

# **Coos County Transportation System Plan**

**Adopted by the Coos County Board of Commissioners  
as part of the Coos County Comprehensive Plan**

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## COOS COUNTY TRANSPORTATION SYSTEM PLAN

### County Support for the TSP

The residents, Board of Commissioners, Planning Commission, and staff of Coos County have worked together with the Oregon Department of Transportation to complete this Transportation System Plan (TSP). As a part of the County's Comprehensive Plan, this document is intended to ensure that the state and county transportation systems operate together and provide residents with transportation options which are in keeping with state guidelines and county ideals. The County supports the State's goals to develop a transportation system that is accessible and provides options to all users; however, we believe that the methods for implementing those goals are not always consistent with local ideals or realities.

Much of this TSP has benefited the County and its management of the local transportation system. For example, the maintenance schedule included in the plan is a valuable tool for the County Roadmaster. Revisions to the county road standards have resulted in a more feasible and manageable hierarchy of roadways. Discussions concerning public roads and the divesting of low-use County roads have led to clarification of County policies. That discussion has led to suggestions for solutions to a problem that puts a drain on local resources and leaves the County open to unnecessary liabilities. This plan also helps by identifying a number of state and county roadways that pose safety, capacity, or other concerns, and presents the initial steps needed to address those concerns.

While the County acknowledges and appreciates these benefits, it must also state that certain elements of the plan are considered outside the County's interest and contrary to reasonable planning practices on Oregon's rural south coast. We believe that a number of requirements of the Transportation Planning Rule (OAR 660-012) are based on ideas designed primarily for urban areas and do not necessarily make sense for rural areas. We understand the special nature of smaller communities; that is one of the reasons we choose to live in rural Oregon. However, we do not agree with the belief that methods for "creating community" through land use and transportation planning in large urban areas are always applicable to rural communities.

We acknowledge and support the State's efforts to protect and enhance the transportation system and to provide a system that encourages all modes of travel. However, those efforts should not be based on an ideal of development that may or may not be feasible given the physical environment and may or may not be in keeping with local ideals. The people of Coos County hope that in providing for safe and efficient transportation in rural Coos County, the State and the County can work together to find reasonable solutions which satisfy both State and local needs.

### Introduction

The development of the Coos County Transportation System Plan (TSP) is in compliance with the Transportation Planning Rule and prompted through the County periodic review. Coos County views this plan as an opportunity to lay out a course of action to make strides in the development and preservation of their transportation network into the future. These strides are being made within one of the most financially constrained times in the history of the County.

**The TSP Planning Horizon**

The County recognizes that the transportation system plan is a living document which must be updated periodically to reflect changes in local demographics and transportation needs, as well being consistent with changes in the County transportation system. While the TSP reflects expected trends and needs through the year 2015, this does not meet the required 20-year planning horizon defined in the state Transportation Planning Rule. Nonetheless, as adopted, the plan provides a satisfactory basis for transportation planning in the near-term. The County acknowledges the need to update the TSP analysis and resulting planning actions to reflect a 20-year planning horizon and will do so as directed by the State. Until that update occurs, the County will rely on the data contained in the plan to help guide local transportation and land use planning.

The loss of Oregon & California timber revenue, combined with the recently passed property tax limitation initiatives (Measures 47 and 50) has created a need for the utmost scrutiny of all investments, ensuring prudent expenditure of funds. The development of the TSP has allowed the County to anticipate development impacts, determine needs to maintain acceptable performance of County roads, and make needed trade-offs between development patterns and infrastructure costs, in a long-range twenty-year context. Maintaining and improving standards of mobility for the residents and commercial needs within Coos County is a top priority for County-elected officials and staff.

This TSP has been adopted by the County Commissioners, and County Staff have developed implementing language for the County Ordinance based on this plan. The County Transportation System Plan meets the needs of the citizens of Coos County and also complies with the Transportation Planning Rule (TPR) OAR 660 Division 12.

**Organization**

The plan and supporting information have been divided into eight sections that document the process followed to reach the final Transportation System Plan. The sections correspond to the major elements of the work program.

**Section 1**

*Background.* This section provides a general description of history, economy, and demographics of this county.

**Section 2**

*Public Involvement and Interagency Coordination (PIIC).* This section outlines public involvement in the planning process and how other agencies and service providers will be involved. The report describes the materials, publications, and meetings that allowed the study team to disseminate information and receive input that helped shape the transportation system plan.

**Section 3**

*Review of Existing Plans, Policies, and Standards.* This section identifies existing documents that establish policies, regulations, and standards planning that relate to Coos County's transportation system. The report includes a review of City, County, and State documents.

**Section 4**

*Inventory of the Existing Transportation System.* This section describes the existing transportation system in Coos County and various characteristics of the system.

**Section 5**

*Transportation Needs Assessment and Alternatives.* This section identifies which aspects of the transportation system need to be addressed to meet Coos County's transportation needs for the next twenty years.

**Section 6**

*Development and Evaluation of Alternatives.* This section discusses how the identified needs will be addressed.

**Section 7**

*Street System Element.* This section discusses modernization needs and policies relating to the street system.

**Section 8**

*Public Transportation Element.* This section reviews the need for, and financing of, public transportation within the county.

**Section 9**

*Bicycle and Pedestrian Transportation Element.* The appropriate provision of bicycle and pedestrian facilities is discussed in this section.

**Section 10**

*Freight Transportation Element.* The role and accommodation of freight transport in the county is addressed.

**Section 11**

*Finance Element.* This section provides information on financing the TSP. Various funding options are reviewed, including the cost of the transportation improvements.

**Section 12**

*Street Standards.* Existing county street standards are reviewed and revised, and minimum street standards are presented in this section.

**Section 13**

*Operations and Maintenance Program.* An operations and maintenance program which will ensure that limited maintenance resources are prudently deployed is described in this section.

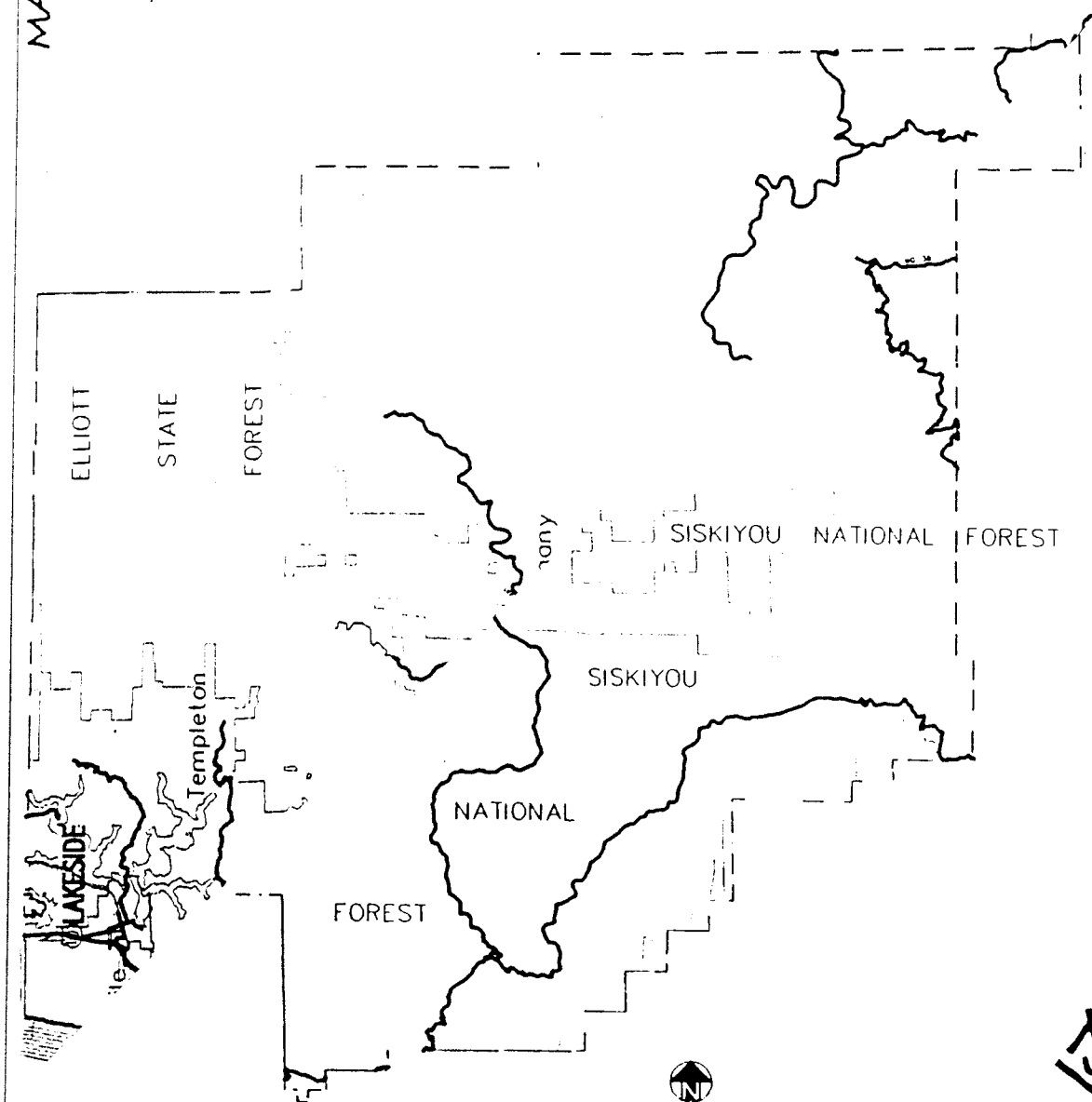
**Section 14**

*Criteria for Gating and Vacating County Roads.* This section discusses mechanisms with which the County could reduce the number of facilities it maintains.

This document has been organized in a manner that is compatible with Statewide Planning Goal 12 (Transportation) and has been prepared to be very compatible with its use as part of the update of the Coos County Comprehensive Plan.

The Coos County Transportation System Plan addresses all of Coos County except those areas within urban areas or urban growth boundaries. Map 1 illustrates the study area.

MAP 1



STUDY AREA



## SECTION I BACKGROUND

### Historical / Cultural

Coos County was established December 22, 1883, having been carved out of the western portions of Umpqua (now Douglas) and Jackson (now Josephine) counties. At that time, overland routes were hacked out of the wilderness. The Coos and Coquille Indians and their various factions were the indigenous people in the area, and the coastal rivers and forests provided them with ample supplies for living. There was very little need for those people to travel inland, so there were few primitive trails that led eastward through the coast mountain range. These trails were extremely difficult to traverse in the summer and, for all intents and purposes, closed during the winter. The early settlers thus relied heavily on waterborne transportation. As recently as 1940 there were skiffs in operation that would transport children, milk, and mail to and from school in Marshfield.

The earliest form of transportation for these pioneers was known as the mosquito fleet. These boats provided transportation between the settled areas around Empire City, Bandon, and Coquille. Fares ranged from 50 cents to 1 dollar depending on how far the passenger was traveling. These boats were used until approximately 1948 when they could no longer make a profit, because of the economical and convenient use of the auto.

The County was developed on a timber-based economy. In the 1850s the Coos Bay area was developed extensively as a logging center. The need existed to supply all the Gold Rush boomtowns with the lumber to build themselves up as they continued to grow into the 1880s. Beyond the time of the Gold Rush, there was a need for the timber products to build the major cities of the Pacific Northwest. Coos Bay developed as a port in the 1850s when the lumbermen grasped its potential. More than any other, the person that put Coos Bay "on the map" as an industrial center was Charles Axel Smith. Smith was an industrialist from Minneapolis, and in 1907-08 erected a state-of-the-art electric saw mill at Bunker Hill on the upper bay.

The transfer of Smith's operations from Minnesota to the Pacific Northwest was part of a larger pattern of the emigration of capital and expertise from the largely logged over Midwest to a region with tremendous potential. In 1911 Smith expressed his belief that Coos Bay would not only be the terminus for several transcontinental railways, but also was destined to become the largest city in Oregon.

In order to support the massive lumber operations that were being developed, other industries developed in shipping from Coos Bay, including agriculture and dairy for food and other types of service sector economies. Around 1900, a stagecoach was available on a daily basis between Coos Bay and Roseburg via the Coos Bay Wagon Road. With the development of State Highway 42 around 1918, the Wagon Road was far less traveled.

The Coos County economic base lent itself towards a rural lifestyle. With the exception of the Coos Bay area which was given over to shipping concerns, the remainder of the countryside was predominantly occupied by ranching and logging. Today this rural character persists, and many people who reside in Coos County do so because they

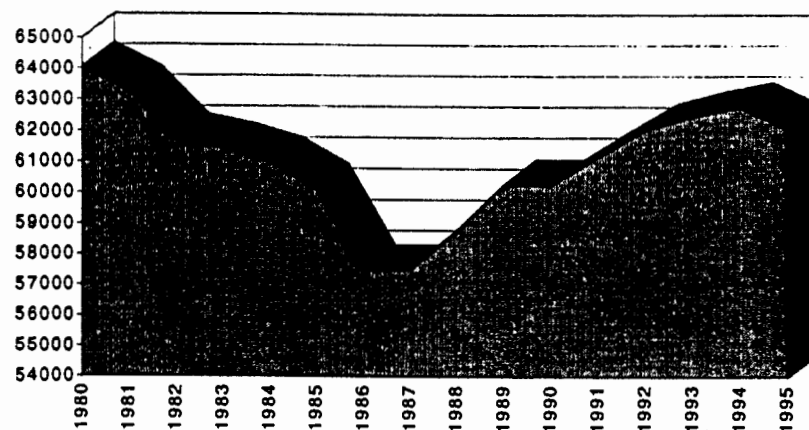
enjoy the rural life-style this area provides. The production of this plan must, therefore, ensure that the livability of the region is not compromised, while meeting statewide goals. This "trading-off" of local, regional, and statewide needs for access to economic opportunities and sustaining the livability is a critical element of this plan.

## Demographic

### Population

The population in Coos County has changed substantially since the last update of the plan, which occurred around 1983. At that time the County population total was about the same as it is today, but substantial change in the population characteristics and the County employment base has occurred. Figure 1 shows the trend from 1980 to 1995.

**Figure 1**  
**Coos County Population**

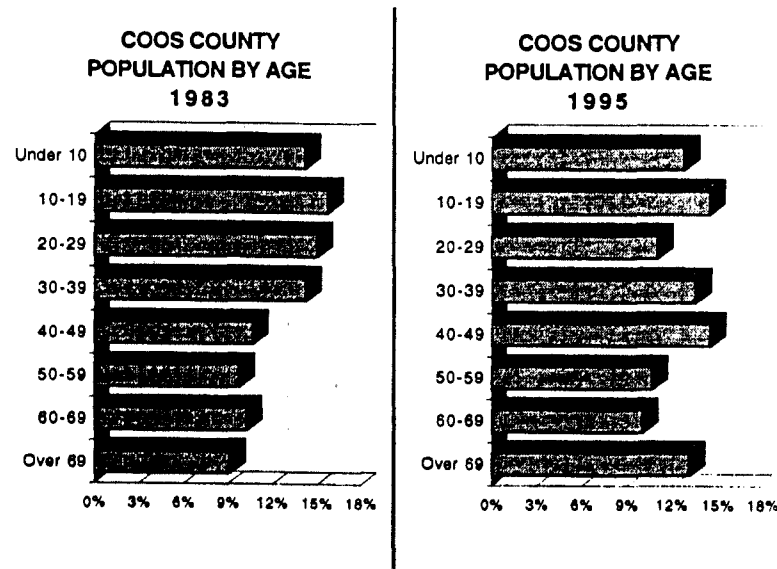


Source: Center for Population Research and Census, Portland State University

Figure 2 illustrates the dramatic shift in the age distribution of the Coos County residents. It is unclear whether changes in the population caused changes in the economy, or whether changes in the economy brought about changes in the population.



**Figure 2**  
**Coos County Population by Age**



SOURCE: Center for Population Research and Census

The graph of the 1983 population age shows a relatively young population, which is indicative of a healthy economic base. However, the picture changes substantially in 1995, with the percentage of 20-39 year olds dropping significantly, the age categories of 40 to 69 growing, and 69+ showing significant growth. This type of shift is indicative of two movements simultaneously: the age of people leaving indicates that there is no longer an employment base suitable to sustain young families, and the in-migration of 69+ population means more people on fixed incomes. A greater amount of transfer payments coming into the County requires a greater number of government workers to process payments and forms. There will also be a need for more medical, elderly and disabled services within the County.

Since 1987 the County has grown in population. Figure 3 shows the geographic location of this growth from 1985 to 1995. The table indicates that, over the last 12 years, Bandon and Lakeside have experienced the highest percentage of growth, followed by Coos Bay/North Bend. Population of the unincorporated areas of the County have remained relatively unchanged.

**Figure 3**  
**Coos County Population Growth, 1985-1995**

<b>Area</b>	<b>1985</b>	<b>1987</b>	<b>1989</b>	<b>1991</b>	<b>1993</b>	<b>1995</b>	<b>AAGR<sup>1</sup></b>
Bandon	2,330	2,465	2,535	2,335	2,425	2,610	1.14%
Coos Bay	14,695	14,290	14,220	15,065	15,170	15,430	0.49%
Coquille	4,220	3,980	4,310	4,095	4,185	4,230	0.02%
Lakeside	1,420	1,425	1,500	1,445	1,530	1,630	1.39%
Myrtle Point	2,700	2,585	2,665	2,680	2,740	2,740	0.15%
North Bend	9,135	8,755	9,160	9,730	9,800	9,855	0.76%
Powers	775	745	790	680	685	680	-1.30%
Unincorporated	24,875	23,255	25,120	25,170	25,965	24,925	0.02%
County Total	60,150	57,500	60,300	61,200	62,500	62,100	0.32%

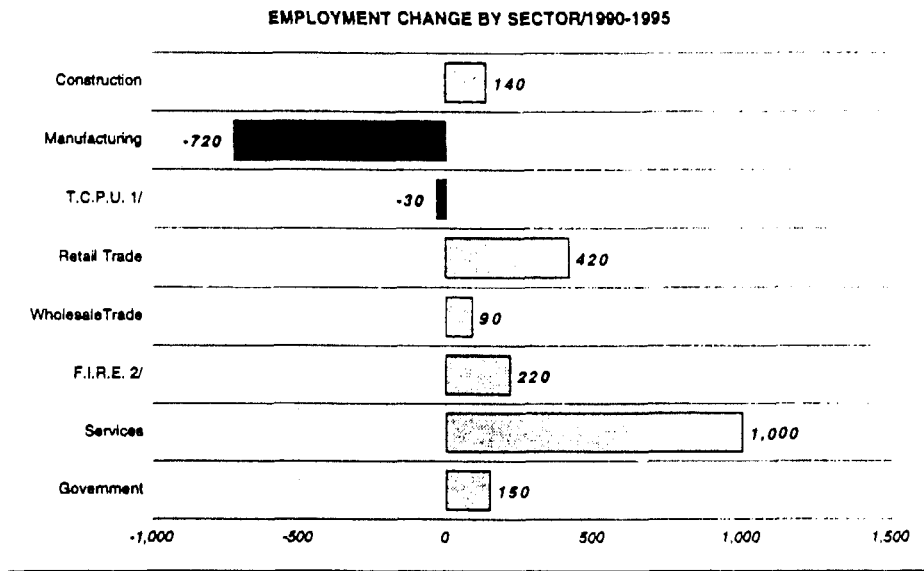
Source: Center for Population Research and Census, Portland State University

<sup>1</sup> Average Annual Growth Rate, 1985-1995

These population shifts can have major impacts on the need to provide transportation services within Coos County. The increasing population of retirement age will require that greater attention be paid to public transportation services, while the growth occurring in and around urban areas may require additional investment in the road infrastructure for increased maintenance and modernization.

### Employment

Left alone, populations tend to expand at the rate of natural increase (live births - deaths), without substantial out-migration. When out-migration happens, it typically points to a shift in the economic base of the region. This appears to be the case in Coos County. Figure 4 illustrates the local economy from 1990 to 1995.

**Figure 4**

1/ Transportation, Communication & Public Utilities

2/ Finance, Insurance, & Real Estate

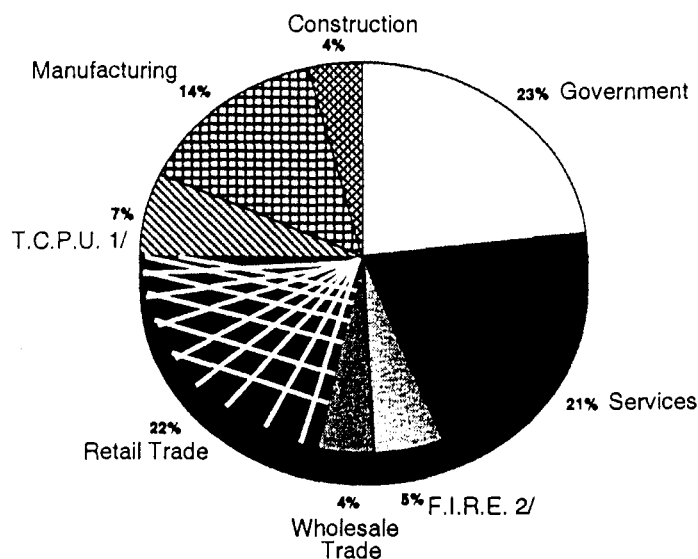
SOURCE: State of Oregon Employment Department and Hobson Johnson & Associates

The retail and service sectors have grown substantially during this period; however, the manufacturing sector has suffered great losses at the same time. The increases in the F.I.R.E.<sup>1</sup> indicate that there is opportunity in the local real estate market, while the increase in government jobs may indicate a greater strain on services to the changing character of the population.

Figures 5 and 6 show the employment distribution in the County and where Coos County measures up as compared to the rest of Oregon and the nation.

<sup>1</sup> Finance, Insurance, Real Estate

**Figure 5**  
**1995 Distribution of Employment by S.I.C**



**Figure 6**  
**Employment Distribution by S.I.C.**  
**Coos County, State of Oregon & United States**

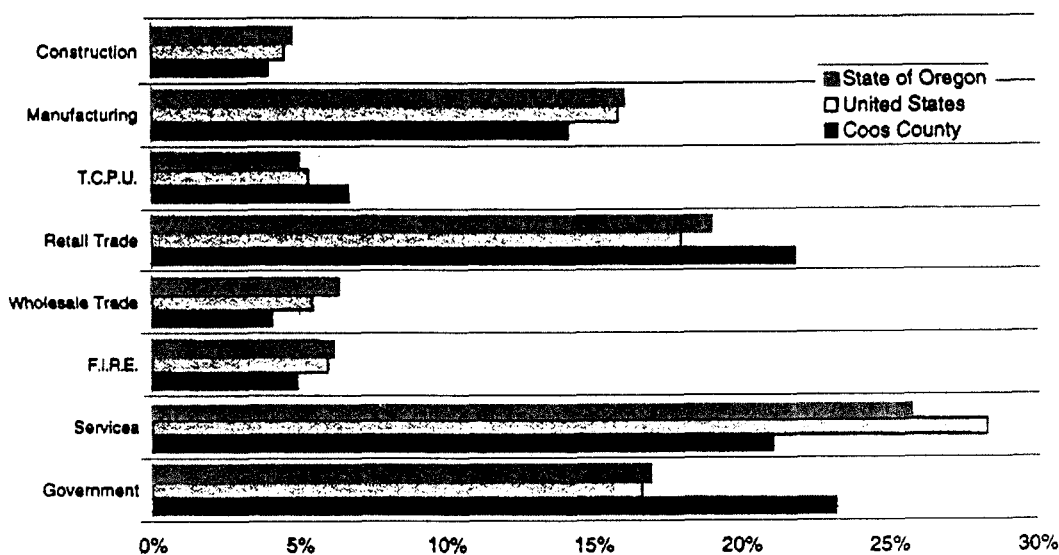


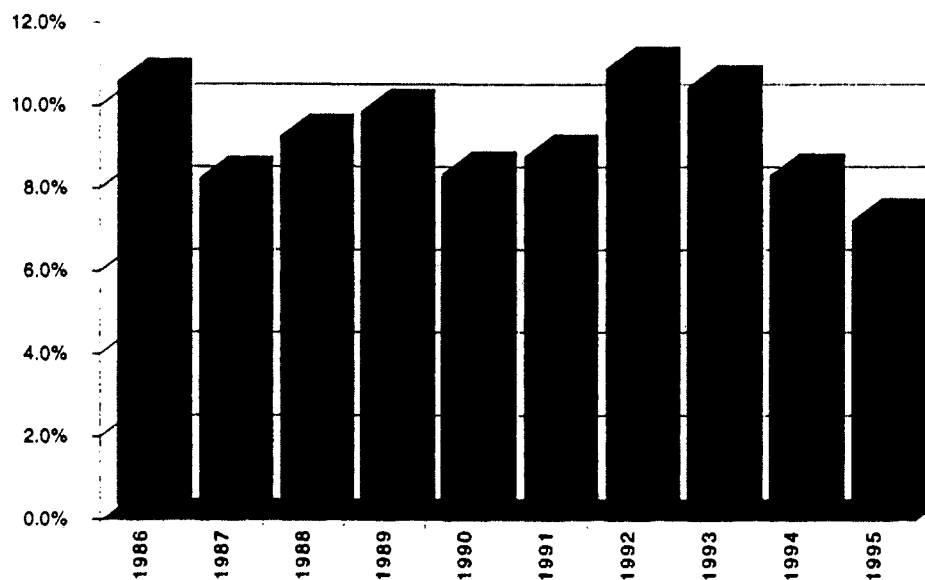
Figure 6 shows that Coos County is substantially over-represented in retail and government employment, while at the same time the County is under-represented in manufacturing and service level employment. In an area like Coos County where the

tourist industry is so vital, over-representation of the retail sector is expected. The over-representation in government employment may be due to the increase in the median age of the County and its demographic shifts. The high level of unemployment in Coos County and the associated governmental structure that is needed to support the unemployed also impacts this.

Under-representation in manufacturing can be directly associated with the dramatic job loss experienced by that sector in the first half of the 90s. The under-representation in the service sector would imply that this trend should be sustained for some time in the future, even though this sector has enjoyed large gains in the first half of the 90s.

Figure 7 shows the unemployment trend in Coos County for the ten years previous to 1995.

