - (c) The evaluation of the consequences of general locations or corridors need not be site specific, but may be generalized consistent with the requirements of section (3) of this rule.
- (8) To address Goal 2, Part II(c)(4), the exception shall:
 - (a) Describe the adverse effects that the proposed transportation improvement is likely to have on the surrounding rural lands and land uses, including increased traffic and pressure for nonfarm or highway oriented development on areas made more accessible by the transportation improvement;
 - (b) Adopt as part of the exception, facility design and land use measures which minimize accessibility of rural lands from the proposed transportation facility or improvement and support continued rural use of surrounding lands.