**Figure 7**  
**Coos County Unemployment Rate**



Source: Hobson Johnson & Associates

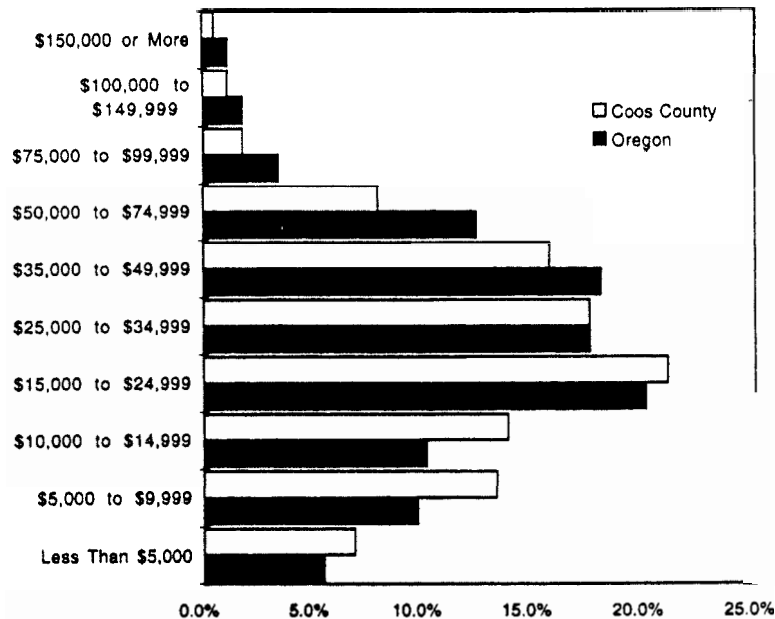
Unemployment peaked in 1992 at around 12%, but has since steadily declined to approximately 7% in 1995. This is a positive trend and suggests that, through a combination of job retraining and out-migration, the County has been able to provide jobs for its residents.

### Income

When areas go through the type of demographic change that Coos County has in the last 15 years, oftentimes income suffers. The State as a whole has enjoyed a fairly robust economy, but Coos County hasn't been afforded this luxury. This is evidenced in two ways: first, the income distribution of Coos County is lower than that of the State of

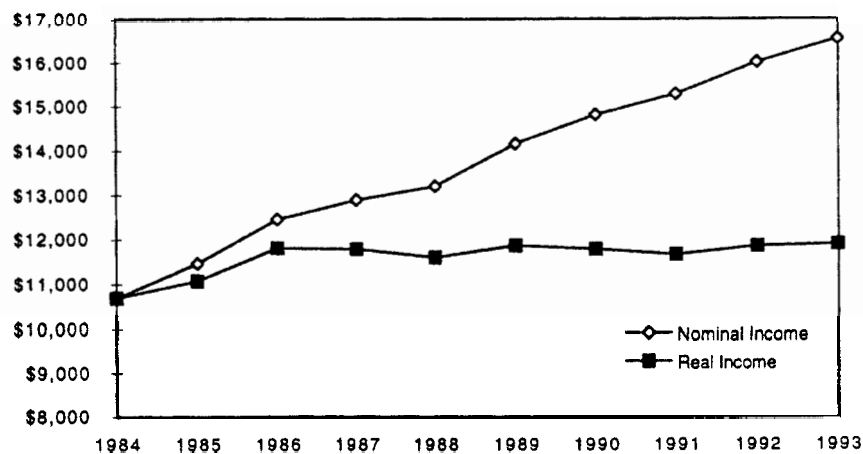
Oregon, and second, the income of the area has remained flat when adjusted for inflation. Figures 8 and 9 display this graphically.

**Figure 8**  
**Comparison of Income Distribution in Coos County and Oregon**  
**by Household**



SOURCE: 1990 US Census and Hobson Johnson & Associates

**Figure 9**  
**Coos County Per Capita Personal Income**  
**by Household**



SOURCE: US Department of Commerce and Hobson Johnson & Associates

The demographic and economic shifts that have taken place in Coos County over the last 15 years have negatively impacted the prosperity of the area. While the State has continued to raise the economic prosperity of the State as a whole, Coos County has not. In fact, the great majority of people in Coos County live within the \$35,000 and under per year wage. The per capita annual buying power of the County has remained flat.

This type of population, employment, and income information is important in order to adequately predict emerging trends that impact transportation.

### **Geographical / Topographical**

Topographically, Coos County is a complex mix of undulating mountains and winding rivers. In this rugged terrain typically road development follows the natural course of least resistance. Thus, many roads follow streams and rivers as they wind from their sources to their deltas. The riverbeds provided flatter areas within which to build roads and it was quite natural for the roadway network to follow these areas.

### **Transportation**

In Coos County, the entire range of transportation needs of the inland communities have traditionally been met on the highway network. The rural nature of the County and its industry, as well as its tourist-oriented development along the Oregon coastline have required a transportation system devoted to the efficient mobility of people and goods. Because of this, the highway network has been, and continues to be, the backbone of the transportation network in Coos County.

The inland communities rely heavily on the highway system for their access to the region. This reliance can be understood when one considers that a natural disaster, such as a flood or landslide that renders the highway impassable can cut off area residents' access to health care, groceries, school, and work. The current county comprehensive plan contains statements such as: "Coos County shall continue to support regional efforts to improve and upgrade the major highway system in the County (U.S. Highway 101 and Oregon Highway 42), recognizing that the existing deficiencies in this system strongly contribute to the County's unstable and undiversified economy." The focus of this planning effort will recognize the importance of the roadway network, but will also emphasize the importance of other modes in providing a balanced, accessible, and community-oriented transportation system.

The highway system is essential for the people who live along it and important to the inland and coastal communities linked by it, but it is not the only part of the transportation network for the County. Historically, the economies of the communities in Coos County have been strongly linked with the timber industry and farming. In addition, Coos Bay and North Bend have capitalized on the deep-water port provided by Coos Bay to develop a shipping industry. Thus it is critical to deliver a balanced transportation system that provides for all modes appropriately. At present, all communities in the County can be considered to be in transition as their economies shift to more service-

centered economic activities, particularly tourism. The impact of this shift will be analyzed in the development of this plan.



## **SECTION II PUBLIC INVOLVEMENT AND INTERAGENCY COORDINATION**

This section provides a description of the public involvement program utilized in the development of the Coos County Transportation System Plan.

### **Public Involvement Philosophy**

The Coos County Transportation System Plan must address the area's future transportation needs, with the assistance and consultant of community members, multiple jurisdictions, and other agencies. The key to satisfactory solutions lies in a satisfactory process; and the key to a satisfactory process lies in its responsiveness to the needs of impacted and concerned citizens.

An attitude of partnership established between local residents, the Cities, the County, and ODOT will ensure:

- community values and needs are reflected in the final plan;
- two-way communication is established where all parties listen and respond to each other;
- mutual goals lead all affected parties to the same destination;
- technical and community issues will be integrated to find the best overall solutions;
- the community will understand the process and how they might be affected; and
- the consensus that is developed during this Transportation System Plan is broad-based and strong enough to carry it through to future implementation.

This partnership planning effort means a pro-active public participation process that is open and responsive and where citizens play a key role and are given complete, accurate, and timely project information. Community questions, concerns, and suggestions are actively solicited so they can be addressed and incorporated into the alternatives and solutions before the decision is made. This process builds trust and credibility, encourages and values public input, and provides the opportunity for the public to assist in the decision-making process.

### **Public Involvement and Interagency Coordination Program Components**

The public participation program was designed to encourage widespread community participation during the development of the Transportation System Plan and to build a foundation for community consensus that will continue through the implementation of future projects. As with most long-term planning projects, it is often difficult to ensure extensive participation and interest. Interest and attendance tends to build as projects become more specific and residents feel direct impacts.

As a result, it is important to educate and inform citizens about the Transportation System Plan and how it will affect their future. An informed community is essential to the success of the project. To accomplish this, a variety of public participation outreach elements were incorporated into the program. These program elements included a

Citizens Advisory Committee, a Technical Advisory Committee, newsletters, open houses, graphic displays, and news media releases. These program elements are described below.

#### **Citizens Advisory Committee**

The Citizens Advisory Committee was comprised of County Commissioners and the Oregon Department of Transportation, who worked closely with the County staff/consultant team to review material for the transportation system plan. Six Technical/Citizen Advisory Committee meetings were held during the course of the project.

#### **Public Meeting**

The purpose of the public meeting was to inform the public of the current findings of the transportation system plan and to solicit comments. The public meeting was an open house format and occurred during the initial stages of the project.

#### **Newsletters**

Two newsletters were published and distributed to the public during the transportation system plan project. The intent of the newsletters was to inform the public of the status of the transportation study and its current findings. The newsletters were distributed at key points in the transportation system plan. The first newsletter described the planning process and the public process. It also included a clip-and-mail questionnaire for citizens to return. The second newsletter requested comments on issues and concerns.

#### **Public Hearing**

At the conclusion of the planning process, a minimum of three public hearings will be held to receive final comment on the plan. The first public hearing was held before the Planning Commission, where the recommendations of the Transportation System Plan were debated. At the second public hearing, the Transportation System Plan was presented to the County Commissioners for adoption.

#### **Interested Parties Mailing List**

An interested parties mailing list was developed, which includes interested citizens, business owners, agricultural interests, transportation-related special

interest groups, other affected agencies and jurisdictions, retirees, the disabled, and other interested persons.

#### **Media Releases**

To build on the informational foundation provided by newsletters, and to better inform the community, a display ad was produced to introduce the project.

### SECTION III EXISTING PLANS, POLICIES, AND STANDARDS

The evaluation of current plans and policies provided a framework for the Coos County Transportation System Plan (TSP). Consistency among plans is essential to ensure positive movement toward common goals. The following plans were reviewed prior to developing the Coos County TSP.

#### Local Plans

- **Coos Bay/North Bend and Coos County Parks Bikeway Master Plan, 1991**

This plan for Coos Bay/North Bend and Coos County Parks addresses the bicycle transportation needs to the year 2015. It suggests future bikeway improvements within the County. The development of route continuity, residential/school connections, residential/commercial connections, recreational routes, and commuter routes is emphasized. Five parks in Coos County are identified as candidates for bikeway linkages and improvements:

Charleston: Bastendorff Beach County Park  
Lakeside: Tenmile Lake County Park  
Powers: Powers County Park  
Coquille: County Boat Ramp/Federal Assistance Housing Area  
Bandon: South Jetty Park

The plan proposed a county-wide bikeway system with the state highways forming its backbone and lists improvement priorities and costs for the system over the next 20 years.

- **Coos County Comprehensive Plan, Transportation Section**

Included in the Plan is a thoughtful discussion of issues, many of which are as meaningful and relevant in 1997 as they were when the plan was documented. These issues include:

- Poor transportation network to connect Coos County to major population centers
- Poor mobility for the transportation disadvantaged
- The need for an east-west high speed link
- Excessive street standards that emphasize the automobile
- Matching limited financial resources with roadway improvement needs
- The need for alternative modes of transportation, ( e.g. transit, passenger rail, air, etc.)
- Inefficient freight movement by rail

The plan states the following goal:

Coos County shall strive to provide and encourage a transportation system that promotes safety and convenience for citizens and travelers and that strengthens the local and regional economy by facilitating the flow of goods and services.

A list of ten strategies to meet the goal is also listed in the plan.

**• Coos County Transportation Plan, 1985**

The 1985 Plan was visionary in anticipating the linkage of transportation and land use. The plan calls for the preservation of highly productive farm and forest land and discourages the development of forest roads. Included in the Plan is a discussion of the following issues:

- The present system is heavily dominated by roads, reflecting a dependence on automobiles and trucks. The willingness to make additional large commitments to this pattern of transportation is being tempered by a growing awareness of its increasing costs.
- It is now apparent that systems which encourage heavy reliance on the automobile also encourage energy waste, air pollution, and the consumption of large amounts of land. Possibilities of improved transit, including bus and rail service to move both goods and people, should be explored. Attractive and convenient pedestrian and bicycle paths should be integrated into the open space network and provide a useful transportation function as well. Mobility of the disadvantaged shall be improved.
- Whatever the optimum design of the transportation system may include, it cannot be achieved at the local level alone.
- The dominant features of the road network on the Plan Map are Highway 42 and 101. They serve local and inter-city traffic, commuter traffic oriented to the Coos Bay Area, and tourist and weekend vacation traffic to the Coast, as well as providing direct access to abutting properties throughout much of their lengths.
- The lack of safe and convenient bicycle and pedestrian facilities is a deterrent to increased use of alternative modes, and the County must look ahead to the increasing demand for alternatives modes of transportation to the automobile.
- The County shall maintain or expand air services, and shall encourage better maintenance of port channels.

The plan provides an inventory of the automobile, transit, bicycle, walking, air water, pipeline, and rail modes of transportation in the County. It describes the potentials and constraints of each mode, and discusses the transportation needs of the County. The document provides a list of recommendations to meet the needs of the County.

**• City of Bandon Comprehensive Plan**

The Transportation Element of the City of Bandon Comprehensive Plan calls for the following goal:

A transportation system meeting the complete needs of individuals, businesses, and institutions for the transport of people and goods, by multiple means, in a safe, efficient, and economical manner.

This element establishes ten objectives and 19 policies to achieve these objectives. The objectives put an equal emphasis for all possible modes of transportation in the city. Among other things, the policies promote access management along major arterials, and the development of a network of sidewalks and bicycle facilities as well as intercity bus service.

**• City of Lakeside Transportation Systems Improvement Plan, 1995**

The report discusses the transportation needs of the City of Lakeside. In the discussion, the report shows that during the period between 1984-1994, Coos County population growth rate amounted to only 0.3% per year. Lakeside, with a population of 1,615, is becoming more of a retirement and a residential community to the Coos Bay Area. The study also shows that the employment growth rate of the County during the 1990-1993 period was about 0.5% per year. The City of Lakeside vacant land analysis shows that an additional 250 dwelling units may be built in the next 20 years in that area. The major transportation problem in Lakeside is the difficulty in accessing the City from Highway 101, especially during the summer months when traffic volumes are high, and circulation in the City is inefficient. The study provides a list of transportation improvements, and changes to the Zoning and Subdivision ordinances in order to promote all modes of transportation in the city.

**• City of Coquille Comprehensive Plan**

The City of Coquille adopted a Comprehensive Plan in 1982 following a major planning effort to chart the future for the community and follow through with a strong commitment to implementation. The last periodic review process was completed in 1995. The plan establishes specific goals and lists policies and strategies to achieve them.

**• City of Coos Bay Comprehensive Plan--Transportation and Land Use Chapters**

This plan for the City of Coos Bay has a listing of issues and problem statements around transportation needs both regionally and locally within the City. The age of the transportation portion of the Comprehensive Plan is unclear, the plan was acknowledged in 1981, but the transportation portion makes reference to improvements between 1987 and 2010. The transportation portion was developed prior to the new bridge being constructed over the Coal Bank Slough.

The plan calls for a number of improvements that have already been made. These include the new bridge over the Coal Bank Slough, the establishment of a one-way couplet through the downtown portion of Highway 101, and the improvement of Highway 42.

The Plan gives a lot of emphasis to maritime concerns and the role of the Oregon International Port of Coos Bay in the development of the region and its transportation network. A final area of emphasis is public transportation. The Plan discusses not only the needs of transit dependant people, but also the need to reduce automobile traffic and conserve energy.

**• City of North Bend Comprehensive Plan—November 1989.**

The City of North Bend Comprehensive Plan separates their transportation issues into three levels, Regional, Metropolitan (i.e. Coos Bay / North Bend), and City concerns. This plan like the Coos Bay plan is very focused on problems associated with the industrial base of the area. It identifies the regional transportation network as a factor in limiting the industrial and commercial activities in the area. The plan identified problems with commercial air service into and out of the area from the North Bend Airport, as well as a need to improve connections with the City of Coos Bay.

The Goal of the transportation portion of the plan is to provide "safe, convenient, and economic transportation systems which adequately meet the needs of residents of North

Bend and the entire Bay area". The plan then lays out objectives, policies and strategies for implementation.

### Statewide and Regional Plans

#### • Draft Bay Area Transportation Study, 1995

The Bay Area Transportation Study (BATS) was initiated to develop a regional multimodal transportation system plan for the Bay Area. The study is intended to provide the cities, the County, and ODOT with a policy and technical basis for later developing and adopting local transportation system plans. The plan develops goals for each mode of transportation in the study area as well as general goals relating to the transportation system. Some of the goals developed are:

- Maintain and improve the Cape Arago Highway because it serves the principal coastal tourist destination in the study area.
- Examine the need for turn lanes at certain locations
- Examine the possibility of a three-lane facility along the entire highway
- Examine removal or retiming of the light on U.S. 101 north of the McCullough Bridge or construction of a grade-separated interchange to improve traffic flow across the bridge
- Solve the major congestion and safety hazards in the Bunker Hill area
- Examine the capability of the Trans-Pacific Parkway and U.S. 101 intersection to handle development on the North Spit
- Examine the possibility of a bridge between Elrod Street and Eastside
- Examine the possibility of developing north and south exits to a new roadway along the south shore of Coalbank Slough that would connect U.S. 101 with Charleston and would connect the existing county roads
- Develop expanded rail service to the North Spit to serve approximately 1,000 acres of undeveloped industrial land there
- Examine bike routes accessing Cape Arago and Charleston, including the route along Seven Devils Road
- Examine pedestrian access along U.S. 101 between Bunker Hill and Highway 42.

Major county roads included in the study are: McLain-Libby Drive, Englewood-Shinglehouse Drive, Southwest Boulevard, and East-Bay Drive, Trans-Pacific Parkway, and North Bay Drive. Traffic volumes on these roadways are projected not to exceed their capacities in the year 2015. However, the intersection of East Bay Drive and Highway 101 is expected to operate at an unacceptable level of service. The study recommends the addition of a left turn lane on US Highway 101 southbound at the intersection and, due to high costs of further improvements, the study recommends that the County review its land policies related to growth along East Bay Drive.

The other alternative examined involved relocating East Bay Drive to intersect with US 101 at a point further north, and combining the North Bay and East Bay drives into a single approach midway. The study indicates that the latter alternative will be costly due to steep slopes and potentially unstable soils, and recommends any further

improvements be delayed until the reconstruction or replacement of the McCullough Memorial Bridge.

The study also recommends monitoring the intersection of Coos River Highway and Olive Barber Road for safety deficiencies that may develop with increased traffic volumes. Improvements to the intersection and the easterly to northerly curvature through which the highway transitions should be considered with any approved project for widening or reconstructing the Isthmus Slough Bridge.

An average growth rate of 1% per year was used in the study to project year 2015 population and employment in the County. The County projected population for the year 2015 as 77,000 with a projected employment of 24,390. The study also indicates that 50% of the County population resides in the study area and about 63% of the jobs are in the study area.

Finally, the study recommends that Coos County amend its ordinances to provide for sidewalks in areas within cities' urban growth boundaries, maximum and minimum parking standards, and possibly block perimeter standards. It also calls for coordination of street design standards between the County and the Cities for areas within the urban growth boundaries.

#### • Oregon Transportation Plan, 1992

The Oregon Transportation Commission (OTC) adopted the Oregon Transportation Plan (OTP) in September 1992. The OTP has three elements: a Goals and Policy element, a Transportation System Element, and an implementation element. The OTP meets a statutory requirement that the OTC develop and maintain a plan for a multimodal transportation system for Oregon. The OTP also carries out the Federal Intermodal Surface Transportation Efficiency Act (ISTEA) requirements for a state transportation plan. Finally the OTP meets land use planning requirements for a State agency coordination and the Goal 12 Transportation Planning Rule. This rule requires ODOT and the cities and counties of Oregon to cooperate to develop balanced transportation systems.

#### • Oregon Highway Plan, 1991 and 1999

This plan was originally crafted under the 1991 Oregon Highway Plan. Prior to adoption, however, the 1999 Highway Plan was adopted which altered some standards at which Oregon's highways must operate. Below is a brief description of the changes the 1991 plan introduced, followed by additional changes brought by the 1999 Plan.

The 1991 Oregon Highway Plan adopted four new policies for the State of Oregon:

- Level of Importance Policy
- Access Management Policy
- Access Oregon Highway Policy
- Truck Load Restriction Policy

As an Access Oregon Highway (AOH), OR 42 is a highway corridor of statewide importance. The core program of the statewide strategy includes:

- Preservation work to 90% "fair or better" pavement condition.
- No reductions in maintenance and operations that sacrifice user safety.

- Increased bridge work to cover critical needs and seismic retrofits.

For a highway of statewide importance and more than 2000 AADT, such as OR 42, the Plan defines minimum tolerable conditions as follows:

- Level of Service: 'C'
- Average Speed: 55 mph
- Lane Width: 12 feet
- Shoulders: 6 feet paved
- Alignment: no reduced speed

The most significant changes brought by the 1999 update of the Oregon Highway Plan is in the way highway performance is measured and the classification of highways in terms of freight movements and the acknowledgement of special situations regarding transportation facilities in urban and rural commercial areas. Specifically, the 1999 OHP redefines the method by which highway performance is reported, moving from Level of Service (LOS) designations to more specific volume-to-capacity ratios. This change provides a specific threshold above which performance of a highway segment or intersection can be considered unacceptable.

The 1999 Plan also designates certain state highways as freight routes. This designation outlines management direction for these routes which protects the function of the highway as an important freight throughway and calls for the consideration of freight movements in any transportation decisions concerning local use of the highway. Similarly, the refinement of the Special Transportation Area designation, or STA, provides better direction for those areas along the highways which are built-up to such a density that performance is degraded below acceptable standards and likely cannot be improved. Discussion of these issues are discussed within the Plan as appropriate.

#### ● **OR 42 and OR 38 Draft Corridor Plans**

ODOT is working with representatives from jurisdictions and agencies along both OR 38 and OR 42 to develop management strategies and identify needs and project solutions which will protect and improve the performance of all modes within the two highway corridors. The interim Corridor Strategy documents identify several general management strategies for the two highways which will provide the basis for the development of the final plans. Serving as the basis for the Corridor management actions are policies contained within the OTP, the Oregon Highway Plan, and the State's modal plans.

The Plans recognize the interconnected nature of the highway system in Coos and Douglas Counties with Highways 38 and 42, together with US 101 and Interstate 5 providing access to and from the region. Both 38 and 42 provide economic benefits, as well as providing alternatives for regional access in the cases of a significant disaster. The Plans also recognize that both highways serve as truck routes and provide access for tourists. This is especially important along OR 38 which is considered a very scenic corridor. Although OR 38 is not located in Coos County, it serves as a vital link for traffic traveling between the South Coast and the Willamette Valley. OR 42 generally serves the same purpose for those travelling to the southern interior of Oregon or California.

The Corridor Plans will contain descriptions and detailed maps of the projects identified to improve each highway. The Plans will also contain recommendations for further



planning for the section of US 101 that connects the two highways. Such a refinement study will allow for discussion of the need to balance the dual role US 101 serves in this region of a freight route, as well as one of Oregon's primary tourist routes.

- **Oregon Rail Freight Plan, 1994**

This plan presents an overview of the rail system in Oregon. It outlines the State rail planning process and examines specific rail lines in detail that may be eligible for State or Federal assistance. None of these lines are located in southwest Oregon. The report examines the trend of service on low-density rail lines being increasingly provided by the short haul (Class III) railroads. The report does not identify any dimensional restrictions present on the Coos Bay branch, but does document weight and speed restrictions on the line from Coquille to Coos Bay.

- **Coos Bay Branch Line Study: An Economic Review, Freight Services Incorporated, 1993.**

This study, commissioned by the Coos County Urban Renewal Agency, examines the economic feasibility of the Coos Bay branch rail line and identifies future alternatives. The report indicates that there is approximately \$8,500,000 in deferred maintenance and bridge replacements that must be completed between Eugene and Cordes. In addition, the North Bend swing bridge requires an investment of \$1,300,000 immediately and annual expenditures of \$150,000 for the next 10 years to keep it operational during this period. At that time, an investment of \$13,900,000 to \$30,300,000 will be required for bridge replacement.

The economic analysis indicates that the deferred maintenance costs combined with the North Bend Swing bridge repairs and replacement are not cost effective, given the present usage of the line. Therefore, if rail service is to continue to North Bend, Coos Bay, and south to Coquille, it will likely require public funding for the replacement of the bridge.

This report evaluates several alternatives to the replacement of the bridge and concludes an immediate expenditure of \$1.3 million and annual expenditure of \$150,000 should be dedicated to the North Bend swing bridge repairs. These repairs will extend the usefulness of the bridge to possibly 10 years. This provides the opportunity for the affected communities to carefully consider all options, including a possible relocation of international port activities to a site north of the existing bridge.

- **Central Oregon and Pacific Railroad Operating Plan, 1994**

This report indicates that Central Oregon and Pacific Railroad, Inc. (COPR), a wholly owned subsidiary of RailTex, Inc., intends to lease (with purchase option) the rail line between Cordes and Coquille from Southern Pacific (SP) and operate it as a short haul feeder line. The initial operation of the railway will mirror the service currently provided by SP with service frequency meeting shippers' needs on the Coos Bay line between Eugene and Coquille, and closer connections with scheduled SP outbound trains from the Eugene yard. The North Bend swing bridge is identified as one of the structures requiring public funds for rehabilitation and replacement. The marketing plan calls for increased cooperation with shippers on the line, the addition of specialized shipping equipment, and increasing frequency of service.

- **Southwest Oregon Freight Movement Study, 1995**

This study reviews shipping practices, economic trends, and commodity flows in Coos, Curry, Douglas, Jackson, Josephine, and a portion of Klamath Counties. The study evaluates current and future freight transportation demand in southwestern Oregon in order to identify constraints or lack of continuity in the freight transportation system, and opportunities to switch freight shipment to different modes.

Among other things, the study identifies regional economic trends, the region's largest employers, population and employment trends, industries moving freight in region, commodity movements, and location of markets. The study also identifies deficiencies on the highway and rail system serving the region. The study indicates that the Coos Bay branch has no dimensional restrictions on any part of the line with an average of 2.6 severe curves per mile. A number of substandard rail bridges in the Coos Bay area, however, limit weight loads to under 240,000 pounds between Coos Bay and Coquille.

The study identifies potential improvements that could improve rail freight shipments, including the replacement of the North Bend swing bridge. The study indicates that retail, followed by local government services, and lumber and wood products manufacturing are the major industry sectors in Coos County.

● **Oregon International Port of Coos Bay Strategic Business Plan, 1997**

This study documents major demographic shifts that have been occurring in the Port of Coos Bay market area. These trends point to the graying of the Coos County population, and that the greatest out migration is in age ranges from 25-49, and the greatest in-migration trends is in the 65+age category. Recent job losses, and the shifting of the economy have led to a migration of the workforce which has hurt the local economy of the area. This can be evidenced by looking at the steady wages that have characterized the buying power of the County.

The plan also looks at the port facilities, and how they may better capitalize on opportunities that are available to them within maritime commerce and other port holdings in and around the Coos Bay area. The study recommends that the port concentrate on its holdings in its RV park and outdoor market.

● **Oregon Bicycle and Pedestrian Plan, 1995**

The goal of the Plan is to provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking. The plan identifies, among other things, policies, classification of bikeways, construction and maintenance guidelines, and suggested actions to achieve these objectives. These actions are:

- Action 1: Provide bikeway and walkway systems that are integrated with other transportation systems.
- Action 2: Create a safe, convenient and attractive bicycling and walking environment.
- Action 3: Develop education programs that improve bicycle and pedestrian safety.

● **Oregon Public Transportation Plan, 1996**

The plan is primarily focused on public transportation in metropolitan and urban areas. There is some discussion of intercity public transportation but the inventory shows that

there is no intercity rail service closer than Eugene to the OR 42 corridor. The closest intercity bus service is on Highway 101 and Interstate 5. Currently, there is no scheduled intercity bus service in the OR 42 corridor. The following minimum of service standards applies for conditions in year 2015.

#### Communities of 2,500

Public transportation services in communities of 2,500 would:

- Coordinate intercity senior and disabled services with intercity bus and van services open to the general public.
- Connect local public transportation and senior and disabled services to intercity bus services.
- Provide an accessible ride to anyone requesting service.
- Provide at least 1.7 annual hours of public transportation service per-capita with fixed-route, dial-a-ride or other service types.
- Provide at least one accessible vehicle for every 40 hours of service.
- Provide one backup vehicle for every 3.5 vehicles.
- Maintain vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers' suggested retirement age.

#### Communities of 2,500 within 20 miles of an Urban Central City

Public transportation services in communities of 2,500 within 20 miles of an urban central city would:

- Provide daily peak hour commuter service to the core areas of the central city.
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well.
- Provide park-and-ride facilities along transit route corridors to meet reasonable peak and off-peak demand for such facilities.
- Maintain vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers' suggested retirement age.
- Establish ride matching and demand management programs in communities of 5,000 where there are employers with 500 or more workers who are not already covered by a regional ride matching/demand management program.
- Establish ride matching and demand management programs in communities of 10,000.

#### Rural and Frontier Communities

Public transportation services in rural and frontier communities would:

- Provide public transportation service to the general public based on locally established service and funding priorities.
- Provide an accessible ride to anyone requesting service.
- Provide a coordinated centralized scheduling system in each county and at the state level.
- Provide phone access to the scheduling system at least 40 hours weekly between Monday and Friday.

- Respond to service requests within 24 hours (not necessarily provide a ride within 24 hours).

• **Oregon Coast Highway Corridor Plan, Discussion Report 1993**

The study presents a range of scenarios for the Oregon Coast Highway which describe the recommended broad system level solutions developed to address the problems and respond to opportunities identified. The study sets a vision statement of the corridor. The conceptual scenarios have been aggregated by the County. Coos County includes study zones from 49B to 56. The presentation of the scenarios for each zone includes five parts:

- Theme and goal focus
- Objectives
- Activities
- Implementation
- Concepts not advanced.

There are ten strategies which apply to the entire length of the Coast corridor, and which show promise for meeting the Vision, Goals and Objectives of the Corridor Plan:

1. Intercity passenger services, including both bus and air travel, should be provided at levels which ensure mobility for those who require or prefer these modes of travel.
2. Cost effective improvements to the corridor's port and rail systems should be made to facilitate the economical movement of goods.
3. Information to motorists should facilitate the selection of appropriate east-west routes to speed highway travel to and from the Willamette Valley.
4. Systematic planning for management of the transportation consequences resulting from natural disasters and emergencies should occur.
5. Standards should be established to preserve and enhance the scenic and visual resources of the entire corridor.
6. Land use plans should be coordinated fully with plans for transportation improvements, both at the local and the corridor level.
7. Safer, more uniform treatment of bicycle travel should occur in the corridor.
8. Private and public signs of all kinds should be controlled and coordinated.
9. Above ground utilities should be rerouted and precluded from expanding in the right-of-way and/or in key viewsheds.
10. Local economic development improvement projects and strategies should be implemented.

## **SECTION IV INVENTORY OF THE EXISTING TRANSPORTATION SYSTEM**

This section of the transportation plan describes the existing transportation system conditions in the County. This includes a description of the roadway characteristics, physical inventory, functional classification, traffic volumes, transit, rail, air, and port service, and pedestrian and bicycle facilities.

### **Roadway Characteristics and Functional Classification**

Map 2 depicts the functional classification of the roadway system in the County. The functional classification of the roadways was taken from a roadway functional classification map obtained from the Oregon Department of Transportation (ODOT).

Identification of the roadway functions is the basis for planning roadway improvements and the appropriate standards (right-of-way, roadway width, and design speed) that would apply to each roadway facility.

#### **State Highways**

Discussion of the Coos County street system must include the state highways that traverse the planning area. Coos County is accessed by two state highways: US 101 and OR 42. These highways connect the major centers in the County.

The 1999 Oregon Highway Plan (OHP) classifies the state highway system based on the federal highway classification system with some additional details that provide better guidance for highway management. The following designations are used to classify State highways: Interstate Highways, Statewide Highways, Regional Highways, District Highways, Local Interest Roads, and Inter-modal Connectors. Further, some of these classes are further divided depending on urban or rural uses, or in some cases, depending on additional highway uses which must be considered. The State no longer uses the Access Oregon designation.

Two Statewide Highways (US 101 and OR 42) are located in Coos County, along with four District Highways (OR 42S, OR 240, OR 241, OR 242) and two Inter-Modal Connectors (the Trans-Pacific Parkway and Mullen Street in Bunker Hill). Other state District level and Inter-Modal facilities are located within the cities of Coos Bay and North Bend.

#### **Statewide Highways**

According to the OHP, the primary function of a statewide highway is to "provide inter-urban and inter-regional mobility and provide connections to larger urban area, ports, and major recreation areas that are not directly served by Interstate Highways." Within urbanized areas, a secondary function is "to serve land uses in the vicinity of these highways".

US 101 is a primary arterial of statewide importance along the Oregon coastline and forms the north/south spine of the county transportation system. Outside Coos Bay and North Bend, US 101 has two, four, or five lanes. Highway 42 (Coos Bay to Roseburg

Highway—#35) is a primary arterial and runs east-west through the center of the County, providing access to Douglas county from US 101.

### **District Highways**

A District Highway is considered a facility of “county-wide significance and functions largely as county and city arterials or collectors. They provide connections between “small urbanized areas, rural centers and urban hubs, and also serve local access and traffic.” For both types of highways, the emphasis is on preserving safe and efficient higher speed through travel in rural areas, and moderate to low speed operations in urban or urbanizing areas. This means that design factors such as controlling access and providing passing lanes are of primary importance.

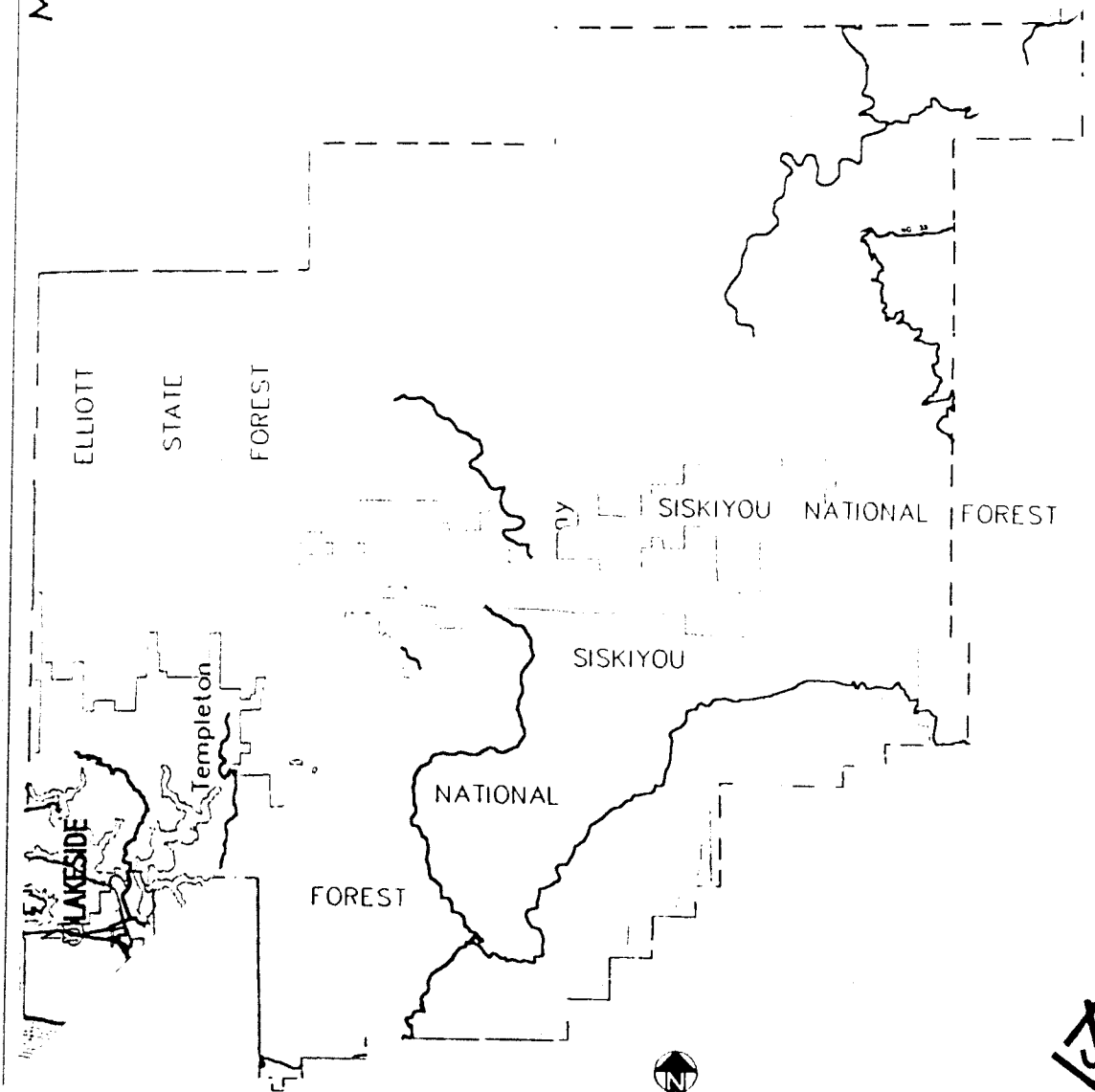
- Highway 42S (Coquille-Bandon—Highway #244) is a narrow two-lane minor arterial, with minimal shoulder width. This road links Bandon and Coquille, and provides for I-5 bound traffic from the southwestern part of the County.
- Cape Arago Highway (Highway #240) runs from downtown North Bend, to Empire, south through the community of Charleston, to Cape Arago State Park. Within the County, the highway is a two-lane facility, but within the cities of Coos Bay and North Bend it has anywhere from two to five lanes.
- Coos River Highway (Highway #241) begins in Bunker Hill and runs east through the Eastside section of Coos Bay. From there the Highway is largely rural and continues to the community of Allegany. The highway is a two-lane facility with restricted shoulders.
- Powers Highway (Highway #242) provides access from OR 42 to Powers and the Siskiyou National Forest. This is a two-lane highway with numerous sub-standard curves and limited shoulders.

### **Other Classifications**

In an effort to protect and enhance the economy of Oregon, the Oregon Transportation Commission has provided for the designation of certain highways as “Freight Routes.” This designation is to ensure that freight is able to move efficiently on the state’s major trucking routes. Higher performance standards are applied to these routes and the needs of through freight movement must be considered with local access issues when managing the highway. US 101 between OR 38 in Reedsport and OR 42, south of Coos Bay, has been designated a Freight Route, as has OR 42.

Additionally, the State is seeking to designate certain highway segments as “Expressways” which allow for further refinement of the highway classification system. The Expressway function is to “provide for interurban travel and connections to ports and major recreation areas with minimal interruptions.” In urban areas, speeds are moderate to high and in rural areas, speeds are high. In short, the Expressway designation addresses the number of access present on the roadway segment (not the ownership of access rights) and how those can be limited and/or controlled to ensure the free flow of traffic. At this time, no highway segments within Coos County have been designated as Expressways, although the portions of OR 42 and US 101 between Myrtle Point and Coos Bay, excluding the segment within the city of Coquille, have been identified as a potential candidate for such a designation.

MAP 2



ROAD CLASSIFICATION



## County Street System

### Street Classification

Coos County has three existing street classification levels: arterial streets, collector streets, and minor streets.

**Arterials** - Intra-community roadways connecting community centers with major facilities. In general, arterials serve both through traffic and trips of moderate length. Access is partially controlled with infrequent access to abutting properties. At this time, the only arterials in the County are state facilities described in the previous section. As a result, improvement to those arterials will be made according to ODOT standards. In the event that the county builds or takes over management of any arterials, those roads will be built and managed to County arterial standards.

**Collector** - Streets connecting residential neighborhoods with smaller community centers and facilities, as well as access to the arterial system. Property access is generally a higher priority for collector arterials; through traffic movements are served as a lower priority.

**Minor Streets** - Streets that serve residential properties with the arterial system. Property access is the main priority; through traffic movement is not encouraged. They are designed to carry low traffic volumes.

### Major Collectors in Coos County:

- McLain-Libby is a two-lane collector providing east-west access between US 101 in south Coos Bay and the Cape Arago Highway near Charleston.
- Seven Devils Road/ West Beaver Hill Road is a two-lane, north-south collector providing access to the unincorporated area of Charleston from US 101.
- Myrtle Point - Lampa Road is a two-lane collector linking OR 42S with Myrtle Point via Arago. This road continues in a southerly direction to Broadbent on the Powers Highway.
- East Bay Drive is a two-lane collector which serves as an alternative route for north-south travel through the cities of North Bend/Coos Bay. East Bay Drive runs from Glasgow along the eastern edge of the bay to the Coos River Highway east of Eastside.
- North Bay Drive is a two-lane collector which loops around Haynes Inlet from US 101.

Other major collectors include:

- Coos City - Sumner Road
- Catching Slough - Sumner Road
- Sumner - Fairview Road
- Fairview - McKinley Road



- Lone Pine - Dora Road
- Myrtle Point - Sitkum Road
- North Lake Road

All of these collectors are two-lane facilities

### **Street Layout**

The County's road network developed out of a need to access the major trading centers in the region. These "farm to market" roads followed the most suitable terrain, that of the river. Owing to low volume of traffic on these streets, their geometry has changed very little and is characterized by sharp curves and limited shoulder width.

### **Inventory**

The current transportation conditions on the existing roadways were measured and examined during the fall of 1996. This analysis included a physical inventory of all the County's arterial and collector roads. An inventory is listed in the Appendix. The inventory table includes the following:

- number of travel lanes and direction of travel
- street width and right-of-way width
- street classification and jurisdiction
- speed limit and pavement conditions
- designation of on-street parking, bike route, or truck route
- signage

### **Accident History**

An analysis of motor vehicle accidents throughout the County was accomplished through a review of ODOT's reported accident history for the years 1993 through 1996. Reported accidents indicate a total of 401 accidents over the five-year period, including 206 injury accidents and 12 fatalities.

The highest accident rate of highways in the county occurred along US 101 north of North Bend. The accident rate in this area for 1991 through 1995 was 0.80 accidents per million vehicle kilometers (a/mvkm) [1.30 accidents per million vehicle miles {a/mvm}], nearly twice the statewide rate of 0.46 a/mvkm (0.74 a/mvm) for similar highways during that period. Table 1 lists the accident history of locations with nine or more accidents in the county. On County roads, the highest number of accidents occurred on McLain-Libby Road.

**Table 1: High Accident Locations, 1991-1995**

<b>Location</b>	<b>Number of Accidents</b>
McLain-Libby Road	31
East Bay Drive	18
Fairview Road	18
Seven Devils Road	17
Sumner-Fairview Road	13
North Bank Road	10
North Lake Road	10
Olive Barber Road	10

Source: ODOT, 1997

Analysis of performance of the County transportation system can be found in Section V.

### **Inventory of Port Facilities**

The County's marine transportation consists primarily of shipping in and out of the Port of Coos Bay, and to a lesser extent, the Port of Bandon.

#### **Port of Bandon**

The Port of Bandon district covers an area of 320 square miles. The Port is located on the Coquille River Estuary, approximately 24 miles south of Coos Bay. The estuary is a shallow draft development and at one time provided access to a number of resource-based industries, particularly wood products. At this time the Port is primarily used for commercial fishing and recreational uses.

#### **Port of Coos Bay**

The Port of Coos Bay is the largest deep-draft port on the West Coast between San Francisco and Vancouver, British Columbia. The Port covers approximately 700 square miles and includes the Coos and Millicoma Rivers. The lower 15.2 miles of the channel are maintained to a depth of -37 feet MLLW (Mean Lower Low Water). The Port contains nine deep-draft cargo terminals, 11 deep-draft berths, four cargo barge facilities and eight non-cargo miscellaneous and/or special purpose moorages.

#### Current Use

The Port of Coos Bay served approximately 130 deep-draft vessels and 210 barges in 1998. Approximately 2.8 million short tons of freight were handled at Coos Bay in 1998. This is a decrease in tonnage shipped from preceding years. Table 2 and Figure 10 summarize total tons and type of freight shipped in and out of the Port of Coos Bay in 1998. Outbound cargoes are almost exclusively related to wood products or raw logs. Of the total outbound tonnage in 1998, 84 percent were wood chips. Inbound cargoes, both

imports and domestic products, include logs and lumber (60 percent), as well as Nickel ore and petroleum products.

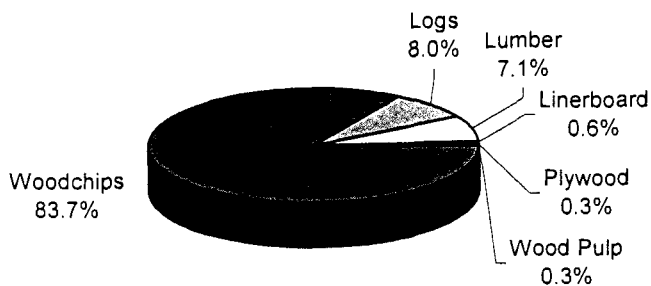
**Table 2: Port of Coos Bay Shipping Activity  
Outbound and Inbound Tonnage, 1998**

<b>Outbound</b>	<b>Short Tons</b>
Total Outbound	2,384,958
Total Exports	2,292,748
Total Domestic	92,210
<b>Inbound</b>	
Total Inbound	482,493
Total Imports	157,798
Total Domestic	324,695
<b>Total Tonnage</b>	<b>2,867,451</b>
Deep-draft Ship Calls	132
Barges (Loaded)	147
Barges (Light)	64

Source: Oregon International Port of Coos Bay, 1999

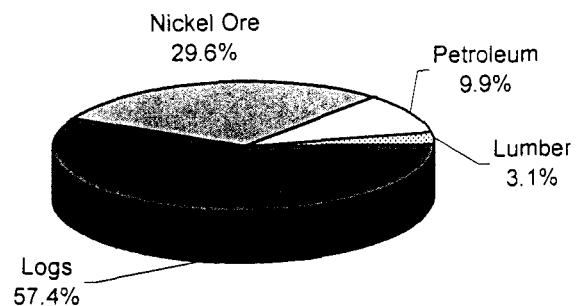
**Figure 10: Type of Freight Shipped  
Port of Coos Bay, 1998**

**Outbound Products**  
Total Outbound Tons - 2,348,958



Source: Oregon International Port of Coos Bay, 1999

**Inbound Products**  
Total Inbound Tons - 482,493



Source: Oregon International Port of Coos Bay, 1999

Facility Capacity

The decline of the resource-based industries that once buoyed the local economy resulted in a decrease in shipping activity from the Port. More recently, the decline in Asian markets has resulted in further decreases in Port activity. As a result, the Port of Coos Bay has sufficient capacity to handle significant increases in volume. A number of potential industrial developments have been proposed for Coos County in the past 15 years. It is beyond the scope of this plan to evaluate potential impacts of individual development proposals. However, the following presents a general discussion of the Port's unused capacity. The Freight Plan element of this TSP (page 91) follows up on this information.

The Port of Coos Bay has capacity for additional cargo, breakbulk and warehousing operations. For example, of the 9,000 feet of frontage dedicated to cargo, approximately 46 percent are not in use. Similar percentages relate to breakbulk acreage and warehousing square footage. Tables 3 and 4 summarize 1999 conditions relating to use and unused capacity of Port facilities.

**Table 3: Current Port Facility Capacity  
Port of Coos Bay, 1999**

<b>Facility</b>	<b>Capacity</b>	<b>Percent of Total Not in Use</b>
<b>Cargo Operations</b>		
Length of deep-draft acreage dedicated to cargo:	9,006 lineal feet	—
Length of deep-draft acreage capacity not currently in use:	4,130 lineal feet	46%
<b>Terminal</b>		
Upland acreage dedicated to breakbulk cargo:	102 acres	—
Breakbulk cargo acreage not currently In use:	48 acres	47%
Breakbulk cargo acreage converted to log cargoes:	34 acres	80%
Breakbulk terminal warehousing capacity:	626,000 square feet	—
Breakbulk warehousing not currently in use:	310,000 square feet	50%
Breakbulk warehousing converted to other uses:	100,000 square feet	65%
Breakbulk facilities built capacity (outbound):	1,896,000 short tons	—
Breakbulk facilities current operating volume:	213,300 short tons	11%

Source: Oregon International Port of Coos Bay, 1999

**Table 4: Moorage and Terminal Capacity  
Port of Coos Bay, 1999**

<b>Facility</b>	<b>Capacity<sup>1</sup></b>	<b>Percent of Total Not in Use</b>
Woodchip export facilities optimal design capacity:	4,830,000	—
Woodchip facilities current operating volumes:	2,000,000	41%
Dry bulk import facility optimal design capacity:	1,200,000	—
Dry bulk import facility current operating volume:	0	100%
Outbound in-water/landside log loading capacity:	1,020,000	—
Log loading – current operating volume:	200,000	20%
Total cargo capacity / all existing terminals:	8,948,000	—
Total current volume / all operating terminals:	2,413,000	27%

Source: Oregon International Port of Coos Bay, 1999

<sup>1</sup> Short tons

The Port also owns approximately 600 acres of developable industrial land adjacent to the deep-draft channel. Depending on the development scenario, development of these properties as cargo facilities could increase the capacity of the Port by as much as 4.8 million short tons. Oregon International Port of Coos Bay projections indicate that, based on current facility use and vessel-call figures, the Port could handle between 350 and 400 deep-draft vessel calls each year, compared to the 130 that currently visit the Port. The development of new terminals on existing Port land could add an additional 150 to 255 calls each year.

### **Public Transportation Inventory**

At this time there are no fixed-route public transportation systems serving Coos County. A regional dial-a-ride service operates, giving priority to the disabled, elderly, and transportation disadvantaged. This service is available to the general public only after these other user groups have been served. This system is currently overburdened by attempting to serve its priority rider groups, thus functionally it is only a special needs transportation system. Bandon, Coos Bay/North Bend, Coquille, and Myrtle Point also have local dial-a-ride systems that serve their residents. Usually, these services are limited in terms of the range they may cover, meaning that inter-city trips must be coordinated through the regional system. Additionally, a number of smaller transit providers serve targeted groups such as certain disabled or senior groups. Taxi service is also provided throughout the County.

South Coast Business Employment Corporation recently completed a study that examined the feasibility of transit throughout Coos and Curry counties. The Coos and Curry County Transit Feasibility Study provides a complete list of transit providers and vehicles serving the south coast region.

Table 5 shows the ridership and revenue totals for the Coos County transit system for Program Years 1995, 1997, and 1998. In 1995, the Coos County system provided approximately 33,200 rides, but dropped in 1997 to just under 27,000 trips and 23,700 trips in 1998. In 1998, Senior and Disabled persons accounted for approximately 75 percent of total ridership.

**Table 5: Coos County Transit Data  
Program Years 1995, 1997, and 1998**

Area	Total Ridership			Senior & Disabled Trips			Fares & Contracts		
	1995	1997	1998	1995	1997	1998	1995	1997	1998
Bay Area	17,050	14,658	12,255	9,316	5,747	6,920	\$23,656	\$42,376	\$38,145
Coquille	5,079	4,481	4,176	4,516	3,107	3,832	\$3,644	\$4,231	\$9,143
Myrtle Point	4,629	2,433	2,582	3,674	2,081	2,287	\$3,020	\$4,312	\$3,899
Bandon	5,400	4,400	4,116	4,962	2,303	3,957	\$3,872	\$4,248	\$5,853
Lakeside	N/A	200	38	127	50	24	N/A	\$931	\$220
Coos Vets	1070	889	586	1,070	889	614	\$770	\$0	\$0
Total	33,228	27,061	23,753	23,665	14,177	17,633	\$34,962	\$56,098	\$57,260

**Change in Coos County Transit Indicators**

Category	1995	1997	1998	AAGR <sup>1</sup>
Total Ridership	33,539	27,061	23,753	-11%
Fares & Contracts	\$36,237	\$56,098	\$57,260	16%
Senior & Disabled Trips	23,665	14,177	17,633	-9%

Source: South Coast Business Employment Corporation, 1999

<sup>1</sup> AAGR—Average Annual Growth Rate

Although the ridership dropped between 1995 and 1998, this is not necessarily indicative of the demand that exists for the service, but an indicator of a system that is overburdened and underfunded. Routine maintenance on some vehicles has been deferred to the point that breakdowns in the fleet can impact the service that is provided. Stable funding and increased investment in the public system would benefit the system's ability to serve the growing needs that exist in the County.

### **Rail Transport Inventory**

The Central Oregon and Pacific Railroad (CORP) acquired the Coos Bay branch line between Cordes (approximately at the North Spit) and Danebo (west of Eugene) in 1994. The CORP leases trackage south of Cordes to Coquille, including the rail swing bridge from the Union Pacific Railroad. The Coos Bay branch line connects Coos Bay to the rail yards in Eugene which allow for connections to the north, south, and south east.

Based on data from the CORP and the Port of Coos Bay, approximately 5,000 carloads of cargo were shipped in 1998 on the CORP line between Coquille and Lakeside. On

average, this equals approximately 450,000 tons. According to the railroad, approximately 50 percent of this activity was related to the Weyerhaeuser paper operation on the North Spit. Table 6 presents rail carloads that moved through Coos County between 1995 and 1998. Although the historic rate of growth has averaged over 8 percent each year, the railroad expects this rate to be 2 percent each year over the next 20 years.

**Table 6: Rail Carloads between Coquille and Lakeside  
1995-1998**

<b>Year</b>	<b>Carloads</b>	<b>Annual Increase</b>
1995	4,053	—
1996	4,451	9.8%
1997	4,537	1.9%
1998	5,197	14.5%
<b>AAGR</b>		<b>8.6%</b>
<b>Expected Growth Rate<sup>2</sup></b>		<b>2.0%</b>

Source: Central Oregon and Pacific Railroad, 1999

<sup>1</sup> Average Annual Growth Rate

<sup>2</sup> Central Oregon and Pacific Railroad projection

Of the 138 miles of track on the Coos Bay line, only nine miles allow speeds of 40 mph. The remaining 129 miles are restricted to 25 mph or less. A number of the tunnels and structures along the line require immediate attention to ensure continued rail service to the region. In addition, there are also several areas along the track that lack slide fences where they are critically needed. The Coos Bay line was closed for a time in 1997 between Florence and Mapleton due to slides. The CORP has expressed concern that these speed limits restrict additional use of the rails for shipping to and from Coos County. In addition, the rail swing bridge over Coos Bay is in need of extensive repairs. The Oregon International Port of Coos Bay has worked to secure federal funds for the rehabilitation of the swing bridge and is now working on resolving issues relating to ownership of the structure and securing a non-federal match.

### **Air Transport Inventory**

Of the four airports in Coos County, North Bend Municipal Airport is the largest and provides the most services. There are three state-owned airports in the County which are non-towered, general aviation airports; these are located in Bandon, Powers, and Lakeside. The following table indicates the annual number of aircraft operations that took place at each of these facilities in 1994 as reported in the Oregon Continuous Aviation System Plan.

**Table 7: Annual Aircraft Operations  
Coos County, 1994<sup>1</sup>**

<b>Airport (Runway #)</b>	<b>Main Runway Length &amp; Type (feet)</b>	<b>Passenger Air Service</b>	<b>Based Aircraft</b>	<b>Annual Aircraft Operations</b>	<b>Percent of Operational Capacity Used<sup>2</sup></b>
North Bend Municipal					
04/22	5,330' asphalt	Yes	61	39,700	40%
13/31	5,045' asphalt				
16-34	2,300' asphalt				
Bandon State Airport	3,600' asphalt	No	29	11,177	N/A
Lakeside State Airport	2,150' turf	No	0	1,000	1%
Powers State Airport	2,500' Turf	No	1	500	1%

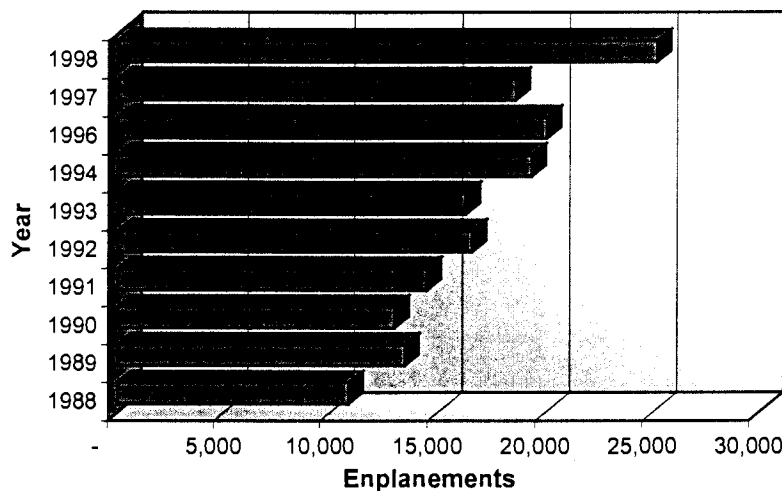
Sources: Oregon Continuous Aviation System Plan, 1997; Oregon International Port of Coos Bay, 1999

<sup>1</sup> 1994 unless otherwise noted; does not include commercial or military vehicles

<sup>2</sup> Annual Service Volume; does not include storage capacity

The North Bend Municipal Airport, owned by the City of North Bend and operated by the Oregon International Port of Coos Bay, currently has commercial passenger service provided by Horizon Air, with four flights per day. Historically, commercial service at North Bend has been directed to Portland or Eugene, with limited southbound service to locations such as Crescent City or San Francisco. Currently, Horizon Air connects only to their hub in Portland. In 1998, North Bend experienced 25,188 enplanements, up from 18,601 the previous year. As seen in Figure 11, between 1988 and 1998, enplanements at North Bend increased an average of 10 percent each year.

**Figure 11: Historical Enplanements  
North Bend Municipal Airport, 1988-1998**



Source: Oregon Continuous Aviation System Plan, 1997; Oregon International Port of Coos Bay, 1999



The 1997 airport master plan includes projections for enplanements through the year 2013. Based on a comparison of local, regional, and national data, the master plan projects 28,000 enplaned passengers in the year 2008 and 30,400 enplanements by the year 2013.

Airfreight service for the south coast region is provided at the airport by UPS (United Parcel Service), FedEx, and Pegasus Air, as well as by Horizon. The airport is also home to the U.S. Coast Guard's North Bend Air Station which serves the South Coast.

The airport has an Automated Weather Observation System (AWOS) funded by the FAA. This system provides weather data at specific intervals, which is augmented by direct verifications and additional input from weather observers, and then reported to the National Weather Service for distribution worldwide. Finally, the North Bend airport is designated as an Essential Service Location under the National Airspace System Plan (NASP) because it is the only airport on the Oregon coast with an Instrument Landing System (ILS) and FAR Part 139 Certification. The NASP calls for the airport to be open and supported 24-hours per day.

### **Pipeline Inventory**

Discussion of pipeline facilities usually concerns the transmission of natural gas. No such pipeline facilities exist in Coos County. Industries along the corridor have expressed interest in the development of a natural gas pipeline from the existing Grants Pass lateral west of Roseburg to the North Spit industrial area of Coos County. Preliminary investigations indicate that such a utility may be viable and could stimulate economic development in the region. Trunk lines have also been discussed to provide service to the cities in the county.

A grant to Coos County for \$20 million for a natural gas pipeline was approved, contingent upon residents of the County voting to issue general obligation bonds to account for the remaining costs of the line. The first step in providing such a facility is to determine a preferred route and appropriate levels of service.

## SECTION V TRANSPORTATION NEEDS ASSESSMENT

### General Background

Future transportation needs within Coos County are based on anticipated regional growth and the anticipated development that is likely to occur as a result of increased population. Regional transportation needs are estimated by extrapolating past trends in traffic growth on the regional and state facilities.

The year 2015 was chosen as the twenty-year planning horizon for the study in order to identify future demographic and traffic conditions. Beyond the twenty-year planning horizon, population, employment, and future travel demand forecasts become more speculative and less reliable for identifying future infrastructure needs. This subsection summarizes the development of future population and employment projections that were used to develop travel demand forecasts for Coos County.

A Level-2 (or “cumulative”) analysis technique for traffic forecast for the County was used. This technique, similar to the potential development impact analysis, is less detailed than a complete transportation model. It basically estimates future traffic volumes by adding traffic generated by future development to the existing base traffic. This technique is very efficient for analyzing traffic impacts from general overall growth; however, it does not allow for a combined comprehensive impact analysis of various developments throughout the study area. The development of a detailed transportation model (i.e., small zones, all streets included, and several different trip purposes analyzed) must be maintained and updated regularly to justify the time and expense in its creation.

The eight-step process utilized to determine future transportation in the County is illustrated in the flow chart in Figure 12. A summary of each step is given below.

#### **Population Forecast (Step 1)**

The transportation modeling process utilizes future population and land use estimates as its “yard stick” to determine likely transportation demand. The amount of future development that is likely to occur in a community is estimated by extrapolating the amount of development currently supported by the community, based on the population.

#### **Land Use Forecast (Step 2)**

The land use forecast element predicts where future development is likely to occur. Vacant zoned land is identified in ODOT’s Potential Development Impact Analysis (PDIA) reports. Based on the amount of projected development, two scenarios were developed which indicate the most likely areas where development could occur in the community.

#### **Trip Generation Analysis (Step 3)**

The goal of the trip generation analysis is the development of functional relationships between trip end volumes and the land use and socioeconomic characteristics of units from which they originate or are destined. There are two different kinds of trip ends: trip productions and trip attractions. Trip productions usually are defined as the total number

of trips with home end in a zone, while trip attractions usually are defined as the total number of trips with the non-home end (e.g. working place) in a zone. The trip generation analysis utilized a land area trip rate analysis (*ITE Trip Generation Manual*) to determine the number of trips generated by a development.

**Trip Distribution (Step 4)**

Trip distribution is the analysis of trip interchanges to determine the travel patterns generated in the study area. Trip analysis distributes the trip productions to the attractions quantified during the trip generation analysis. The trip distribution technique utilized in this study was the gravity model. This model relates the attractiveness of each zone to the productivity of another zone by the spatial impedance (i.e., travel time, travel distance or travel cost) between both zones.

**Mode Split (Step 5)**

During the mode split process, all trips are allocated to the available transportation modes. Usually, this analysis is only performed in urban areas with fixed-route transit operation and a significant proportion of transit patronage.

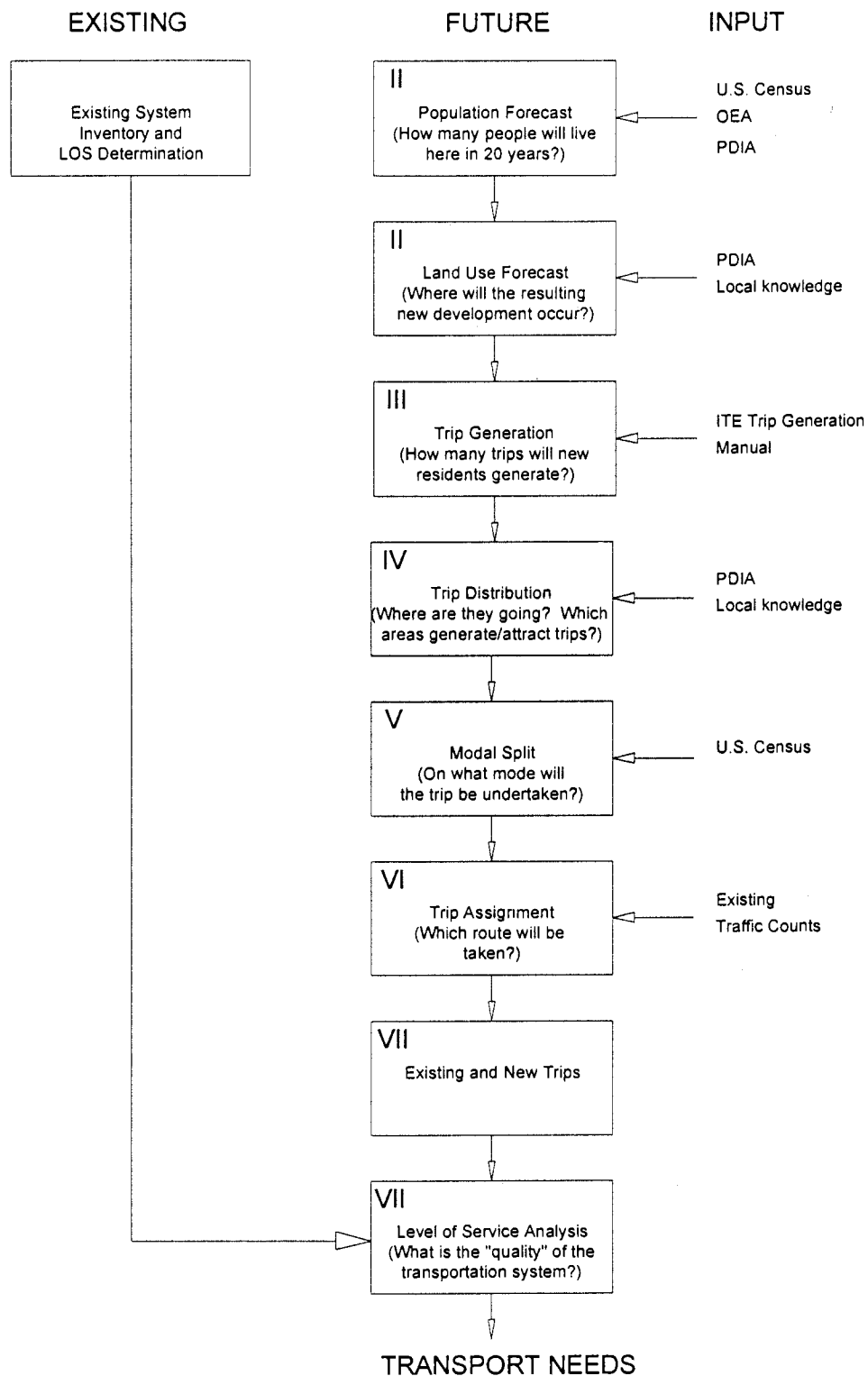
**Trip Assignment (Step 6)**

Trip assignment is the analysis of the route taken by a trip maker. The trip assignment analysis assigns all trips made in the study area to a specific route of streets or transit route. Traffic assignment can be accomplished in a variety of ways; however, the underlying assumption for all of them is that every road user chooses the shortest path (shortest travel time) to reach his destination. An all-or-nothing assignment, where all traffic between two zones is assigned to the shortest route between both zones, was used in this study.

**Roadway Performance Analysis (Steps 7 and 8)**

The new trips are then added to the existing traffic volumes on the network, and a level of service, or mobility standard, analysis is conducted utilizing ODOT approved software.

Figure 12: Transportation Needs Assessment Flow Chart



## Population Forecast

The determination of realistic population estimates is a critical element of the demand forecasting process. In order to provide consistency with other planning initiatives in and around the County, the Department of Land Conservation and Development (DLCD) requires that the statewide population forecasts developed by the Oregon Office of Economic Analysis (OEA) be utilized in the development of the Transportation System Plan.

DLCD will entertain alternative population forecasts, provided they are proved appropriate. In this section, two alternative population forecasts are reviewed and compared to the OEA forecast. The following forecasts are considered:

- Oregon Office of Economic Analysis
- Portland State University Center for Population Research and Census
- Coos County Water Supply Study

The following is a summary of these projections.

### Portland State University Center for Population Research and Census

In the periodic review process of the Coos County Comprehensive Plan, population projections from Portland State University's (PSU) Center for Population Research and Census undertaken in 1993 were utilized. Unfortunately, only projections for the year 2010 were given. Portland State estimates the population in 2010 to be 74,046 persons. Utilizing Lagrangian Interpolation, it is estimated that the population in 2015 will be 76,310 persons.

### Oregon's Office of Economic Analysis

Oregon's Office of Economic Analysis (OEA) has also made various population forecasts for the County. During the initial part of this project, the OEA supplied three population projections which were used. Three different methodologies were used to produce three very different scenarios. These estimates are detailed in the following table.

**Table 8: Coos County Population Projections**

Year	Scenario 1	Scenario 2	Scenario 3
1995	62,100	62,100	62,100
2000	67,533	63,159	63,394
2005	71,994	61,986	63,725
2010	76,435	62,590	64,116
2015	80,996	62,096	64,741

Source: Oregon Office of Economic Analysis, 1996

Scenario 1 assumes that the County will grow at the same rate as the State. In Scenario 2, it is assumed that the County's growth patterns experienced between 1990 and 1995 will continue. The Office of Economic Analysis's initial forecast is given in Scenario 3.

This forecast utilizes the growth between 1940 and 1995 as a guide in estimating the County's population.

The State's population growth rates, as utilized in Scenario 1, indicate a decreasing growth rate from 1.83% in the years 1990 - 1995 to 1.17% in the years 2010 - 2015. This decreasing trend for the State is in keeping with rates provided by other organizations, such as the Bonneville Power Administration and the Bureau of Census. While the growth rate is decreasing, the population growth rate is still positive, thus indicating an increasing population. However, there are diverse options among community members as to whether the County can maintain such a growth rate. It can be seen that in Scenario 2, the County's population peaks in year 2000 and steadily declines thereafter.

The Office of Economic Analysis's preliminary forecast, Scenario 3, also utilizes a declining growth which decreases at a higher rate than that used in Scenario 1. This trend is supported by Portland State University's Center for Population Research and Census.

In late April, OEA released a revised population projection for the County which indicated a future population of 67,868 persons in year 2015.

#### Coos County Water Supply Study

As part of the Bay Area Transportation Study, population projections were made for the County. These projections were derived from the Coos County Water Supply Study completed in 1993. The projection for the year 2015 was calculated utilizing an average growth rate of 1%. This growth rate is the same rate experienced by the County during the last four years and represents the fastest rate of growth experienced in the County in more than twenty years. The resultant population in year 2015 is 77,000 persons.

#### Comparison of Population Forecasts

From the above, it is evident that there is considerable diversity in the projected population for Coos County. The diversity in population estimates is evident during discussions with residents at the Open House meetings. The actual number of residents at the design year is dependent on the degree of optimism about the County's economy - those optimistic residents see the County's population approaching 100,000 persons, while others believe that there will be less economic activity, resulting in little growth. Owing to the decline of the wood products industry and the County's resultant re-orientation to other economic activities, projections based on previous trends are not likely to produce reasonable estimates. The migration of persons from California to Southern Oregon is likely to continue. To date, this migration has seemingly been absorbed by the various communities without showing any dramatic increase in population.

Both Portland State University and the Coos County Water Supply Study estimated the future population to be in the order of 76,000 persons; however, indications are that the high growth experienced over the last four years will not be sustained over a twenty year period. Therefore, for the purposes of this analysis, it seems reasonable to conclude that the Office of Economic Analysis's revised scenario projection of 67,868 persons is plausible and will provide logical estimates of the population of Coos County for the project.

### Land Use Forecast

Two different growth scenarios were used in the development of the plan. Both scenarios assume a population of 67,870 for the year 2015 and a growth rate for the cities and the unincorporated areas in the County of 0.44% per year for the next twenty years. The following table illustrates year 2015 projected population for all cities combined and unincorporated areas in the County.

**Table 9: Coos County Population Forecasts**

City	Population Year 1994	Population Year 2015
All Cities in County	36,950	41,188
Unincorporated Areas	25,850	26,680
<b>TOTAL</b>	<b>62,800</b>	<b>67,868</b>

The Coos County Potential Development Impact Analysis (PDIA) completed in 1994 provides estimates for dwelling units, commercial and industrial space occupied in the year 1994 for the unincorporated areas. The following statistics for the year 1994 are extracted from the PDIA.

Number of persons per commercial acre =  $25,850 / 76 = 340.1$

Number of persons per industrial acre =  $25850 / 448 = 57.7$

Under this population growth scenario, a household size of 2.45 is used based on Census information. Using the PDIA based persons per acre, and the Census based persons per household, the projected number of dwelling units that will be needed to support the population growth in the unincorporated areas will be 339 units for the year 2015. Furthermore, commercial space used to support this population growth is estimated at 2.44 acres, while 14.38 acres of industrial space will be used.

### GROWTH SUMMARY

Formula:  $(2015 \text{ pop} - 1994 \text{ pop}) / \text{persons per unit} = \text{units needed}$

Dwelling Units Needed:  $(26,680 - 25,850) / 2.45 = 339 \text{ d.u.}$

Commercial Acres Needed:  $(26,680 - 25,850) / 340.1 = 2.44 \text{ acres}$

Industrial Acres Needed:  $(26,680 - 25,850) / 57.7 = 14.38 \text{ acres}$

Based on the projected population the number of dwelling units; commercial and industrial space were distributed using two schemes.

### Growth Distribution Scenarios

#### 2015 Population: 67,868

Scenario A Growth surrounding cities will be proportional to cities' population.

Scenario B Growth will be concentrated in unincorporated areas surrounding Coos Bay Area.

#### Scenario A

Under this scenario, growth in the unincorporated areas (i.e. additional dwelling units, commercial and industrial space needed or used) will be proportional to the current population of the cities. Thus, cities with higher population are projected to receive a higher portion of growth in the unincorporated areas surrounding them. This growth will be distributed in proportion to the amount of vacant lands available. The following table illustrates the projected growth in the different parts of the County for peak hour traffic.

**Table 10: Growth Distribution Scenario A**

City	%Cities Population	Growth Surrounding City		
		Dwelling Units (trips) <sup>1</sup>	Commercial Space in acres (trips) <sup>2</sup>	Industrial Space in acres (trips) <sup>3</sup>
Bandon	6.58%	22 (22)	0.16 (15)	0.95 (10)
Coos Bay	41.81%	142 (143)	1.02 (98)	6.01 (63)
North Bend	26.63%	90 (91)	0.65 (62)	3.83 (40)
Coquille	11.35%	38 (39)	0.28 (27)	1.63 (17)
Lakeside	4.37%	15 (15)	0.10 (10)	0.63 (7)
Myrtle Point	7.42%	25 (26)	0.18 (17)	1.07 (11)
Powers	1.84%	6 (6)	0.05 (5)	0.26 (3)
County Total		339 (342)	2.44 (234)	14.38 (151)

<sup>1</sup> trips during PM peak hour = dwelling units x 1.01

<sup>2</sup> trips during PM peak hour = commercial spaces (acres) x 24 (1,000 square feet of gross leasable area per acre) x 4

<sup>3</sup> trips during PM peak hour = industrial spaces (acres) x 10.48

#### Scenario B

Under this scenario, it is assumed that all projected growth will take place in the unincorporated areas surrounding the Coos Bay Area in proportion to the amount of vacant lands available. The analysis shows that sufficient vacant lands are available in the Coos Bay Area to accommodate all growth projected for the County's unincorporated areas.



**Table 11: Growth Distribution Scenario B**

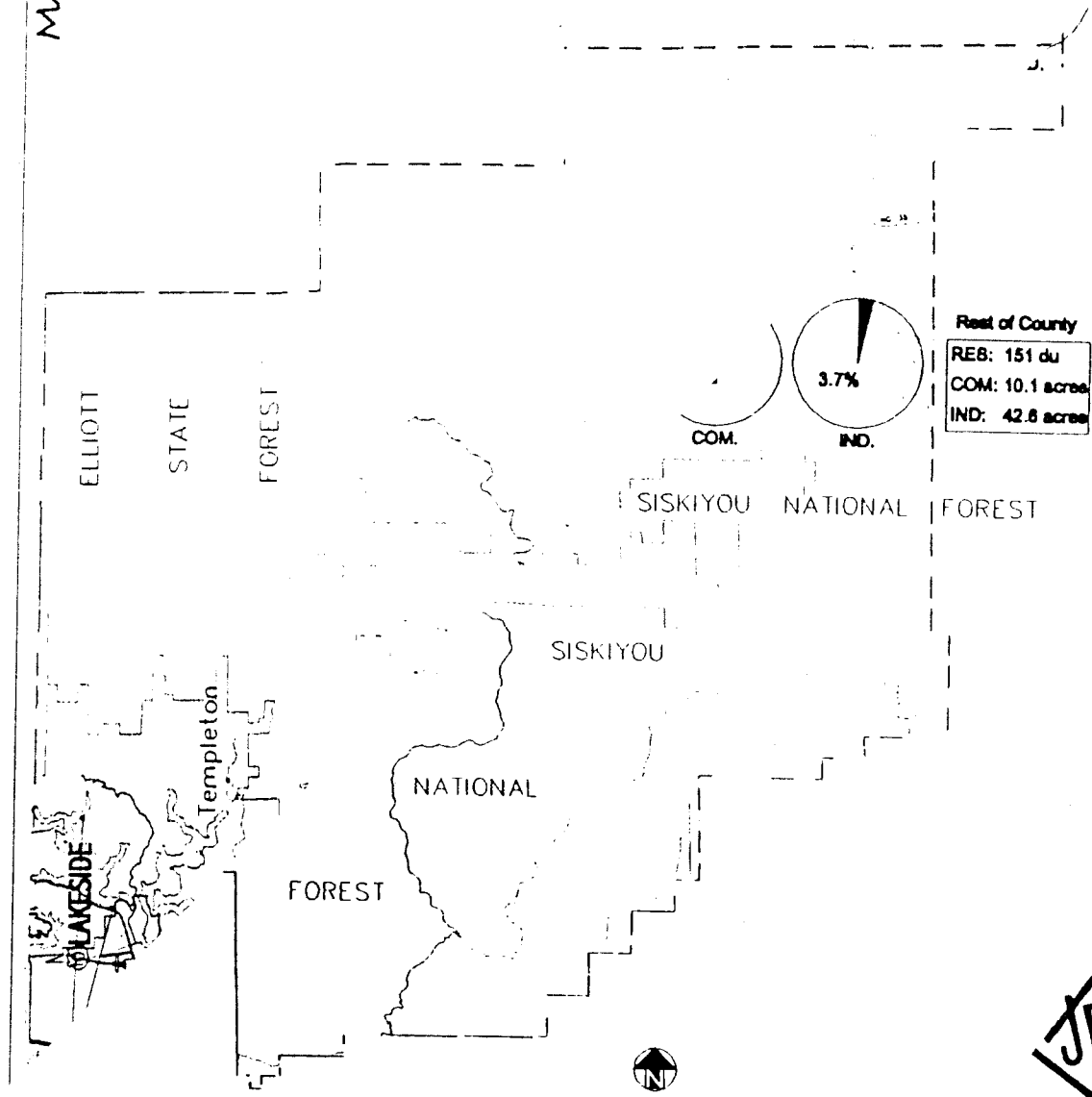
<b>Growth Surrounding City</b>	<b>Dwelling Units (trips)<sup>1</sup></b>	<b>Commercial Space in acres (trips)<sup>2</sup></b>	<b>Industrial Space in acres (trips)<sup>3</sup></b>
Coos Bay Area	339 (342)	2.44 (234)	14.38 (151)

<sup>1</sup> trips during PM peak hour = dwelling units x 1.01

<sup>2</sup> trips during PM peak hour = commercial spaces (acres) x 24 (1,000 square feet of gross leasable area per acre) x 4

<sup>3</sup> trips during PM peak hour = industrial spaces (acres) x 10.48

Map 3 illustrates the locations where development is likely to occur under both scenarios.



ZONED VACANT LANDS



### Trip Generation

The trip generation analysis uses the functional relationship between trip end volumes and the land use and socioeconomic characteristics of the potential development to determine the number of new vehicular trips generated or attracted to a new development.

Vehicle trip generation estimates were made for each potential development in the study area on the basis of the type and quantity of residential dwellings and employees. Trip generation rates applied to these land uses were derived from the Institute of Transportation Engineers' *Trip Generation, Fifth Edition*, 1991. These rates were modified to reflect generalized land use categories for planning purposes on the basis of experience in other similar sized cities in Oregon. These rates are summarized in the following table.

**Table 12: Additional Trip Generation by Land Use**

<b>Land Use</b>	<b>Trip Generation Rate (PM Peak Hour)</b>
Residential	1.01 trips per dwelling unit
Commercial	4.00 trips per 1,000 sq. ft. of Gross Leasable Area
Industrial	10.48 trips per Acre

The amount of traffic generated was estimated for the PM peak hour by multiplying the number of dwellings or employees by the appropriate origin and destination trip generation rate by trip purpose.

The following four trips types are considered:

- **External to external trips** - These trips originate outside the study area and travel through the study area.
- **External to internal trips** - These trips are attracted to an origin within the study area from outside the study area.
- **Internal to external trips** - These trips originate within the study area and are destined somewhere outside the study area.
- **Internal to internal trips** - These trips originate from within the study area and are destined within the study area.

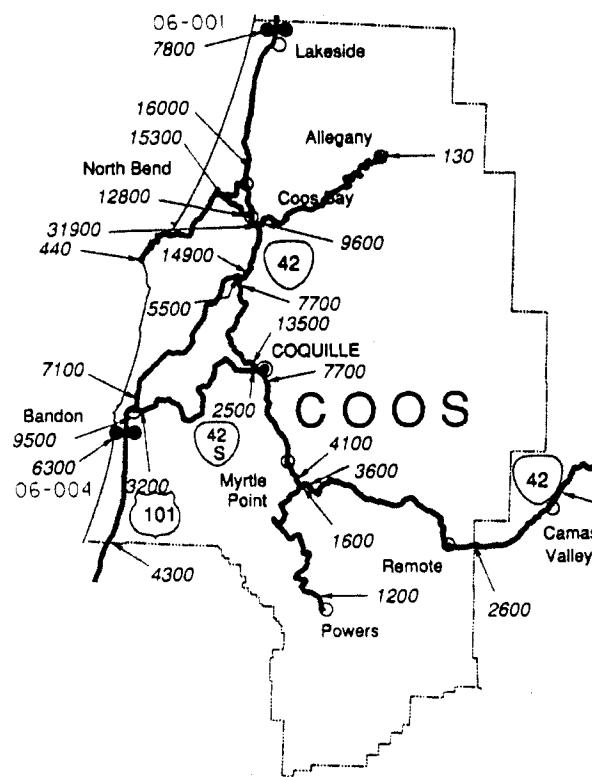
The external to external trip component within a study area is typically determined by a license plate survey. Since a license plate survey was not part of the scope of this work, the external to external trip component cannot be developed directly. Historical daily traffic volume data was used to determine the external to external growth rate and the external to external trip component was developed from daily traffic trends on US 101 and OR 42.

### Existing Traffic Volumes

Existing average daily traffic volumes on US 101 and OR 42 were obtained from ODOT's 1996 *Transportation Volume Tables*. Figure 13 and Table 13 show the traffic flow on the state highway system as recorded in 1996. It can be seen that the highest traffic flow is experienced at the southern city limits of Coos Bay on US 101. Counters located in the rural areas immediately north and south of the Bay Area show traffic volumes ranging from 12,000 to 17,000 ADT.

ODOT operates two permanent counting stations in Coos County, both located on US 101, at Lakeside and Bandon. The only permanent counting station on OR 42 is located west of Winston in Douglas County. Historical data collected at these three counting stations is presented in Appendix A. In addition, PM peak period traffic volumes were collected throughout the study area in 1997. These afternoon peak period traffic volumes were also adjusted for seasonal variations, utilizing adjustment factors determined from the ODOT traffic tables.

**Figure 13: Highway Traffic Volumes—Coos County, 1996**



**Table 13: Historical Traffic Data by Year 1986-1996**  
Permanent Counter Location: Bandon 06-004

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Volume <sup>1</sup>	4,961	5,402	5,661	5,760	5,908	6,064	6,248	6,219	6,444	6,306	6,332

Source: ODOT Traffic Volume Tables

<sup>1</sup>Annual Average Daily Traffic (AADT)

Traffic volumes on US 101 and OR 42 were adjusted to reflect seasonal variations in traffic. Traffic adjustments were based on permanent traffic counters on the state highways. A factor of 1.28 and a factor of 1.04 were used to reflect peak summer conditions on US 101 and OR 42, respectively. To project background traffic growth on US 101 and OR 42, this historic growth rate of 2.4% per year was used on Highway 101. A slightly lower growth rate of 2.1% per year was used on OR 42.

### **Trip Distribution**

The vehicle trips estimated in each zone are trip origins and trip destinations during the PM peak hour. The trips were then distributed to all of the destinations within the planning area and to the roads leading out of the study area. Trip origins were also calculated for the roads leading into the area. The trip distribution was based on a conventional gravity model, which distributes trips from one zone to all other zones in direct relationship to the size of the attractions or destinations in each zone and inversely related to the travel time between zones. For example, if two destination zones of equal size were located 10 and 15 minutes from the origin zone, more of the trips from the origin zone would be distributed to the closer destination zone. Likewise, if two destination zones were located equal driving times from the origin zone, more trips would be distributed to the larger destination zone. This procedure was followed for trips originating in all zones and roads leading into the study area. Trip distribution was undertaken for each of the two development scenarios described above.

### **Modal Split**

During the modal split process, all trips are allocated to the available transportation modes. Modal split data is not available for all types of trips; however, the 1990 census data does include statistics for journey-to-work trips as shown in Table 14.

Most Coos County residents travel to work via private vehicle. In 1990, 88% of all trips to work were in an auto, van, or truck. Trips in single-occupancy vehicles made up 76% of all trips, and carpooling accounted for 12%.

Although bicycle usage appeared low (approximately 0.5 percent of the total work trips), the census data does not include trips to school or other non-work activities. Pedestrian activity was at a moderate level (5% of trips to work), but slightly lower than some other communities. Again, census data do not include trips to school or other non-work activities.

Although the census data reflect the current predominant use of the automobile, the growing population and employment opportunities and the statewide emphasis on providing pedestrian and bicycle facilities along roadways will encourage the use of alternative modes, such as walking and bicycling.

**Table 14: Journey to Work Trips**

<b>Trip Type</b>	<b>Trips</b>	<b>Percent</b>
Private Vehicle		
Drove Alone	17,631	76.4%
Carpooled	2,811	12.2%
Public Transportation	94	0.45%
Motorcycle	26	0.1%
Bicycle	99	0.5%
Walk	1,073	4.7%
Other	339	1.5%
Work at Home	960	4.2%
<b>TOTAL</b>	<b>23,033</b>	<b>100%</b>

Source: U.S. Bureau of Census, 1990

### **Traffic Assignment**

Traffic assignment is the analysis of the route taken by a trip maker. The trip assignment analysis assigns all trips made in the study area to a specific route of streets or transit route. Traffic assignment was accomplished using the underlying assumption that every road user chooses the shortest path (shortest travel time) to reach his or her destination. After assigning expected future traffic to assumed trips, the following intersections experienced an increase of more than 30 trips per day by the year 2015.

1. North Bay Drive / Highway 101 (at Haynes Inlet)
2. East Bay Drive / Highway 101
3. East Bay Drive / Highway 241
4. Shingle House Slough Rd./ Highway 101
5. Olive-Barber Rd. / Highway 241
6. Olive Barber Rd. / Ross Inlet Rd.
7. Rink Creek Road / Highway 42
8. Coos City-Sumner Rd. / Highway 101
9. North Bay Drive / North Slough

## Roadway Performance Analysis

### Mobility Standards and Level of Service Analysis

Highway performance is a concept that, in general, describes how well vehicles are able to travel along a given section of roadway or through a particular intersection. This can be measured in a number of ways including traffic speeds, travel times, actual and perceived delay experienced at intersections, and traffic volumes as compared to engineered capacity of the roadway. Each of these measures has its shortcomings. Further performance can be reported using various measures including volume to capacity ratio and Level of Service letters.

Level of Service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. It was developed to quantify the quality of service, or mobility, on transportation facilities. LOS has been described using six levels ranging from Level A, where traffic flow is relatively free, to Level F, where the street system is totally saturated or jammed with traffic. These level of service categories are described below.

#### Level of Service Categories

- A Relatively free flow of traffic with some stops at signalized or stop sign controlled intersections. Average speeds would be at least 30 miles per hour.
- B Stable traffic flow with slight delays at signalized or stop sign controlled intersections. Average speed would vary between 25 and 30 miles per hour.
- C Stable traffic flow, but with delays at signalized or stop sign controlled intersections. Delays are greater than at level B, but still acceptable to the motorist. The average speeds would vary between 29 and 25 miles per hour.
- D Traffic flow would approach unstable operating conditions. Delays at signalized or stop sign controlled intersections would be tolerable and could include waiting through several signal cycles for some motorists. The average speed would vary between 15 and 20 miles per hour.
- E Traffic flow would be unstable with congestion and intolerable delays to motorists. The average speed would be approximately 10 to 15 miles per hour.
- F Traffic flow would be forced and jammed with stop and go operating conditions and intolerable delays. The average speed would be less than 20 miles per hour.

These categories are adequate for describing performance of County roads and were used in the analysis prepared for the TSP. However, in adopting the 1999 Oregon Highway Plan, ODOT has chosen to measure highway performance on state facilities in terms of the ratio of traffic volume to engineered capacity, or the volume-to-capacity ratio (v/c). This change in policy resulted in the need to re-evaluate those intersections on the state highways which were shown to be failing or which were expected to fail in the year 2015. Because of difficulties with the existing data, new traffic counts were taken at each

of these intersections. Other intersections on the highways were assumed to fall within acceptable standards. No County road intersections were re-evaluated using the new methodology.

### **Mobility Standard Calculations for State Highways**

For those intersections to be re-evaluated, new traffic counts were generated and each intersection was analyzed using two different types of software to ensure accurate evaluation. The evaluation determined existing highway performance, as well projected future performance for the year 2015. For the future analysis, several roadway layouts were modeled to provide some estimate of what changes may be necessary in the future should a given intersection fail to perform at acceptable levels. Performance is reported in terms of v/c ratio—the higher the v/c ratio, the higher the level of congestion and the worse the performance of the highway.

The 1999 Oregon Highway Plan specifies acceptable v/c ratios for different categories of state highway. Table 15 outlines acceptable performance standards for State highways found in Coos County. These standards are for signalized intersections and for turns from the highway to the local road at unsignalized intersections. Turns at an unsignalized stop from a local road onto a state highway, outside of a UGB, can operate at a v/c ratio of 0.80.

**Table 15: Performance Standards for State Highways in Coos County  
For Signalized Intersections and Unsignalized Turns from Highways onto Local Roads**

Highway Category	Highways in Coos Co.	Inside UGBs		Outside UGBs	
		Non-MPO; Speed <45 mph	Non-MPO; Speed ≥45 mph	Unincorporated Communities	Rural Areas
Statewide (NHS) Non-Freight Route	US 101 (south from OR 42 jct.)	0.80	0.75	0.75	0.70
Statewide (NHS) Freight Routes	US 101 (north from OR 42 jct.); OR 42	0.75	0.70	0.70	0.70
District/Local Interest Roads	42S; 240; 241; 242	0.85	0.80	0.80	0.75

Source: 1999 Oregon Highway Plan

The Highway Plan allows higher v/c ratios in urban areas that have been designated as Special Transportation Areas (STAs). However, as none of these designations are allowed in areas under county jurisdiction, the designation has not been included in this table.

An interesting situation exists in Coos County in that the section of US 101, between OR 38 in Reedsport the OR 42 junction, is considered a "Statewide Freight Route", while the remainder of US 101 does not carry the Freight designation. This designation is only found on 101 in this area and is designed to ensure that truck traffic serving the south coast economy is protected. In terms of this analysis the difference is that the Freight section must operate at a higher level, not allowing the level of congestion that is considered acceptable on the non-freight section.



### Existing Roadway Performance

Based on current PM peak hour and daily traffic volumes, highway performance was calculated for the study area intersections that were originally shown to have a significant increase in trips. The results of this analysis are summarized in Table 16. The table shows the v/c ratios all of the intersections in the County that were originally shown to be operating below acceptable levels in terms of capacity and how they are actually performing based on measures now used by the Department of Transportation. As shown, only the Sumner Road intersection is currently operating at acceptable levels.

**Table 16: Highway Performance Analysis – 1999 Summer PM Peak Hour**

Intersection	V/C Ratio	Acceptable Standard <sup>1</sup>
<b>Unsignalized</b>		
Coos City – Sumner/ Highway 101	0.25	<= 0.80
Olive Barber/ Highway 241	1.22	<= 0.80
Shingle House/ Highway 101	1.26	<= 0.80
North Bay Drive/ Highway 101	1.16	<= 0.80
<b>Signalized</b>		
East Bay Drive/ Highway 101	0.83	<= 0.70

<sup>1</sup> 1999 Oregon Highway Plan, p. 80

Based on the original analysis, these intersections were examined to see if they would fail in the year 2015. As mentioned earlier, due to changes in the Oregon Highway Plan, those intersections along state facilities were re-analyzed using revised traffic counts and performance measures. Highway performance of the intersections detailed on page 45 (those originally expected to fail) was projected to the year 2015 to determine if any would fail assuming no changes are made to the roadway before that time. The results of this analysis are detailed in Table 17. Mobility standards for each intersection are expressed in terms of v/c ratio for the years 1999 and 2015. As shown, all of the intersections analyzed are expected to fail in the year 2015.

**Table 17: Level of Service Analysis—Summer PM Peak Hour**

Intersection	Existing Conditions	Projected 2015	Acceptable Standard <sup>1</sup>
<b>Unsignalized intersections</b>			
Coos City-Sumner Rd. / Highway 101	0.25	1.17	<= 0.80
Olive Barber Rd. / Highway 241	1.22	2.22	<= 0.80
Shingle House Slough Rd. / Highway 101	1.26	5.30	<= 0.80
North Bay Drive / Highway 101(south)	1.16	1.99	<= 0.80
<b>Signalized intersection</b>			
East Bay Drive / Highway 101	0.83	1.11	<= 0.70

<sup>1</sup> 1999 Oregon Highway Plan, p. 80

In addition, the original LOS analysis conducted for the TSP identified a number of intersections which were expected to be close to failing by the year 2015, including:

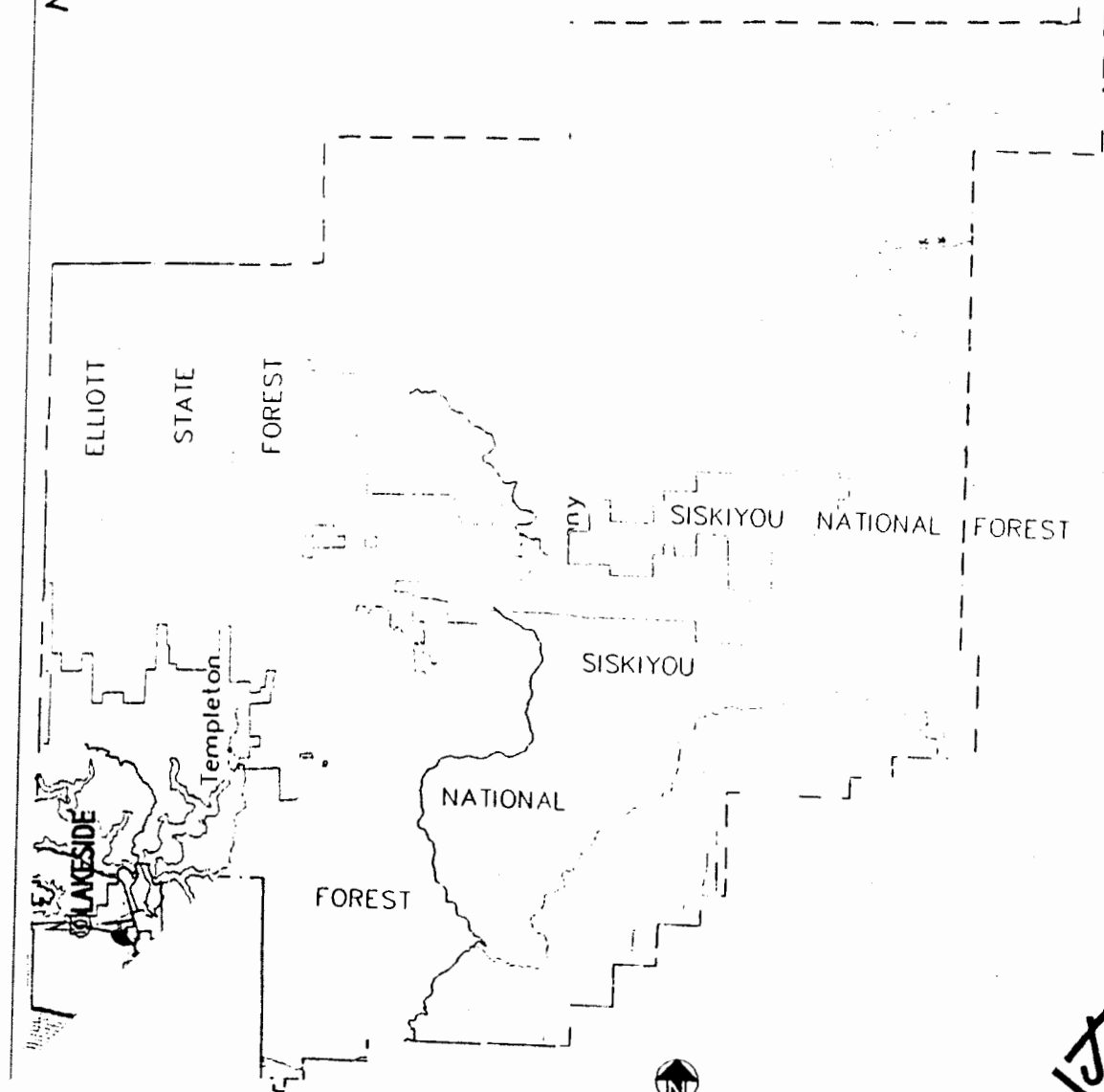
- Wildwood Drive (south of Saunders Lake)
- North Bay Drive (north intersection near Hauser)
- Trans-Pacific Parkway
- North Lakeside Road
- Beaver Hill Road
- Prosper Junction Road
- Beach Loop Road

When re-analyzed using updated traffic counts, only the Trans-Pacific Parkway intersection was expected to even approach unacceptable performance levels in 2015. The Parkway is expected to function at a v/c ratio of 0.73 as currently configured. None of the other intersections are expected to approach unacceptable levels. Map 4 illustrates the critical intersections throughout the County that are either over capacity or approaching capacity. Discussion of how to address these deficiencies is presented in the following section.

In 1996, ODOT proposed an improvement project for US 101 between Saunders Lake and Haynes Inlet that would have increased the number of highway lanes to four and provided turn lanes at key intersections. Access to some properties was to be directed to a frontage road which would allow for safe and efficient access to local uses while not degrading the flow of through traffic on the highway. Concern about the loss of access to individual properties led to the project being stopped. However, the need for safe access to properties still exists in the area, as does the need to provide for the flow of through travel. As development and traffic increases in that area, the County will work with ODOT to find solutions that address issues regarding access, land use, and the needs of through-traffic.

4  
MAP

HIGHWAY MOBILITY PERFORMANCE



## SECTION VI DEVELOPMENT AND EVALUATION OF ALTERNATIVES

The transportation needs assessment undertaken in the previous section indicates that the traffic demand on a majority of the county road network is minimal and will continue as such through the planning period, producing more than 30 trips in the peak period. No locations on the County's roads exist where the link volume exceeded the capacity of the road. However, improvements such as the provision of paved shoulders that can serve as bike lanes and improved stormwater drainage facilities are required on some roads, as is repair to roads damaged in storms of recent years. These locations are described in Section VII of the plan.

In terms of roadway capacity, the major areas of concern center on locations where the county road network connects with the high traffic volume state system. At these points, vehicles entering or leaving the county system can experience considerable delays. These access issues generally center on Highways 101 and 241 (Coos River Highway), including:

- Intersections north of North Bend, including Wildwood Drive (south of Saunders Lake), North Bay Drive, and N. Lakeside Road;
- The section of US 101 between the McCullough Bridge and the Trans-Pacific Parkway;
- The area from Bunker Hill to Eastside, including the Isthmus Slough Bridge;
- Intersections south of Coos Bay, between Bunker Hill and the junction of OR 42; and
- Intersections south of Bandon.

Each area is discussed separately below. This discussion is intended to identify potential solutions to capacity problems at locations on the transportation system in Coos County. These problems are based on the level of service analysis presented in the previous sections, as well as discussions with county and state officials. It is understood that each problem identified below is unique and the level of analysis allowed through the TSP process does not provide for thorough evaluation of a preferred solution. As a result, individual projects will require additional study to assess each unique situation. Inclusion of a project or projects in this plan does not commit the County or State to construction of any facilities. Issues related to funding, the environment, land use, the economy, or other concerns may be cause for re-evaluation of alternatives discussed below. Further, because potential projects discussed in this plan are subject to future consideration and funding, they may not be considered as mitigation for future land use decisions.

### NORTH OF NORTH BEND

#### **McCullough Bridge/Trans-Pacific Parkway /North Bay Drive/East Bay Drive**

While the focus of the transportation needs assessment has been on roadway capacity, there is an additional concern with this section of U.S. 101 and its vulnerability to closure. There are two "pinch points" on U.S. 101 which are particularly vulnerable: the McCullough Bridge and the land-filled "riprap" parkway between North Bay Drive and Shorewood.

Currently East Bay Drive is used as the alternate route when the McCullough Bridge is impassable. This route, while being out of direction and prone to slide activity, is the only local route for north/south traffic in the event of closure of the main bay bridge. Further, if the Haynes Inlet Slough Bridge or the rip-rap section of 101 across Haynes Inlet is closed, traffic can be rerouted along North Bay Drive. However, this does not provide access to the industrial or recreational uses located on the North Spit which rely solely on the Trans-Pacific Parkway for highway access. In the event that both of these sections were closed, north-south traffic would have to be rerouted along Highways 38, I-5, and 42.

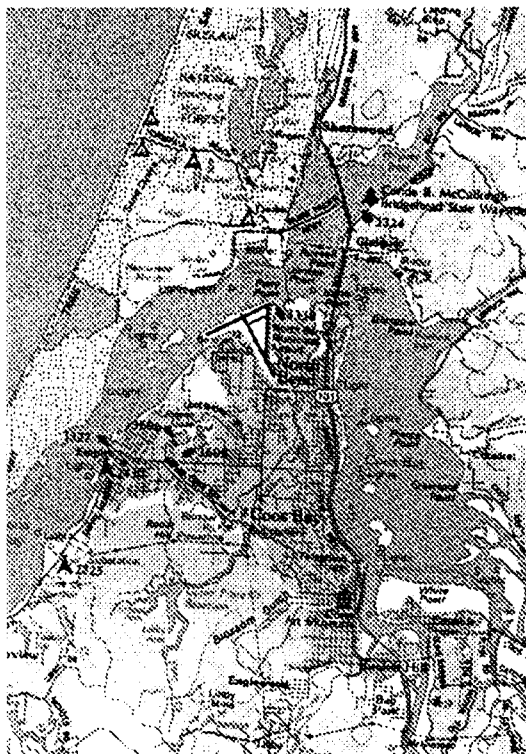
#### Alternatives to McCullough Bridge

Indications show that the McCullough Bridge is likely to experience capacity problems at, or shortly after, the design year of 2015. The Bay Area Transportation Study (BATS) identified capacity problems at the McCullough Bridge and proposed six alternatives, which ranged from the construction of an alternative route via North Spit Road to the construction of a tunnel.

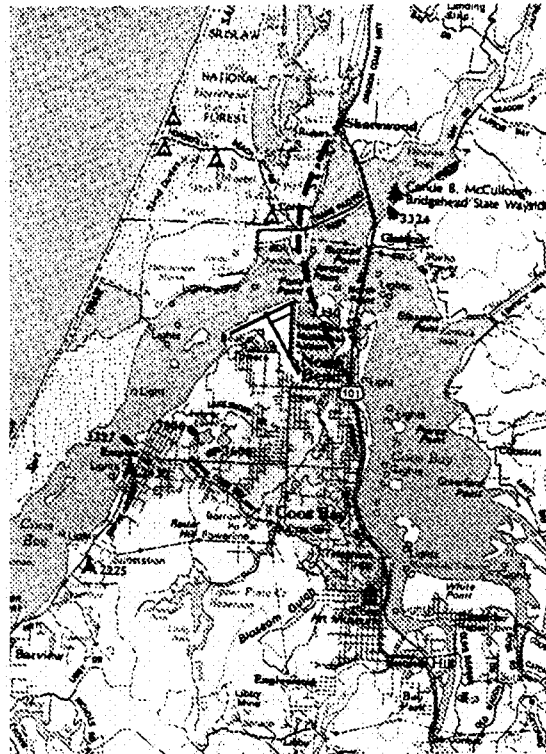
Figure 14-A shows the roads in the area as well as topographical information. An alternative alignment was investigated for both the Trans-Pacific Parkway and the McCullough Bridge. This alignment involved diverting US 101 to the west, just north of Shorewood, utilizing the Coos Bay rail line right-of-way through the Oregon Dunes National Recreation Area, and crossing the Coos River on an alignment similar to the existing Coos Bay rail bridge. This alignment is illustrated in Figure 14-B.

**Figure 14: Alternative Alignment for US 101 Across Coos Bay**

**14-A**



**14-B**



Discussion with ODOT's environmental staff indicated that justifying the acquisition of additional right-of-way through the Oregon Dunelands State Park required by this alignment would be difficult. Further, realignment of the McCullough Bridge westward may interfere with air traffic from the North Bend Airport. More detailed analysis of this alternative is outside the scope of this plan.

The BATS study concluded that the construction of a parallel structure to the existing bridge is the preferred alternative. The cost of a parallel structure was estimated at \$60 million, although concern has been expressed that the actual cost would be considerably higher. No subsequent cost study has been completed to determine what those costs might actually be. Because of the size of the structure and its importance to both the local area and to through traffic, the BATS recommended initial investigation into addressing expected capacity problems on the McCullough Bridge in the near future. At the very least, refinement planning should begin to better estimate when the structure may reach acceptable capacity levels and to narrow options for addressing that deficiency.

#### Haynes Inlet Slough Bridge

ODOT is currently preparing to build a new bridge to replace the Haynes Inlet Slough Bridge. The bridge will be designed for five lanes, but will initially be striped for three lanes. The project will also include the provision of an additional southbound lane between Trans-Pacific Parkway and North Bay Drive to facilitate traffic climbing the southbound hill from the Parkway intersection. The additional lane will continue through the North Bay intersection with the two lanes merging before East Bay Drive. The entire North Bay Drive intersection will be reconfigured and left turn pockets will be added at North Bay Drive and Trans-Pacific Parkway.

#### Trans-Pacific Parkway

The Trans-Pacific Parkway is extremely important to the County's economy, providing road access to the industrial and recreational areas on the North Spit. There are no identified problems with the Trans-Pacific Parkway at this time. Traffic counts are low and the intersection at US 101 currently operates within acceptable levels. Projections of future performance show that with one northbound lane on the Parkway, the intersection will come close to unacceptable performance, but not fall below acceptable standards ( $v/c = 0.73$ ). The striping of right and left-turn lanes on the Parkway will help the intersection perform within acceptable levels throughout the planning horizon.

#### East Bay and North Bay Drives

The East Bay Drive intersection currently operates below acceptable levels ( $v/c = 0.83$ ) and will continue to deteriorate to the year 2015 ( $v/c = 1.11$ ). Left turns onto Highway 101 from North Bay Drive are currently operating below acceptable standards ( $v/c = 1.16$ ) during the summer PM peak hour. The intersection will continue to deteriorate in the future.

#### Consolidation of North Bay and East Bay Drives

To improve traffic conditions, the consolidation of these intersections into a single signalized location was evaluated. Such a consolidation, located somewhere between the current intersection locations, would improve performance at these intersections to acceptable levels for the next twenty years. A consolidated intersection would also

minimize interruptions to through traffic on Highway 101 that result from a series of intersections.

However, the possibility of linking East Bay Drive and North Bay Drive east of the current alignment of US 101 was rejected due to the unstable nature of the hill between East Bay and North Bay Drives. Because of this limitation, an alternative which would require relocating Highway 101 to the west was explored. This would provide sufficient right-of-way between 101 and the unstable hill to the east for a new frontage road and combined intersection. The combined East Bay/North Bay Drive would then intersect with US 101 at a location midway between the existing East Bay Drive and North Bay Drive, allowing sufficient space between the McCullough Bridge and this intersection for the development of two lanes for both directions of travel.

This option was discussed with ODOT's Environmental Services Unit, who indicated that relocation of US 101 to a position west of its current alignment may adversely impact the estuary. Additional factors were raised, centering on the need to relocate a high voltage power line, the location of the motel, and the fact that the new Haynes Inlet Slough Bridge is to be reconstructed in a location east of its existing position causing problems with roadway geometry. Because of these factors, the relocation of US 101 was not pursued further.

#### Transportation System Management (TSM) Options

The following sections discuss planned and possible solutions for the section of Highway 101 between the Trans-Pacific Parkway and the McCullough Bridge. The emphasis of the traffic analysis was on identifying specific improvements which will improve the East Bay and North Bay intersections, but may not bring them to acceptable levels of service.

#### North Bay Drive

Reviewing the design options for North Bay Drive, it is evident that the westbound left turn from North Bay Drive is operating below acceptable levels ( $v/c = 1.19$ ). The analysis examined the addition of a left-turn pocket in the southbound direction, as proposed in the Haynes Inlet Bridge design. While this alternative will be included in the bridge project and will improve the operation of the intersection, it will not bring the overall operation to acceptable levels.

The intersection was also modeled with the addition of a signal. This results in an improvement of the level of service of the intersection to acceptable levels through the design year 2015. While the introduction of the traffic signal at the US 101/North Bay Drive intersection may assist vehicles entering and exiting the side street, the intersection will not comply with signal warrants or spacing standards and will not be signalized. Based on the analysis, until the side street traffic increases substantially, leaving the intersection in its current configuration is a viable option. Once the Haynes Inlet Bridge is striped to five lanes, re-evaluation of this intersection may show improved operation. Ultimately, a larger project that incorporates North Bay Drive into improvements to the McCullough Bridge and East Bay Drive will be needed to address performance of this intersection.

#### East Bay Drive

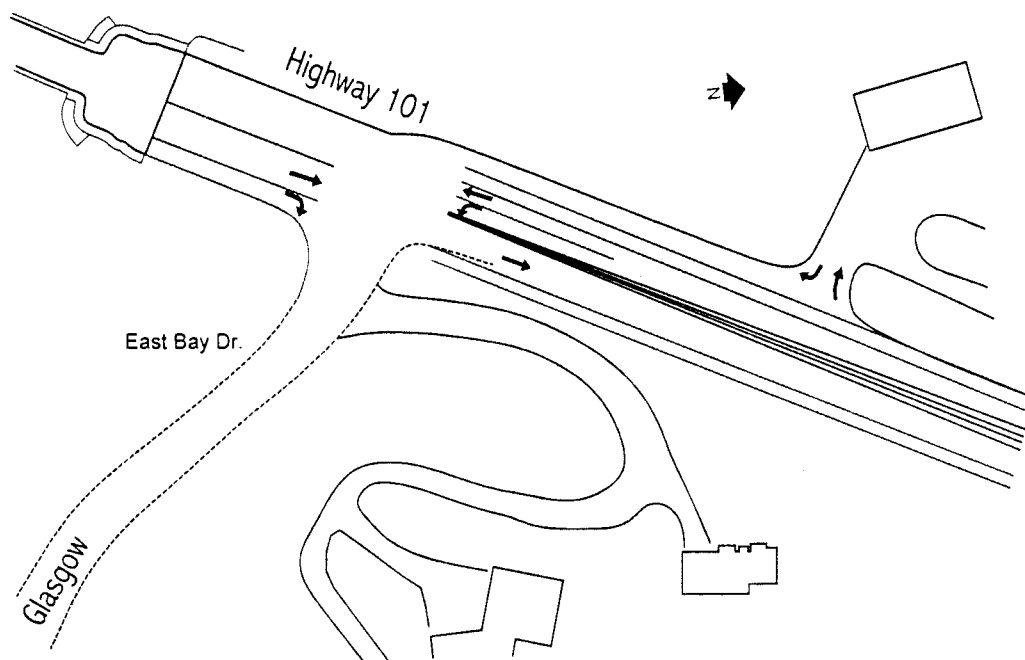
Because there is only one southbound lane on 101, vehicles turning left onto East Bay Drive impede through traffic. Many southbound through-vehicles use the highway shoulder to get around the left-turning vehicles. While this section of shoulder is

relatively wide it serves as the Oregon Coast Bike Route and provides parking for cars and trucks.

The addition of a southbound left-turn pocket at the East Bay Drive intersection, would address the safety issues of this movement, and improve the overall capacity of the intersection. (See Figure 14.) The addition of this pocket will not be easy because of the alignment of the bridge approach. Investigation into how to best provide space for the left-turn movement while not endangering traffic approaching the western bridge abutment will be important.

The provision of an additional northbound through lane, would improve the intersection's level of service, although not to acceptable levels. The analysis indicates that a lane with a length of 130 feet would be required to accommodate expected queues, which is approximately the distance between the stop line and the end of the bridge. It is proposed that the curb-side lane taper out on the northern side of the intersection before reaching the North Bay Drive intersection. This option may be hindered by the unstable nature of the hillside immediately east of the highway (see *Consolidation of North Bay and East Bay Drives* above). An additional concern is the residence that sits above the East Bay intersection to the northeast and the effect any realignment might have on this property.

**Figure 14: Recommended Improvement Options—US 101 and East Bay Dr.**



Recommendations for the Trans-Pacific Parkway to the McCullough Bridge

Based on the points discussed above, the following improvements are recommended for the Trans-Pacific Parkway to East Bay Drive section of Highway 101. These projects are in addition to those planned for the Haynes Inlet Slough Bridge replacement project:



- The construction of a southbound left-turn pocket on US 101 at the intersection of East Bay Drive and US 101.
- The re-striping of the section between East Bay Drive and North Bay Drive to allow two northbound through lanes. The curb-side lane should merge with the inside lane before reaching North Bay Drive or should serve as the right turn lane onto North Bay Drive.
- Refinement planning for development of additional capacity on the McCullough Bridge. This should address capacity of the bridge as well as capacity and operation of East Bay and North Bay Drives.

## THE BUNKER HILL AREA

### General Concerns

The Bunker Hill area, along with the section of Highway 241 (Coos River Highway) between Bunker Hill and Eastside have been identified as problematic in terms of capacity and safety. Further, the bridge facilities in this area pose problems from both a capacity and a maintenance standpoint. The road network is complex and in many cases operates below acceptable standards.

Facility problems identified in this area include:

- Capacity problems at US 101 and Flanagan;
- Safety and capacity problems at the junction of Highways 101 and 241;
- Capacity of the through movement on 241 between Highway 101 and Olive-Barber Rd.;
- Safety and capacity issues at the narrow railroad overcrossing;
- The need to replace the Isthmus Slough Bridge and the connecting viaduct;
- Capacity problems at the intersection of Highway 241 and Olive Barber Road; and
- Capacity problems for the through traffic on the section of Hwy. 241 between Olive Barber Road and D St. in Eastside; and
- Capacity problems at the D Street intersection.

These problems are compounded by a number of land use issues, ranging from access to local commercial, educational, industrial, and residential uses in Bunker Hill to planned land use changes in Eastside which could introduce additional traffic to this section of roadway.

Coos County believes addressing these concerns should be a high priority for the State, the County, the City of Coos Bay, and the Port of Coos Bay. Acknowledging that many of the problems described above are related, it would be more efficient and productive to consider ways to solve a number of deficiencies at the same time. While it may not be possible to implement all the identified solutions at the same time, the problems should be considered as a whole and any solutions should work toward completely addressing the problems experienced over the entire area. Because of the significance of the Isthmus Slough Bridge in moving traffic from one side of the Bay to another and in terms

of impacts to north-south traffic on US 101, it is likely that improvements to or replacement of the bridge will drive other facility improvements in the area. Any alternatives for the bridge should include solutions for problems throughout the area.

Further, a number of issues will have to be addressed in solving the issues described above. First, the Isthmus Slough estuary poses significant environmental concern. The age of the bridge structures, and the unique design of the Isthmus Slough Bridge, may bring in historic preservation concerns. The presence of low-income housing in the area will have to be considered as well. An additional concern will be the issue of alternative routes between Bunker Hill and Eastside, should the bridge be closed during reconstruction. The closest access across the slough is at Coos City-Sumner Rd. However, this detour would add at least 10 miles to daily commutes. Further, the Sumner Rd. bridge is weight restricted, making it unusable for some truck traffic.

To this end the County recommends the development of a refinement plan which incorporates solutions to the problems identified above as well as any others found in the area relating to the transportation system. At the same time, it is necessary to find feasible short-term solutions to individual problem spots in the area. These solutions must be balanced with the notion that longer-term alternatives will be planned and to spend excessive funds for temporary solutions is not in the public's interest.

#### Intersection of Coos River Highway and US 101

Operational problems were identified in the Bunker Hill area south of Coos Bay, particularly where the Coos River Highway (Highway 241) and US 101 intersect. The problem centers on a lack of capacity on the Coos River Highway to accommodate the flow of traffic in an easterly direction. The capacity of Coos River Highway is constrained at several points, the first being the narrow Southern Pacific Railroad Bridge just east of Edwards Street and the second being a narrow viaduct which extends to the Isthmus Slough Bridge. Additionally, the BATS indicates the intersections between Mullen and Olive-Barber Road are likely to operate below acceptable standards and experience increased accidents in the future.

The long term provision of additional capacity may require the widening or replacement of both of the bridge structures mentioned above. Currently, vehicles have difficulty getting through the intersections on Highway 241 between 101 and Edwards Street. This difficulty results in a backup of traffic attempting to turn left off US 101 onto Coos River Highway in the afternoon peak period.

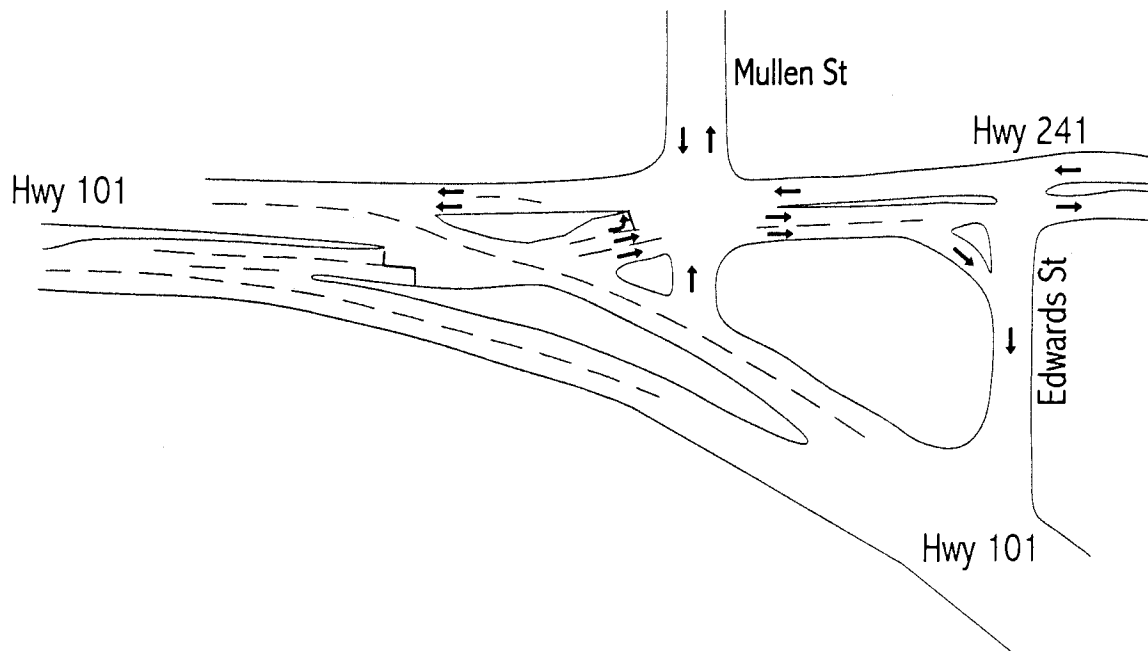
Over the years, solutions have been suggested to relieve capacity problems in this area. However, the configuration of the areas roadways, bridges, and intersections, as well as local land uses, make many of these alternatives problematic. One such alternative that has been suggested over the years is to divert traffic north off of US 101 one block between Flanagan and Ellen Streets. This would relieve some congestion on the intersection of 101 and Highway 241 and may allow for easier access to the industrial areas north of Bunker Hill for truck traffic.

However, a number of problems exist with this alternative, including the need for a traffic signal at Ellen Street and Highway 241; poor alignment of the rail crossing and the need for a rail crossing signal on Howard Avenue; and the fact that Flannagan, Howard, and Ellen are narrow, local streets which would need to be widened and rebuilt to

accommodate the traffic increases that would be generated by this proposal. This alternative has proven to be unattractive financially as well as politically.

In lieu of the alternative described above, the preferred short-term solution would involve reconfiguring Coos River Highway between the Mullen Street and Edwards Street intersections. Currently, the Mullen Street intersection provides for a left-turn lane and a single through lane while the Edwards intersection only provides a single through lane. As shown in Figure 15, an additional through lane at Mullen Street should be added to avoid having east-bound traffic stack up into the northbound lanes of 101. The curb-side through lane should be striped for a right-turn only at Edwards Street.

**Figure 15: Recommended Short-term Improvements  
Intersection of US 101 and Coos River Highway**



An additional area of concern identified was the capacity of the Coos River Highway/Olive-Barber Road intersection. Level of service analysis at this intersection shows that it currently operates far beyond capacity. The limited sight distance for vehicles turning from Olive-Barber makes these movements difficult. Peak hour levels of traffic traveling on Coos River Highway make the left-turn movement particularly hard.

As with the McCullough Bridge and East Bay Drive, this intersection is affected significantly by the Isthmus Slough Bridge. Improvements to this intersection and the easterly to northerly curvature through which the highway transitions should be considered with any approved project for reconstructing or relocating the bridge.

As mentioned at the beginning of this section, the preferred solution is to study this entire area, from Bunker Hill to Eastside, to find solutions that address all the problems

discussed above. Although not within the jurisdiction of Coos County, issues of safety and capacity on Highway 241 in Eastside should be included in any planning effort for this area. The importance of industrial lands in the area and the fact that much of the traffic to or from Eastside must travel through this area suggests that the City of Coos Bay and the Port of Coos Bay should join the County, ODOT, and other stakeholders in any refinement planning process for the Bunker Hill to Eastside area. The first phase of this planning has been identified for inclusion in the state's transportation funding plan. The County will work with the State, Coos Bay, the Port and others to ensure transportation issues in the entire area are addressed adequately.

### Recommendations

The following improvements are recommended for the area between Bunker Hill and Olive-Barber Road, including Highway 101 and Highway 241:

- As a short-term solution, provide an eastbound left-turn lane and two through lanes at the intersection of Highway 241 and Mullen Street. Provide two through lanes between Mullen and Edwards on Highway 241, ending in a right-turn lane at the intersection of Highway 241 and Edwards Street.
- Provide refinement planning that considers alternatives that will address safety and capacity issues for the Bunker Hill to Eastside area. This plan should evaluate problems including the Isthmus Slough Bridge and viaduct; the rail overcrossing; the intersection of US 101 and OR 241; access to commercial, industrial and residential uses in Bunker Hill; the Olive-Barber Road intersection; and the section of OR 241 in Eastside. Such a plan should include the participation of ODOT, Coos County, the City of Coos Bay, the Port of Coos Bay, property owners and residents, and other stakeholders from the area.
- Address replacement or repair of Isthmus Slough Bridge and capacity problems between Bunker Hill and Eastside based on preferred alternative from area refinement planning.

## **US 101 BETWEEN COOS BAY AND OR 42**

### US 101—Bunker Hill to Hwy 42 Junction

A number of trouble spots have been identified on the section of US 101 between Bunker Hill and the junction of OR 42. Approximately five miles in length, this section has a number of public and private accesses which poses capacity and safety problems. Additionally, vertical alignment is poor in several locations, creating poor sight distances. Compounding this problem is the poor drainage experienced in some of the lower spots. This section of highway has been designated a Safety Corridor which allows slower speed limits and encourages increased enforcement and driver awareness education.

Specific problems within this section include capacity problems at Shinglehouse Road and at Coos City-Sumner Road, safety and drainage issues at several intersections just south of Bunker Hill, access from Millington Frontage Road, and the poor vertical alignment of the highway, particularly between mile points . Solutions to these problems will be made more difficult by the grade separation between the north- and southbound lanes of US 101; in some cases the lanes are separated by more than 10 feet.

Intersections at Coos City-Sumner Road and Shinglehouse Slough Road

The highway performance analysis of the Coos City-Sumner Road and Shinglehouse Road intersections with Highway 101 indicates that left turns from these roads onto Highway 101 are currently operating below acceptable standards, despite the low volumes of traffic turning from the local road onto the highway. Because of US 101 has been designated a freight route in this area, the rural nature of these locations, and low traffic volumes from the local roads, signals will not be considered at these intersections.

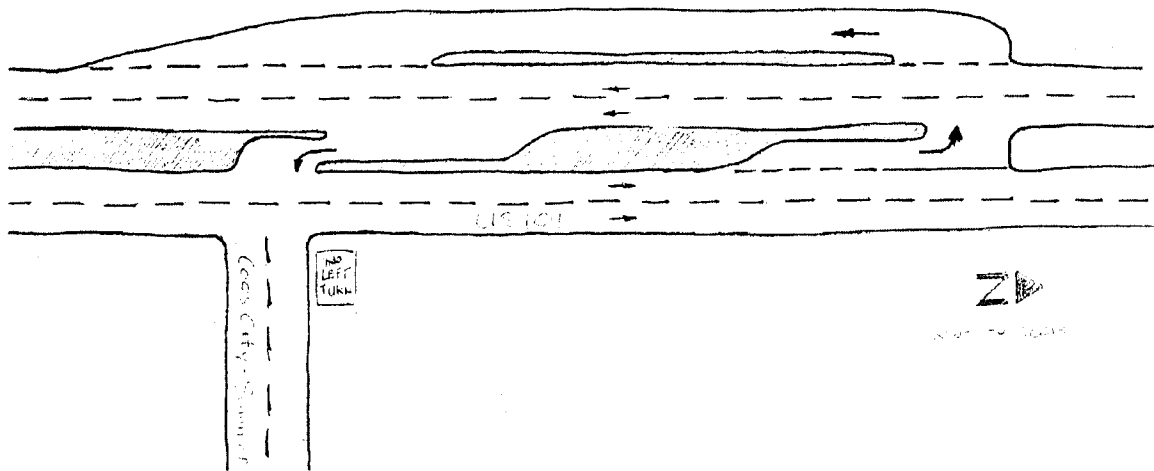
One alternative to improve movement at Shinglehouse Road is to provide a center refuge for left-turns onto Highway 101. This improvement is not preferred by ODOT because of safety concerns of traffic merging from the left. Further, it may not be feasible because of the horizontal and vertical alignment of the highway and the presence of the two bridges on US 101. Another option would be to close the existing Shinglehouse access and reroute the road to the north to join the existing Millington Frontage Road. This improvement could be costly and would likely require the acquisition of several parcels of land. At this time, the low traffic volumes on Shinglehouse do not justify an extensive solution and simply adding a left-turn lane will improve, but not satisfy the problem. The County and ODOT will have to monitor the intersection and decide whether the volume of traffic being affected justifies an extensive realignment.

A similar situation exists at Coos City-Sumner Road and US 101, although the current alignment allows for better movement than is found at Shinglehouse Slough Road. Currently, the intersection is operating below acceptable standards despite volumes on Sumner Road being relatively low. However, the problem is compounded somewhat by the higher percentage of trucks moving through the intersection and the presence of the railroad tracks so near the intersection. The current configuration of the intersection allows left-turning vehicles to cross the northbound lanes and take refuge before entering the southbound lanes. However, this refuge area is not clearly marked and is not large enough to accommodate trucks trying to make this movement.

The extension of the median area to allow a center acceleration lane would allow the intersection to function at acceptable levels. In general, however, ODOT does not prefer such configurations for safety reasons. The Agency is willing to consider this type of improvement in some cases, although the grade separation between the north and southbound lanes may not allow such a lane.

An alternative solution is based on closing left turns from Sumner Road onto 101 and requiring those wanting to travel southbound from the county road to initially turn right, merge to a left-turn refuge on the median, and then make a U-turn to the southbound lanes. This movement is likely not possible for trucks. To address this, the addition of a "jug handle" on the west side of 101 would allow vehicles to turn left from the median refuge and pick up highway speeds before merging with the southbound traffic. Figure 16 shows an example of this type of improvement.

**Figure 16: Generalized Plan for Potential Improvements to Coos City-Summer Road at US 101**



Based on existing traffic volumes, individual improvements to these intersections will likely not be a priority. However, these intersections can be addressed as part of a larger project which makes improvements to the entire section between Bunker Hill and OR 42. ODOT has identified this section of US 101 as needing improvement if additional modernization funds are available in the future. Should this occur, the intersections discussed above should be addressed, along with the vertical alignment of the highway, and other capacity and safety concerns. Any of these improvements will have to consider a number of factors including differences in the width of the median and grade separation of the north and southbound lanes, environmental factors related to the estuary, and socio-political concerns.

#### **North Bank Road to Cedar Point**

With the exception of one section, OR 42 is a four or five lane facility from its western terminus south of Coos Bay through Myrtle Point. The roadway between Chrome Plant Road and Cedar Point north of Coquille is a two-lane facility with several horizontal and vertical curves. If additional revenues are generated in the future for modernization projects, ODOT has stated they will investigate increasing this section of the highway to four lanes. While there are no assurances this project will occur, the County supports its funding and will work with ODOT as necessary should it move ahead.

#### **Recommendations**

The following improvements are recommended for the area between Bunker Hill and Coquille on US 101 and OR 42:

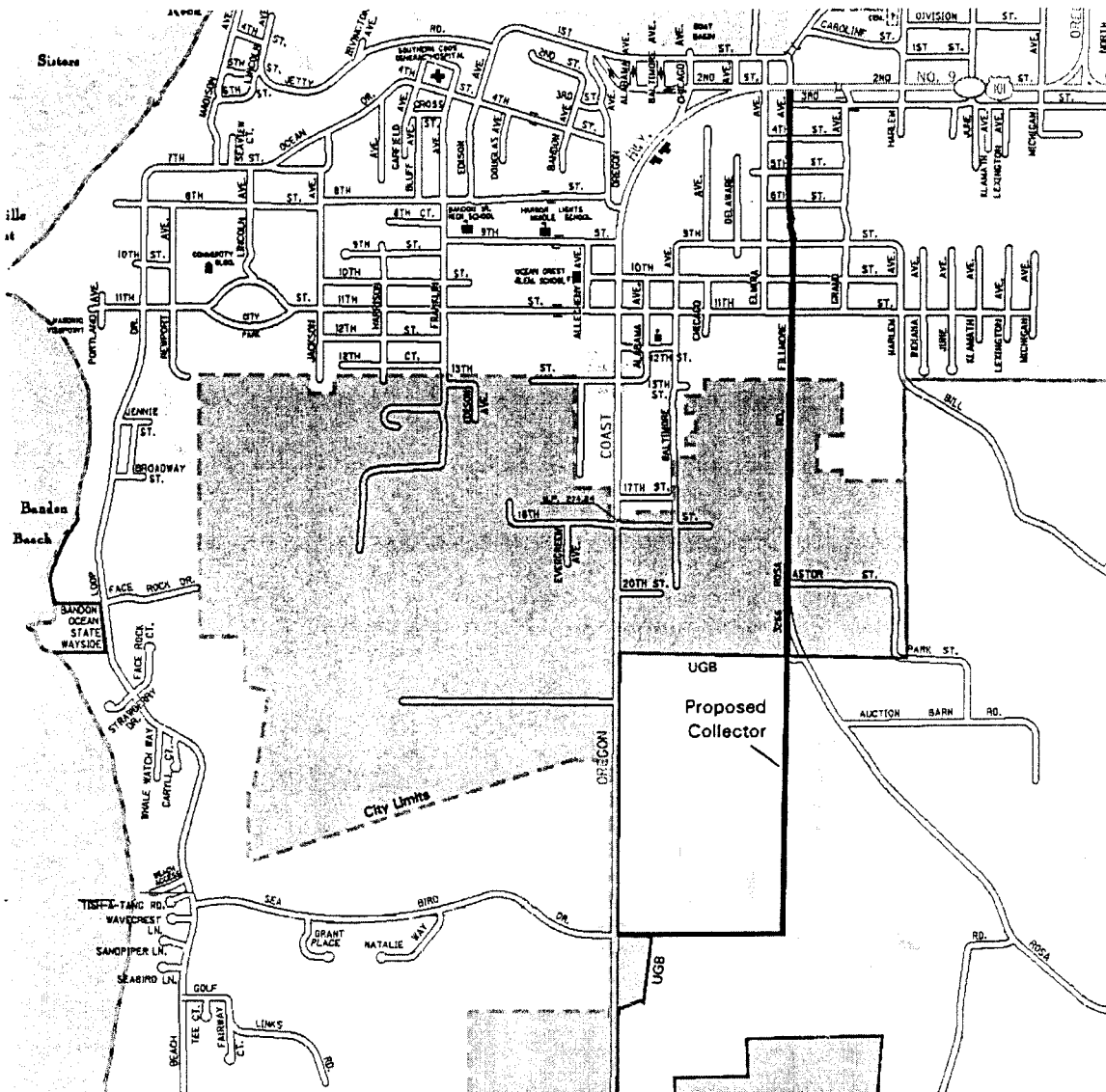
- Capacity and safety improvements to US 101 between Bunker Hill and OR 42. Specific improvements should address vertical alignment, drainage, local and private accesses, and capacity problems at Shinglehouse Rd. and at Coos City-Summer Rd.
- Addition of two lanes on US 101 between North Bank Rd. and Cedar Point.

## The City of Bandon

### Bandon Collector

As part of their Transportation System Plan, the City of Bandon has proposed the development of a collector road that would parallel Highway 101, beginning in the city along the existing Fillmore Street at US 101. (See Figure 17.) The collector would continue south along Rosa Road, and extend directly south at the point Rosa turns to the southeast outside the Urban Growth Boundary. The north-south leg would then connect with an eastward extension of Seabird Drive, providing access to US 101. The majority of the route is either built or is existing right-of-way (the latter is owned by the County). This extension of the Bandon transportation system would likely not occur for several years but will require coordination between the City and the County. The project is identified now to ensure consistency between the City and County TSPs.

**Figure 17: Proposed Bandon Eastside Collector**



### Recommendations

The following improvements are recommended for the Bandon area:

- The County should work with the City of Bandon and ODOT to provide a collector on the east side of US 101.

### **Additional Areas of Concern**

#### **Wildwood Drive/ North Bay Dr./ N. Lakeside Road**

The initial capacity analysis for the TSP indicated that these intersections might fall below acceptable LOS in the year 2015. Analysis related to the Saunders Lake to Haynes Inlet project proposed by ODOT in 1995, showed some of these intersections operating below standards in the future as well. Using updated traffic counts and revised v/c analysis and standards, these intersections are expected to continue to operate within acceptable standards. However, as traffic volumes grow on the highway, access management measures such as medians and channelization of traffic might be needed in the future.

#### **Coos River Highway through Eastside to Eastern Terminus**

The BATS identifies the section of the Coos River Highway between Olive-Barber Road and D St. in Eastside as operating below acceptable standards ( $v/c = 1.05$ ). This is unusual in that very few highway sections are shown to be deficient for through traffic. In most cases, intersections are identified, and then only the movement from the local road to the highway. This section of the Highway is discussed above in conjunction with the Bunker Hill/Isthmus Slough Bridge improvements. However, the separation of this segment from the bridge may mean that it is not addressed with those other improvements. Regardless, the County, the City of Coos Bay, and ODOT should work together to ensure that the transportation system in this area is not significantly impacted and is improved as possible.

The eastern portion of the Coos River Highway is of concern as well. Although the capacity analysis did not show any deficient intersections, the roadway is below width standards and there are many locations that are lacking adequate shoulders. The topography of the area, with steep rock walls and sheer cliffs to the river, makes many of these dangerous locations very difficult to improve. In many cases, there is little or no room for even the addition of guardrail.

#### **US 101 South of Bandon**

The area south of Bandon is experiencing increased development which is putting pressure on both the local and state transportation systems. No local street network exists in the area, which causes Highway 101 to serve as the north/south route for most local traffic. As development increases, the number of vehicles entering and leaving the highway will also increase, putting additional pressure on the intersections of local roads and the highway. While 101 is access-controlled in this area, future traffic generated from allowed land uses is expected to place additional pressure on those intersections.

Through traffic on 101 is projected to operate at acceptable mobility standards. However, left-turns from some of the county roads onto Highway 101 south of Bandon may fall below acceptable standards at the peak hour by the year 2015. Local residents,



the County, and ODOT staff have made specific concerns known regarding traffic entering from Beach Loop Road, Twomile Road, Dew Valley Road, McTimmons Road, and Lower Fourmile Road. Currently, however, there is no data to indicate a safety problem exists.

ODOT will continue to monitor the area through normal means of accident identification and investigation. This information will be stored in the State's Safety Priority Index System database. Should a documented problem be identified, the State, County, and, if necessary, the City of Bandon will address the identified safety concern.

#### Recommendations

The following improvements are recommended for these additional concerns:

- The County and ODOT should monitor capacity and safety concerns between Lakeside and Haynes Inlet. While no capacity problems currently exist, perceived problems and future growth in the area may lead to the need for some operational and land use changes in the future.
- The County, the City of Coos Bay, and ODOT should monitor capacity and safety concerns along the section of Coos River Highway between Olive-Barber Rd. and D St. in Eastside. This section should be included in any refinement planning and improvements to the Isthmus Slough Bridge. If not, additional projects should be identified to address capacity problems on this segment. The County will consider the impact of potential land uses to the highway in the future and will encourage the City of Coos Bay to do the same.
- The County and ODOT should work together to address safety concerns on Coos River Highway east of Eastside. As funds are available and technologies improve, high accident locations should be addressed by placing guardrails and improving horizontal geometry and sight distances.
- The County, the City of Bandon, and ODOT should monitor capacity and safety concerns south of Bandon in the future. While no capacity problems currently exist, perceived safety and access problems and future growth in the area may lead to the need for some operational and land use changes in the future.

## **SECTION VII LOCAL STREET SYSTEM ELEMENT**

As discussed in the development of alternatives, the County has a network of roads which provide an appropriate network of access to the major centers from all areas of the County. These roads have sufficient capacity to accommodate the anticipated future growth in traffic.

In the smaller cities in Coos County, modernization primarily means improving roads and streets to handle more traffic or developing additional modes of transportation. In Lakeside and Powers, there is no anticipated need to go beyond two travel lanes on any road. Paved shoulders that can serve as bike lanes and storm drainage facilities will increase street capacity.

Modernization needs in other small cities depend upon their setting. Careful access management will be needed to enable the state highways to serve traffic demands through the planning period. In the Coos Bay and North Bend area, the improvements described in the previous section should be pursued.

The main focus of the street system element is on maintaining the existing system and on modernization. A number of county roads which require attention are discussed, together with policies for maintaining traffic operations on the county system.

Road maintenance is the primary responsibility of the Coos County Public Works Department. Coos County needs to expend the majority of its road fund monies on maintenance in order to protect the substantial investment of public funds (an estimated replacement value of more than \$300 million) that the county road system represents. There remain significant needs to improve the road system. Road maintenance and improvement strategies are discussed in this chapter.

### **Road Maintenance Activities**

Coos County performs maintenance activities on 600 miles of county roads as well as a number of associated bridges or structures. These maintenance activities include surface treatments like grading, overlays and chip seal, mowing the shoulders, patching pot holes, cleaning culverts, and street sweeping.

### **Road Improvement Strategies by Land Use Category**

Minor betterment takes place in the course of a lot of road maintenance work. Major projects are performed either by the County, or by contracting out the work when project costs exceed \$50,000.

### **Road Modernization in Urban Areas**

The County road system encompasses a wide range of traffic volumes and road users. Road improvements to urban standards will increase the capacity of a road because it will often increase the base and the road's ability to handle heavy loads. The greater

width will allow for on-street parking and other modes of transportation such as bicycles and pedestrians.

### **Rural Road Improvement Needs**

The network of rural roads is the essence of the County road system. This road network serves an important role in connecting smaller communities, farm and forest areas, recreation sites, and rural residences. Road improvement needs on the roads that get the most traffic and that are of county-wide benefit (arterials and collectors) could conceivably use the entire County road fund. The balancing of spending on various parts of the network occurs over a period of years. Good maintenance practice over the years has negated the need to expend large amounts of funds on any one facility. A continued course of maintenance as established in the Operations and Maintenance Program will help ensure that proper levels of effort are expended on each facility. The following table lists the roads that are in urgent need of attention.

Table 18: Needed County Roadway Infrastructure Improvements

Project Name	Road #	M.P.	Type of Repair	Cost Estimate
Anson Rogers Bridge	26	4.05	Major Bridge repair (deck joints)	\$25,000
Arago-Fishtrap Landing	77		Reconstruct intersection with Fishtrap Landing Road #22	\$200,000
Bandon Jetty Road	121		Minor widening and complete overlay (entire length is .7 miles)	\$75,000
Barzee Corner	1B	8	Corner reconstruction - hazard Elimination	\$400,000
Beach Loop	29		Culvert Replacement at Johnson Creek	\$150,000
Beaver Creek Bridge	5A	.72	Bridge replacement (Not on HBR acceptance list)	\$1,181,100
Catching Slough Road	23	3-7	Drive piling, install retaining walls, reconstruct base & overlay	\$500,000
Catching Slough Road	23		Tidal - shoulder work/wall	\$200,000
Cooper Bridge	12	3.9	Bridge replacement (Not on HBR acceptance list)	\$2,126,400
Coos City-Sumner Road	57	2-6	Overlay 4 miles	\$200,000
Coos River	6	0-3	Dike project (3 ft shoulder -3 ft berm)	\$250,000
Cunningham Creek Bridge	9	.96	Bridge replacement (Not on HBR acceptance list)	\$255,303
Dean Minard Road	119		Widen and improvements for 1,000 feet	\$100,000
Dement Creek Road	83	1.8	Blue Clay Slide - slide correction	\$200,000
East Bay Drive	45	2,4,4.5,7.5	Improvement of four corners, slide stabilization, overlay	\$400,000
East Bay Drive (White's Curve)	45	1	Slide stabilization	\$400,000
Eastside-Sumner Road	53	2-5	Overlay 3 miles	\$160,000
Englewood-Shinglehouse	52	.4 & .6	Realignment of two radius turns	\$200,000
Gravelford Bridge	1B	4.4	Bridge replacement (Not on HBR acceptance list)	\$3,009,000
Green Acres/Noble Creek Bridge	118	.05	Bridge replacement (Not on HBR acceptance list)	\$255,303
Haynes Slough Bridge	7A	2.75	Major Bridge repair (bulkheads)	\$10,000
Hollow Stump Road	182		Major & minor widening, culvert installation, complete overlay	\$200,000
Joe Ney Bridge	43	.72	Major Bridge repair (scour)	\$50,000
Joe Ney Disposal		0.0-0.74	Complete overlay	\$75,000
John Brauer Road	131	.5	Repair slips, drive piling and backfill	\$50,000
Kentuck Bridge	45	2.66	Bridge replacement (Not on HBR acceptance list)	\$255,303
Kentuck Slough Road	27	1-5	Overlay 5 miles	\$250,000
Landrith Road	139	.5-1.0	Rock face stabilization (screening & cement)	\$750,000
Lee-Mckinley	13	.2	Slip repair, drive piling and backfill	\$50,000
Leneve Bridge	5A	1 .39	Bridge replacement (Not on HBR acceptance list)	\$960,000

Project Name	Road #	M.P.	Type of Repair	Cost Estimate
Lower Norway	76		Drive piling for bank protection	\$150,000
McLain-Libby	184	.5-1.0 & 2.0	Correction of sharp curves	\$100,000
Mickelbrink Bridge	47	4.85	Major Bridge repair (deck slab replacement)	\$20,000
Myrtle Point-Cooper Rd.	12		Overlay 4 miles entire road length	\$210,000
Myrtle Point-Sitkum Road	1A	2-3	Improve drainage & drive piling to secure slip areas	\$100,000
Nobel Creek Bridge	186	6.1	Bridge replacement (Not on HBR acceptance list)	\$313,450
North Bank Road	5A		Overlay 10 miles entire road length	\$500,000
Norway -Lee -Fairview	2A	3-3.4	Slip repair, drive piling, backfill and overlay	\$150,000
Ridge Road	36	.3-1.6	Minor widening, base & finish rock, complete overlay	\$175,000
Robison Bridge	4B	5.79	Bridge replacement (Not on HBR acceptance list)	\$302,000
Seven Devils Road	33B	11-15	Widening and overlay 4 miles	\$410,000
South Coos River	26	8.5	Widening - Blasting rock face	\$1,500,000
South Slough Bridge	68	1 .18	Bridge replacement (Not on HBR acceptance list)	\$655,350
Stock Slough	54	0-2.3	Complete overlay	\$150,000
Stringtown Bridge	4A	12.8	Bridge replacement (Not on HBR acceptance list)	\$3,800,000
Sumner-Fairview	59	3-7.5	Overlay 4.5 miles	\$500,000
Sumner Fairview (Old Wagon Rd)	59	4.4	Widen to County standards (gravel portion)	\$1,500,000
Train Cattlepass	4A		Cattle pass replacement	\$50,000
TransPacific Parkway	218	.8-1.0	Road realignment	\$275,000
Upgrade of Gravel Roads			Pave the 300 miles of gravel roads throughout the County	\$30,000,000
Weekly Creek Road	122	.5-1.5	Slip stabilization, culvert replacement, paving, minor widening	\$300,000
West Fork Millicoma	47		Overlay 5 miles, entire paved portion of road	\$300,000
Wildwood Drive	7C		Overlay 2 miles, entire road length	\$120,000
Willanch Bridge	45	4.58	Major Bridge repair (scour)	\$50,000
			<b>Total</b>	<b>\$54,568,209</b>

Source: Coos County Highway Department, 1999

**Rural Commercial and Industrial Development**

Areas of rural commercial and industrial zoning in Coos County have potential for development or redevelopment that may require substantial road improvements concurrent with future development. Several of these areas have potential for future inclusion in urban growth boundaries, and some consideration should be made of future urban standards in these areas during each plan update.

Road improvements to accommodate heavy trucks and other traffic might be needed in all or just a few of these areas. The appropriate standard for the public roads within the commercial areas is the County's highest road standard, because these roads are designed and constructed to withstand heavy truck traffic.

Experience has shown that a substantial road base is needed to withstand the heavy truck traffic that accompanies commercial and industrial development. Federal studies have estimated that one fully-loaded truck and semi-trailer has the same impact on roads as 9,500 automobiles. Obviously, even low levels of truck traffic require a standard of road construction comparable to major highways.

**Local Roads and Landowner Responsibilities**

Road users and beneficiaries of road improvements should be the ones who pay for the system's costs. Historically, road fund revenues have not followed up on new development directly, and new development has hardly contributed to capital improvement needs. Several jurisdictions in charge of various parts of the overall road system in the County have differing road improvement policies and practices. Each jurisdiction must maintain the existing investment in the highway system, and now, under voter measures 47 and 50, the ability of a City or County to enhance these funding levels is difficult. Consequently, it is necessary to require substantial contributions from developers for new additions to the road system to serve growth.

**Local Access Roads**

Improvement to appropriate standards is the major need on the local access roads in Coos County. In some cases where there is little potential for traffic growth (no more than five or six houses), a single-lane road standard could be adequate for a private road serving residences. In other cases, the long-term solution will be improvement to city or county road standards. Arriving at this solution after development and without public subsidy will be difficult, and will most likely happen only if local residents are willing to participate in whole, or in part, in the cost of the improvements.

**Public Agency and Other Private Roads**

The private roads in the County have not been improved to meet needs of land uses more intensive than resource uses and low density residential use. Private roads will need to be reconstructed if more intensive use of the road occurs. The roads owned by the Bureau of Land Management, US Forest Service, and Oregon Department of Forestry are in a category of public agency roads that are similar to private roads. These forest roads were developed for forest uses, and are generally not appropriate for more intensive uses. The County should monitor its land uses around these roads to ensure that a road's capacity is not over-burdened by trips created from intensified land uses around the facility.

## Planning for Road Improvements

The continuation of the County's road maintenance programs, adherence to county road standards and specifications and enforcement of land development ordinances is presumed to accompany the implementation of the County's Capital Improvement Plan (CIP).

### Multi-jurisdictional Cooperation

The functional classification of roads does not fully reside with City, County or State jurisdiction, but must be agreed to by diverse parties. This exercise, which takes place periodically, should serve as a model on coordination for more controversial issues like land use planning and access management.

Road improvement needs in Coos County generally involve modernization. This may mean road widening for existing paved roads, frequently needed to serve growth in cities and alternative modes. Modernization is often necessary when the LOS deteriorates and the function of arterial and collector roads is impaired. Another tool for better coordination between land use and transportation planning in these cases is access management on high volume roads.

Another major player in transportation in Oregon is the Department of Land Conservation and Development (DLCD) through the periodic review process, and the Transportation Planning Rule (TPR). In periodic review, DLCD and the jurisdiction lay out a work plan to update the area's comprehensive plan, including Goal 12, Transportation. DLCD must review and approve these Goal 12 update documents.

### New Construction and Road Reconstruction

Generally, new road construction (or reconstruction) is not needed within the County road system. An effective County road network already exists containing almost 50 miles of unimproved and primitive rights-of-way. New road construction will be limited to a few special cases:

- 1) Roads built to County standards to serve new development;
- 2) Roads to serve as new connections in the network to shorten travel times and reduce travel costs in an area; and
- 3) Roads to serve needed public facilities.

Road reconstruction of the entire road section will also be required at County road standards in those cases where an existing roadway is failing to meet public service needs.

## County Policies on Local Road Improvement

County Comprehensive Plan policies require assessment of impacts on transportation, and also require that an applicant shall provide a share of transportation improvements needed to accommodate their development in a timely manner. County policy also requires substandard roads be upgraded to appropriate standards for the level of development to be served. The Coos County Zoning and Land Development Ordinance

(CCZLDO) authorizes road improvements among the conditions and requirements of land use actions. Generally, impacts on the transportation system are addressed when a road which meets appropriate standards is provided. For large projects, additional analysis is often needed to determine which standards and specific improvements are needed to provide a safe facility with adequate capacity.

A fair share of the cost of development needs to be obtained from the direct users and beneficiaries of a particular road. A long-standing policy of Coos County requires the developer to pay 100% of the cost of building a new road to the relevant County standard before acceptance of the road into the County road system by the Board of Commissioners. The policy requires the cost of development be obtained from the direct users and beneficiaries of a particular road. General revenues can then be directed to maintain and improve existing facilities to provide the greatest good to the greatest number. The road fund's limited size to cover road modernization costs can be most effectively used to the benefit of all through consistent developer contributions.

Road improvements and future maintenance cost reductions must occur through consistent developer contributions. This needs to occur in two ways:

1. Continue to require that off-the-right-of-way improvements, new roads, and frontage improvements be paid for by developers.
2. Require developer participation in road improvements beyond their affected frontage through system development charges (SDCs) earmarked for capacity-increasing improvements.

### **Frontage Improvements and Conformance to Road Standards**

Road-related improvements are often made on land outside of existing publicly maintained right-of-way. This includes new roads to be accepted into the County road system. The requirements on these improvements are stated in County ordinances. These on-site and new road improvements are completely paid for by developers and landowners.

### **Frontage Improvements on Existing Roads**

The developer must also pay for frontage road improvements including curb, gutter, storm drains, right-of-way dedication, bike lanes, bus turnouts, shoulders, lane widening, turn lanes, traffic signals, and improvements in the road base to carry heavy loads. Ordinarily, a property's actual and affected frontage are the same, with the developer's obligation limited to one-half of the improvement needed in the right-of-way. However, where an impact is uniquely attributable to a particular development, or where the adjacent or opposing frontage cannot be expected to be intensively developed, the affected frontage would be greater than or different from the actual frontage out to the road centerline. Requirements for road improvements are authorized by the Land Use Development Ordinance (LUDO) and County Road Standards.

### **Contributions to Offsite Improvement Needs**

Many of the impacts of new development are not restricted to the frontage of the lot on which development occurs. This is especially true of impacts on the road system. These improvements would be developer-funded with County responsibility for road surfacing



on County roads as well as County responsibility for engineering, inspection and signing. System Development Charges (SDCs) are the most consistent way to address these needs.

SDCs are proposed to address needs for "off-site" improvements, such as City or County widening projects on arterials and collectors, and including the local match of a state highway project that has benefits county-wide. A developer would be charged a fee for a proportional share of off-site improvements that exceed frontage improvements. The proportional share would recognize the general public's use that already exists and, thus, would be based on the share of added capacity that would be apportioned to new development.

### **Additional Policies**

**Policy:**

*Coos County will be consistent with State and local access management plans for the major street system within the region.*

Access management is the process that provides (or manages) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety and capacity.

Access management is an important key to balanced growth. As evidenced, the lack of a prudent access management plan has led to miles of strip commercial development along the arterial streets of many urban fringe areas. Business activities along arterial streets lead to increased traffic demands and the provision of roadway improvements to accommodate the increasing traffic demand. Roadway improvements stimulate more business activity and traffic demands. This often continues in a cyclical fashion, and requires extensive capital investments for roadway improvements and relocation. However, with the tightening of budgets by Federal, state, and local governments, the financial resources to pay for such solutions are becoming increasingly scarce. The logical conclusion of such a state is the degradation of levels of service to an unacceptable, and sometimes unsafe standard.

The Oregon Highway Plan defines access management categories. The specific designation of an access management category is based on the Level of Importance (LOI) of a facility in the state's transportation network. The Level of Importance is rated by the highway hierarchy as to whether the facility primarily serves statewide, regional, or local traffic.

US 101 is designated a statewide route, as is OR 42; these routes provide the southern coastal area its primary access to the regional transportation system. US 101 and OR 42 are also classified as part of the National Highway System (NHS) based on providing access to major ports, airports, public transportation and intermodal transportation facilities. Further, OR 42 and the section of US 101 between the Coos-Douglas border and the junction of OR 42 are designated statewide freight routes. This designation carries with it the intent to manage the facility for through traffic. The needs of freight transport should be weighed against local access needs in transportation and land use decisions.

**Policy:**

*The primary function of local/ minor streets is to serve the circulation and access needs of residents adjacent to and abutting these streets. Through traffic on these streets shall be discouraged.*

## SECTION VIII PUBLIC TRANSPORTATION ELEMENT

Rural public transit is difficult to achieve. The very factors that make rural living appealing—dispersed low-density development separated by large undeveloped areas—make public transit troublesome to implement. Providing public transportation services to areas that contain very few people is generally not economical. Providing a low-density community with a level of service high enough to attract a large, steady ridership can be very expensive and difficult to achieve over a wide geographical area.

The density of population in Coos County varies considerably. The only area that comes close to meeting Federal density recommendations for local transit service is the Coos Bay/ North Bend area. The Federal government recommends density levels of between 2,500 and 4,500 people per square mile to successfully implement a public transit system. Density levels in Coos County range from 2 people per square mile in the remote parts of the County to between 19 - 53 people per square mile in the areas surrounding the major centers. These densities are deceptively low, as housing in rural areas tends to cluster along specific routes. However, even taking this factor into consideration, specific route densities would have to be significantly greater than overall density. There are no routes of this nature in the unincorporated areas. Clearly, densities in the unincorporated areas appear to fall below those that would sustain a full-scale rural transit system.

Public transportation in Coos County and its urban areas has been limited to a County-wide dial-a-ride service that is operated by Coos County Transit. This service provides a significant number of trips annually. An analysis of the dial-a-ride system included in the Bay Area Transportation Study (BATS) indicates that the system will need to grow by about 30% over the next 20 years to keep pace with demand in elderly and disabled services. This translates into a system with nine vehicles with its primary focus on elderly and disabled transportation. BATS projections for the year 2015 indicate that residential densities are unlikely to justify anything more than an expanded dial-a-ride service within the county.

South Coast Business Employment Corporation (SCBEC) recently completed a study that examined the feasibility of transit throughout Coos and Curry counties. The resulting Regional Transit Plan presents several options for local and regional transit services and describe three levels of transit service to the South Coast region:

1. "Community Connectors"—one operating in Curry County and connecting to Bandon, the second connecting Bandon, Coquille, and Myrtle Point to Coos Bay, and the third operating between Charleston, Coos Bay/North Bend and Lakeside—would provide fixed inter-city service to county residents. These Connector routes would allow for deviations of up to one mile in the fixed route to allow for demand-response service when requested.
2. Varying levels of local transit service will be provided in each city of the county with a fixed-route system being restored in the Coos Bay/North Bend area. Demand response services will continue or be expanded in Bandon, Charleston, Coquille, Lakeside, and Myrtle Point.

3. Should the Community Connector routes prove successful, they could be expanded into a regional express route which would primarily serve as commuter routes and operate during peak travel hours in corridors where substantial commuter needs exist. Ideally, this service would extend to Reedsport in Douglas County to provide regional connectivity.

Coos County views the Regional Transit Plan as a general outline for transit in the county over the next 20 years.

#### Use of the Existing Rail Line for Transit

The question has been raised concerning the possibility of providing passenger rail service to Coos Bay/North Bend from the outlying cities of Coquille and Lakeside on the tracks leased by the Central Oregon Pacific Railroad. While it may be desirable to establish a regional rail passenger service between these cities, there are several practical reasons why it is not feasible, including:

- **Tracks.** The tracks are still in limited use. In order for any type of commuter services to be viable over the rails, the track must be abandoned by the parent corporation. This is for schedule and safety reasons.
- **Cost.** The cheapest practical alternative available that meets minimum conditions set by the Federal Transit and Railroad Administrations for both safety and accessibility costs approximately \$1.7 million per coach. Each coach seats approximately 150 people and is a low-floor vehicle that provides the necessary accessibility to physically challenged individuals.
- **Labor.** Unionized rail labor rates would need to be paid to operate anything over the heavy rail system. Labor costs alone for this system are over \$50,000 for a two-week demonstration. This does not include any costs for maintenance, dispatch, or administrative personnel.
- **Infrastructure.** The rails between Coos Bay and Coquille are rated for traffic at 15 miles per hour. The cost of upgrading these tracks to allow acceptable commute times is well over \$3 million.
- **Road Crossings.** The Federal Transit Administration requires that all lines that are transporting commuter traffic must have signals and gates at all rail crossings. The cost of these signals and gates are approximately \$250,000 to \$500,000 per crossing.
- **Connectivity.** The rails can only be accessed in downtown Coos Bay and on the edges of Coquille. There is no connecting bus service to and from the rails.

This analysis has shown that the development of a commuter rail system between Coquille and Coos Bay is not a viable alternative to other more efficient ways of providing the same service.

At the price of one new rail vehicle the County could purchase a brand new full-size transit vehicle for \$200,000 leaving \$1.5 million to operate it. This would allow the

County to place in service a transit bus with an operating budget of \$300,000 per year over five years. This budget for operations would also allow hourly service for 9 hours a day 6 days a week between Coquille and Coos Bay at no cost to the riders. If the County chooses to establish this service, bus transit vehicles are far more practical.

#### Financing

A significant hurdle for public transportation services in Oregon is to establish and maintain a stable source of funding. Through voter initiative in 1982, the State withdrew its support for public transportation through the State gas tax. That ballot initiative changed the constitution of the State to only allow gas tax revenue to be used for roadway improvements.

Since that time, the only option for public transportation has been to use the City or County general fund, or to attempt to create their own transit district. In this case, the voters determine to allow a portion of their property taxes to be used for support of the public transportation system. Neither option is an ideal solution. Funding through the general fund is always subject to wide fluctuation, depending on the priority given to public transportation and the amount of funds taken in.

Under Measure 5 (i.e. compression) the second option of forming a special district is far less appealing than it would be otherwise. Measure 5 states that property taxes will never exceed a certain percentage of a property owner's assessed valuation. Thus, as a property reaches that maximum, the total revenues will not increase, but be divided into smaller pieces. Nonetheless, the formation of a transit district is recommended in the transit feasibility study as the preferred option for transit funding.

Unless stable sources of revenue are found, provision for public transportation services will continue to be subject to insufficient funding to handle the demand that exists. The County does not expect additional revenues through existing channels for transit and cannot fund such services beyond current levels. While the County views the recommendations in the feasibility study as the general plan for transit, specifics regarding the formation of a transit district and transit funding will have to be refined before gaining County support.

## SECTION IX BICYCLE AND PEDESTRIAN TRANSPORTATION ELEMENT

### Bikeway Planning

Planning for bicycle facilities in the State of Oregon has become far more important since the passage of the Transportation Planning Rule (TPR). The TPR requires that *"Bikeways shall be provided along arterials and major collectors."* (660-12-045(3)(b)(B)). It also states that *"Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers, and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks, and shopping."* (045(3)(b)). These requirements apply to urban areas and rural communities and are intended to provide viable, safe transportation alternatives to the automobile. The development of an integrated bicycle and pedestrian network is aimed at making it more convenient for people to bike and walk. The framers of the TPR and ODOT believe that a functional transportation system is one that provides modal choices. The TPR requires that cities and counties, through the development of their TSP, avoid principal reliance on any one mode of transportation.

In 1991, a bicycle master plan was developed for Coos County. This plan suggests upgrades and improvements for the County bicycle network. Map 5 represents the network discussed in the plan. The routes identified are either unsigned, designated low volume county roads, or have paved shoulders to accommodate bicycle traffic. The routes colored in green are existing, and those in red are in need of improvement. In all cases improvement required paving of shoulders and demarcation to accommodate cyclists needs. These improvements and their cost estimates were listed in the plan, and include:

- Oregon Coast Bike Route
- Seven Devils - Beaver Hill Road
- Riverside Drive
- Beach Loop Drive
- Seabird Lane
- East Bay Drive
- McLain-Libby Drive
- Horsetail Road
- Coquille - Arago - Myrtle Point Roads
- Fairview Route
- North Bay Drive
- Ross Slough Road
- Coquille River Road
- Coos Bay Wagon Road (partial)
- Myrtle Point - Sitkum Road
- North Bank Coquille River Road
- Catching Slough Road
- Bear Creek - Parkersburg Road

This is a general priority list for improvement over time, based on current and anticipated use. However, among the residents of the county, there is a concern that the improvement of the highway system to accommodate bicyclists is diverting funding from much needed highway improvements. As the recommended means of accommodating bicyclists is via shared roadway or shoulder bikeways, these measures benefit vehicular traffic, not just the bicyclist. The shared roadway provides a wider road for all traffic, while the wider shoulder can be considered as an emergency lane.

ODOT's position on bikeways and walkways is clearly stated in the Oregon Bicycle and Pedestrian plan. It states:

*"On most rural roadways, shoulder bikeways are appropriate, accommodating cyclists with few conflicts with motor vehicles. In general, shoulder widths recommended by the American Association of State Highway and Transportation Officials (AASHTO) for rural highways are adequate for cyclists' needs. These standards take into account traffic volumes and other considerations.*

*"Shared roadways are adequate on low-volume rural roads, where vehicle drivers can safely pass bicyclists due to the low likelihood of encountering on-coming traffic."*

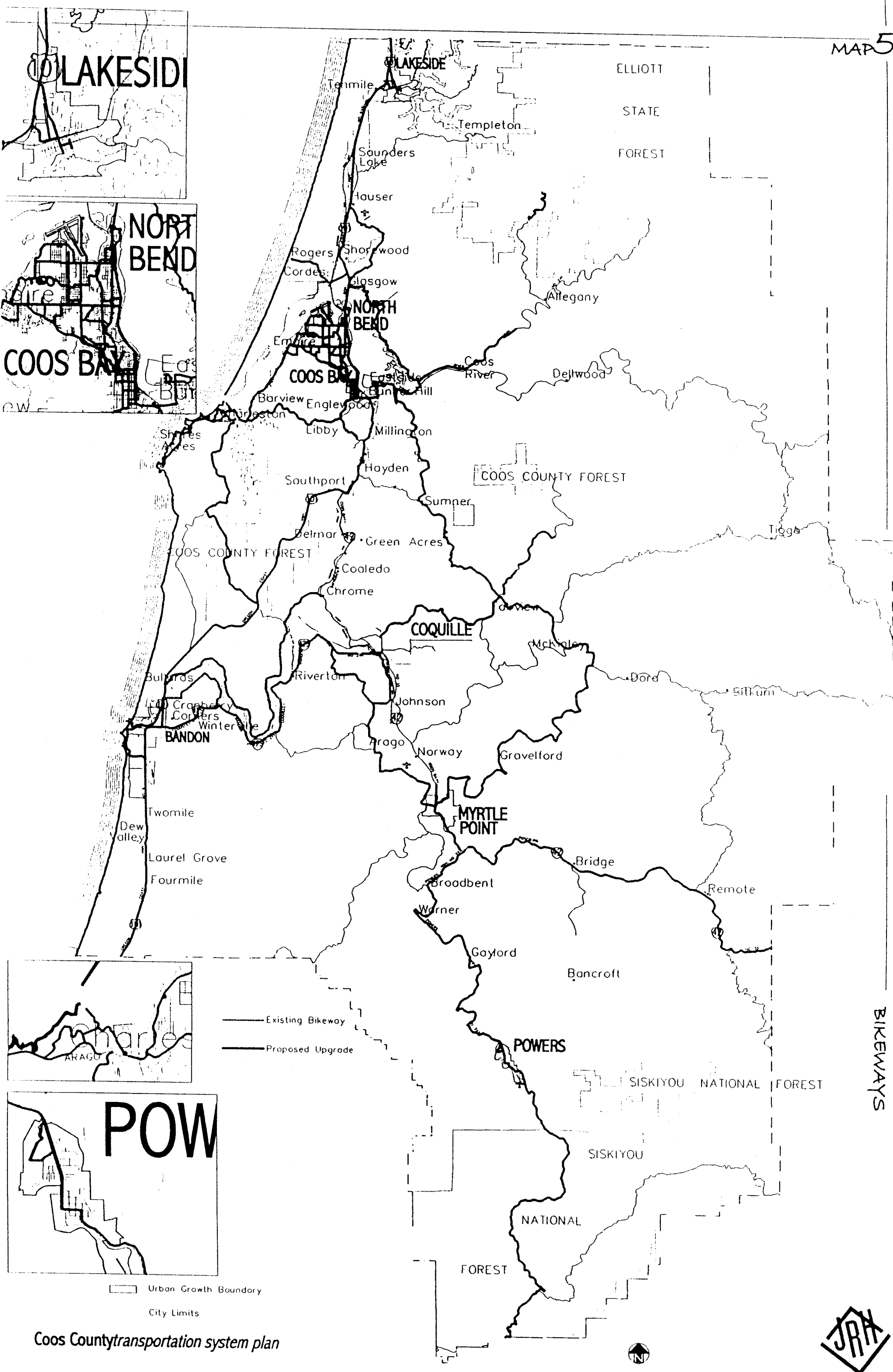
The following map shows the location of roads within the County that have ADTs over 1000 that would be likely candidates for providing paved shoulders for bicycle travel. They include Coquille-Fairview Road, McLain-Libby Drive, and East Bay Drive. The County is working to address repairs on these and other roads. Rather than viewing bicycle improvements as an additional (and unnecessary) cost, the County should work bicycle improvements into needed repairs as possible. For example, in some cases, the only need is for a slightly wider shoulder. It may be possible to factor in small additional amounts of pavement when repairing or resurfacing these roadways to provide that additional width.

Other facilities mentioned in the County Bicycle Master Plan will be monitored and evaluated for improvement should traffic warrant.

#### Pedestrian Planning

The Oregon Bicycle and Pedestrian Plan addresses the issue of rural walkways under heading B.2.b, and states "In sparsely populated areas the shoulders of rural roads usually accommodate pedestrians... Paths provided on one or both sides of a roadway in a rural community may be appropriate for providing access to schools. These paths will also serve the needs of young bicycle riders."

The TPR has few requirements relating to pedestrian planning in counties and rural areas. In general, the Rule directs jurisdictions to ensure that pedestrian facilities exist that will provide safe and direct connections in areas where walking is likely to occur if such facilities exist. The rule is most important in areas that the County controls within urban growth boundaries. These areas are required to determine the appropriateness of sidewalks and the type of standard to be developed. Sidewalk guidelines issued by the Federal Highway Administration (FHWA) have become widely accepted. In rural areas with low-density development and few pedestrian activities, it is appropriate to ensure that all roads have sufficient shoulder width to safely accommodate pedestrians.



## Coos County transportation system plan



## SECTION X FREIGHT TRANSPORTATION ELEMENT

Freight transportation in Coos County includes shipments by truck, rail, and water. The fact that different modes are used for freight shipments implies that a certain level of coordination between those modes must occur. It is also important to consider the balance between those modes and the effect using one mode over another has on the County's transportation system. The importance of intermodal connections, which facilitate the coordination of connections between modes, must also be considered in planning the overall system.

### Modal Balance

Perhaps the most visible element of freight movements in the county are trucks. The movement of freight in and out of the Bay Area, as well as other portions of the county, is felt along US 101, on OR 42, and to a lesser extent on District Highways such as the Coos River Highway, and some local roads. Also of concern to the County is freight movement along OR 38 in Douglas County. While not within Coos County, that route is essential for the economy of the south coast, providing access to and from the Willamette Valley. Continued maintenance and improvement of OR 38 is of the utmost concern to Coos County.

In 1992, the Highway 42 corridor averaged between 500 and 1,500 truck trips each day.<sup>1</sup> Between 1995 and 1998, approximately 30 percent of all traffic on both OR 42 and OR 38 was comprised of trucks and busses. The presence of trucks on the highway is often felt in terms of travel time through the corridor for passenger cars, which must deal with trucks which often travel at slower rates of speed, and for the trucks themselves for which travel time is an economic issue.

The nature of the economy of southwestern Oregon, which relies heavily on resource extraction and shipment, has a direct influence on the performance of the region's highways. For example, on a region-wide basis, ore shipments from Coos Bay to the Riddle nickel facility increased truck traffic on OR 42 for a period of several months in the mid-nineties. However, once those shipments stopped, the number of truck trips on the highway decreased by approximately 100 each day. A more localized example of how truck movement is felt is when log trucks must access a timber site from the highway or local road. While this increase in traffic will usually last a relatively short time the amount of additional traffic on the roadway can be significant.

In addition to the increase of traffic trucks bring to the transportation system, the state and County must consider the effect trucks, particularly when loaded, have in terms of wear on the roadway. The additional weight of trucks on the roadway speeds the deterioration of the pavement, thereby increasing the cost of maintaining the roadway. The cost of pavement repair is not insignificant and must enter into discussions regarding use of the transportation system.

These issues point to the need for modal balance regarding freight shipments in the county. Assuming tonnage remains the same, shipping commodities by rail which are currently shipped by truck would increase performance of the highways by decreasing the number of vehicles traveling a particular road, by removing those vehicles which, in

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<sup>1</sup> Overview of Statewide Corridors, ODOT, 1995.

general, travel more slowly on some sections of the highway, and by slowing the deterioration of the roadway caused by heavy loads. At the same time, however, a number of issues must be considered regarding the shipment of goods by other modes. First, it may not be economical to do so in every case. In general, individual markets determine shipping choices. A given commodity may not be shipped in great enough quantity to justify using rail or water transport. Also, shipments may also be time sensitive, thereby excluding rail or water as a viable shipping option.

Beyond these considerations, however, are issues relating to local transportation facilities. For example, the condition of the rails between Coos County and the Willamette Valley limit the speed at which rail shipments can be made. Concerns have also been expressed by shippers regarding the reliability of the rail facilities serving the county, particularly the swing bridge over Coos Bay. The perceived unreliability of the rail system may cause some shippers to turn to trucks instead.

Shipments by water through the Port of Coos Bay, and to a lesser extent the Port of Bandon, are important to the County's transportation system and do influence the local transportation system. However, this influence is primarily in terms of the need for break of bulk points and intermodal connections which facilitate the transfer of goods from one mode (e.g., rail or truck) to ships or barges. In general, commodities shipped by water are delivered in such quantities or are destined for areas not economically feasible for land shipments. However, there may be additional goods which are currently shipped by land which could be delivered via water.

Obviously, the balance of rail, truck, and water shipments has direct effect on the county's transportation system. It is not the county's policy to directly involve itself in discussions regarding modal choices of local shippers. Further, the County recognizes the fact that the market serves as the basis for most shipping decisions and the county does not intend to try to directly influence those markets. Nonetheless, shipping decisions do affect the local transportation system and to that extent the County will encourage a balance of modes which considers the effects of freight movements on state and local facilities. Further, when appropriate, the County will work with the Ports, the State, cities, and the private sector in finding a modal balance that facilitates the safe and efficient movement of goods to and from the region while protecting the investment in the transportation system.

### **Local Facilities**

The key to providing good freight movement in Coos County is ensuring that the collector and arterial street systems provide an adequate level of service and that continuous connections exist to inter-regional routes. Some guidance relative to the standard of performance which should be provided for freight movements is found in the *Oregon Highway Plan*. The plan suggests that Statewide Freight Highways (e.g., OR 42 and OR 38 and US 101 between those two state highways) should be maintained at a volume-to-capacity ratio of 0.70 where speeds are greater than 45 MPH and 0.75 in areas where speeds are less than 45 MPH. Volume-to-capacity ratios on District highways (e.g., Coos River Highway east of the entrance to the Georgia-Pacific mill site and Cape Arago Highway south of Empire) should be maintained at 0.80 or 0.85 depending on posted speeds.

While the County is not required to develop specific v/c ratios for local roads used for freight movements, doing so will ensure the efficient movement of freight throughout the

county and will contribute to a healthy economy. To that end, the general policy regarding freight movements on County facilities will be to strive for performance similar to state facilities while acknowledging that economic realities may not make that feasible.

### **Specific Issues**

Two main issues related to freight movements in Coos County have been identified: Expansion of capacity on OR 42, OR 38, and US 101 and the rail swing bridge. A third issue, the effects of dredging the Coos Bay channel on listed fish species, was identified initially. However, the Port has indicated that the U.S. Army corps of Engineers has worked with state and federal resource agencies to ensure that dredging will not be a detriment to listed species.

#### Highway Capacity

Currently, the section of US 101 north of north Bend to the county line is two lanes with some turn lanes and passing lanes. OR 42 is four lanes between the western terminus and Myrtle Point, with the exception of the section between Chrome Plant and Cedar Point. The Port of Coos Bay strategic business plan calls for an eventual continuous four-lane facility from Myrtle Point to Reedsport.

In the past, ODOT proposed an expansion of the section of US 101 between the Haynes Inlet Bridge and Saunders Lake to four lanes, but the project was not advanced. The section of OR 42 between Chrome Plant and Cedar Point, which currently is only two lanes, has been identified for a potential widening project to four lanes. The OR 38 and OR 42 Corridor Plans will identify specific maintenance, operational, and modernization projects expected on those facilities over the next 20 years. However, at this time it is uncertain whether these modernization projects will be funded. Should such funding become available, overall project needs across the Region will likely be greater than revenues. As a result, projects will have to be prioritized; the likelihood of widening projects on US 101 and OR 42 is unknown at this time.

#### The Rail Swing Bridge

One reason for the predominance of truck freight movement over rail in the last ten years has been the reluctance of Class 1 railroad operators to commit resources to short haul movements. The condition of the rail bridge is a significant issue which must be addressed. Five and one-half million dollars in funding for repair of the bridge was secured with the federal Transportation Equity Act for the 21st Century (TEA-21). However, a number of concerns must be worked out before the bridge will be repaired, centering on ownership and securing funds to meet the match requirements for the federal funds.

Discussions concerning the repair of the bridge lead to larger questions concerning the role rail should play in the local transportation system. For example, can the Bay Area improve, or even maintain, its current position as a manufacturing and shipping port without rail service that stretches to the south end of the bay and to locations south of Coos Bay? If the bridge were removed, what would be the benefits to ship traffic in the channel? Would rail service to the North Spit be sufficient to support the rail needs of all Bay Area shippers? Would the short line operator be able to justify continued operation in the area based on North Spit service? What would be the impact to Highways 101, 38, and 42 and to the McCullough Bridge if rail traffic to the Bay Area were to cease, and can those transportation facilities handle that increased traffic?

The answers to these questions are beyond the scope of this study, but should be addressed through discussions concerning ownership and rehabilitation of the facility. The Port of Coos Bay has stated that they are committed to maintaining rail access south of the swing bridge to ensure the viability of existing marine terminals and to maintain existing rail service to local mills which currently use the rails for shipping.

Alternatives to repairing the bridge have been suggested and should be factored into any discussion of the future of the bridge. One alternative would be to retain the tracks on either side of the bay and replace the bridge with barge terminals on the north and south sides of the channel. Rail cars arriving from the north would be directed onto barges equipped with rails and transported to the south side of the bay where they would be off-loaded to the existing tracks and delivered to their destinations. Discussions with a local shipping company indicate that such operations exist in the Puget Sound area but did not result in a definitive answer as to whether such a plan would work on Coos Bay. Whether this or any other alternative to the rail bridge would be appropriate will have to be investigated through an extensive feasibility study.

The County should support the Port as they continue in these endeavors, as well as ensure that the interests of the entire county are considered in decisions concerning local economic stability. These freight issues are vital to the continued development and economic viability of the region. Once a solution is found for the issues surrounding the rail bridge, the County should become proactive in efforts to find funding and support for infrastructure to enable freight movements in and out of the Port and to other portions of the county.

#### Airport Element

While the North Bend Airport does not fall within County jurisdiction, the facility is important to the local economy and does affect traffic on County and State roads. According to the Oregon International Port of Coos Bay, which assumed management of the North Bend Municipal Airport in July 1999, indicates that changes called for the North Bend Airport in the facility Master Plan (May 1997) will likely not occur within the next several years. The Master Plan calls for a number of changes in the layout of flight operations at the airport. The major revision would be abandonment of runway 16-34 and relocation of the passenger terminal to the east side of the airport. After further review with various state and federal agencies regarding wetlands fill and mitigation, it is doubtful this project will move forward within the next five to eight years. The Port has entered into an agreement with a team of consultants to revise the current master plan. The concept of moving the terminal will not be abandoned, since that would provide more efficient usage of limited airport property, but it will likely be delayed until the Port has sufficient resources to successfully complete such a project.

The Port of Coos Bay will work with the airport staff to explore opportunities for additional passenger and freight commercial service into North Bend. However, market driven issues such as transport decisions are directly affected by general economic conditions and development activities in the region. As in the case of freight transport decisions, the County will enter discussions of facilities for these modes in terms of the impacts such actions may have on county and state transportation facilities and related funding decisions.

#### Pipeline Element

Coos County is considering options regarding the extension of a natural gas pipeline to the Bay Area and possibly the rest of the county. Currently Coos Bay is the largest Oregon city not currently served by natural gas. Industrial development within the county has suffered owing to a lack of adequate power sources. The addition of natural gas may help to alleviate this problem. It is unknown what route the proposed line would follow, although a route following OR 42 or the County's Old Wagon Rd. are being considered for study. As these issues are resolved in the future, the TSP will be updated to reflect additional pipeline facilities.

## SECTION XI FINANCE ELEMENT

### Financing the Plan

This section includes information on financing the Coos County Transportation System Plan (TSP). First, background information on transportation funding in Oregon is provided, including revenue sources and the distribution of funds to various public entities. Secondly, more specific information on transportation funding trends and the outlook for future revenues for transportation is explored. This is followed by similar information for Coos County. Information on the costs for the transportation improvements described within the plan is also included in this section.

#### Transportation Funding in Oregon

Transportation improvements in Oregon are funded through a variety of Federal, State, and local sources. Statewide, the State Highway Trust Fund makes up about half the total road-related revenues. Money for the Trust Fund comes from state imposed transportation user fees such as motor vehicle fuel taxes, weight-mile taxes on trucks, and vehicle registration fees.

Trust Fund revenues are shared among counties (24%), cities (16%), and the state (60%). These shared transportation funds are distributed to individual counties in proportion to their share of the total number of registered vehicles in the state, and to cities based on their share of the state's population. The Oregon Constitution dedicates this revenue to the construction, maintenance, and operation of public roads.

ODOT estimates that the State Highway Trust Fund will grow faster than the rate of inflation until 2010 (around 3.7 percent growth per year); but the Trust Funds will grow more slowly than inflation after the year 2010.

Federal funds contribute about 30 percent of road related revenues statewide. Federal funds are allocated to transportation programs established by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). ISTEA includes many programs which may contribute money to counties and cities for transportation needs. Federal revenues for Oregon are forecast to increase by about \$4 million per year beginning in Fiscal Year (FY) 1998, which is a lower rate of growth than the one projected for state revenues. This implies that inflation-adjusted federal revenue to all jurisdictions is expected to gradually decline through the forecast period.

In addition to Federal ISTEA funds, some counties in Oregon receive a share of receipts from timber sales on Federal Forest Service and Bureau of Land Management lands. Federal timber receipts payments for Coos County are discussed in more detail in the following section on transportation funding for Coos County.

State and Federal funds account for around 80 percent of road related revenues for counties in Oregon, with the balance generated from local sources. Only a small percent of transportation revenues for cities come from Federal sources (around 4 percent), with 96 percent of transportation revenues for cities derived from local and state sources. Counties and cities rely heavily on local property taxes, gasoline taxes, and local assessment and fees for transportation funding.

**Transportation Funding for Coos County**

The funding for Coos County roads (known as the "County Road Fund") has historically been made up of two main sources: (1) the County's Oregon Highway Fund apportionment, and (2) the County's share of U.S. Forest Service timber receipts. In years past, an interest earning reserve has been kept to respond to historical fluctuations in timber receipts, and to provide some cushion in case revenues decline unexpectedly. However, this practice has stopped with the reduction in timber receipts.

**County Road Fund Revenues and Expenditures**

For the past ten years, State and Federal revenues distributed to Coos County have contributed 100 percent to the County Road fund revenues. In the 1980s, revenue receipts from timber sales on the national forest in Coos County were a far more significant source to the County Road Fund. The U.S. Forest Service revenues have been used by the County to make significant capital improvements to its road system.

Federal revenue from timber sales has declined in recent years to around 6 percent of the total revenue (\$6.3 million).

Shared revenues from the Oregon Highway fund contributed \$3.02 million to the County Road Fund in FY 1997, or almost 50 percent of the total revenue. The County generally uses these funds for the operation and maintenance needs of the County's roadways.

Local revenue sources for the County Road Fund are nonexistent. Coos County has never levied property taxes or other local taxes for roads.

**Outlook for County Road Fund Revenues**

ODOT expects the State Highway Fund to grow or at least remain constant into the future. Assuming population trends (which, in part, factor into the County's allocation) remain as expected, Coos County's share is likely to reflect trends of the overall Fund. While, increases in revenues will likely be offset by inflation, this revenue source provides a reasonably reliable source of funds for roadway maintenance and operation. Given the on-going needs for maintenance and the slow rate of growth, it is unlikely that this source will provide significant funds for any capital improvements.

The County's share of forest revenues is no longer tied directly to the level of timber sales due to the "spotted owl compromise" legislation approved by Congress. Under the terms of this legislation counties are guaranteed timber receipt payments on a schedule set by Congress. Under this legislation timber payments have declined to \$400,000 in the FY 1998. Unless timber receipts produce payments larger than expected, payments to the County are expected to remain steady. While this is a fairly stable and reliable funding source, the amount of funds available to the County for capital improvements from this source is declining at a time when needs are increasing.

Other potential sources of revenue for transportation improvements include payments by developers to mitigate transportation impacts of new developments and dedication of right-of-way for public use. While this could help with capital facilities serving new development, it will not provide much help for transportation improvements to serve existing development. In addition, it is not possible to predict the amount or timing of such funding.

### Special Assessment Districts

A special assessment district is created to fund a specific transportation project that benefits a designated geographic area. The district can levy taxes, collect charges for services and issue debt independent of other local government units. Special districts are typically formed to carry out local improvements or to provide public services for the benefit of property owners within the district boundaries. Local improvement districts (LIDs) are commonly used for transportation improvements by municipalities.

The County has been encouraging people who are platting areas for subdivisions to develop LIDs to finance road improvements within the subdivision. The County also sees the LID process as a potential solution to the problems identified within this plan of publicly dedicated non-accepted roads. The LID process could improve these roads to a standard that the County would agree to maintain.

The revenue from LIDs is tied to specific projects and cannot be used for other transportation purposes. Future revenue from this source is tied to the successful formation of additional LIDs, so future revenues from this source will be highly variable and difficult to predict. However, this approach could be used to finance some of the improvements identified in the plan, including local roadway, sidewalk and bicycle improvements.

### Right-of-Way Dedications and Developer Improvements

Coos County requires developers to provide right-of-way dedications and to construct transportation improvements to support new developments. The County's development code contains several articles which require developers to provide streets and sidewalks within new developments in accordance with the County's design standards for such facilities. The County will not need new revenue for these types of improvements if paving is required. These improvements will be built along with any new development.

### **Funding Needed for Transportation Projects**

Based on the analysis of roadway capacity for County and State roadways, a number of facility needs were identified. The County is required to provide a general estimate of the cost and timing needed for making these improvements. However, the identification of a specific improvement does not ensure that it will be built and does not imply that a suggested improvement can be used as mitigation for transportation needs related to land use actions made in the future.

Table 20 includes capital improvements for state facilities within the county with most focusing on US 101. These improvements primarily address the growing concern of congestion and safety for the transportation system in Coos County. The exception is the cost of adding an east-side collector to the Bandon transportation system which would allow for traffic movements on that side of the city without accessing US 101. Coordination between the County, the County of Bandon and the State will be required to determine the best time for implementation of this project. The total cost of projects in this table is anticipated to be approximately \$14.4 million, of which \$11 million is programmed for bridge improvements and intersection design of North Bay Drive, in conjunction with the replacement of the Haynes Inlet Bridge.



Additional needs faced by the County are summarized in Table 18 which presents needs to local roads. These needs total \$54.4 million. Timing for these projects is not shown as these represent the most pressing needs of the County and will be addressed as money is available. If these projects were all addressed, the County would be able to identify additional needs which are less crucial at this time.

**Table 20: Future Transportation System Improvement Costs**

Project Name	General Timing	Planning Level Cost Estimate
Highway 101& North Bay Drive	0-5 years	
♦ Haynes Inlet Bridge Improvements		\$10,000,000
♦ <u>North Bay Dr. Intersection Improvements</u>		<u>\$1,000,000</u>
TOTAL		\$11,000,000
Highway 101& East Bay Drive—Minor intersection improvements and restriping	0-5 years	\$200,000
Refinement plan/Environmental Study—Bunker Hill to Eastside/Isthmus Slough Bridge	0-5 years	\$100,000
Chrome Plant to Cedar Point—additional lanes	0-5 years	\$12,000,000
US 101 between Bunker Hill and OR 42	5-10 years	\$17,000,000
Highway 101 at Shinglehouse Rd.	5-10 years	\$400,000
Highway 101 at Sumner Road	5-10 years	\$400,000
Bunker Hill to Eastside/Isthmus Slough Bridge—Capacity, safety, bike & ped., and bridge solutions for US 101/Coos River Highway and Isthmus Slough Bridge	5-10 years	\$30,000,000
Bandon Collector east of US 101	10-20 years	\$1,500,000
McCullough Bridge Capacity—Parallel Structure	15-20 years	\$80,000,000
Total Costs		\$151,800,000

Obviously, the projected revenues for Coos County for transportation purposes described earlier in this plan are far exceeded by the actual costs of needed projects and services. Some projects are identified needs by ODOT and have been added to potential funding lists. However, for local roads and for cost sharing in any of the improvements along the state highways, the County will need to pursue additional funding options. The County may want to pursue the following:

- Use Federal or State funds first. Try to get more funds and/or grants from Federal and State programs, or tie local projects to federal or state highway projects. This can attract additional funds or be used as in-kind match for larger projects.

- For projects that the federal or state agencies will not fund, be sure the projects are needed and that the design options have considered lower-cost alternatives to address the problems. Examples may be access management, instead of geometric changes, or chemical stabilization of forest service roads rather than grading.
- For projects that primarily serve new development, or specific properties, charge new development (through system development charges) and property owners through LIDs where appropriate. Require local developers to provide street improvements within new developments to a higher standard that would allow the County the ability to accept the roads for maintenance.
- For projects that are needed, but unfunded, other "less-traditional" funding sources might need to be considered. The County may consider bonding against Oregon & California timber receipts, or establishing a street fee to help augment the road maintenance budget. Another source may be county gas taxes. These funds could back general obligation bonds for other larger projects.
- Finally, the State of Oregon has established a State Infrastructure Bank that can be used for financing larger improvement projects. This may be beneficial if the County's revenue stream isn't as strong as would be needed for a general obligation bond.

#### Federal and State Sources

All Federal highway funds are handled through ODOT's funding process. Federal funds are administered by the State for a variety of purposes at the state, regional, and local levels. Coos County has taken the first step in obtaining Federal funds for transportation in the development of this plan. The projects identified in this plan will allow the County to apply for funding of project needs through ODOT's regular process. The key factor for Federal funding of major transportation improvements is to have them listed on the Statewide Transportation Improvement Program (STIP) which is updated regularly every 2 years.

State or Federal funding is indicated for the majority of the Bunker Hill project. Approximately \$9 million of the total will be in bridge widening over the Isthmus Slough on Highway 101. The remaining costs identified will be in geometric improvements on the County road system. This project needs to be linked to the ODOT project so Federal or State funding can pay for the majority of the County project. Current Federal match ratio is approximately 90/10, with the County required to pay 10% of improvement costs. This would cut the cost of the County improvement from approximately \$1 million to \$100,000.

#### Coos County Sources

Coos County has never allocated funding out of the general fund for road maintenance or improvement. Federal funds and State gas tax have borne the burden for maintaining and enhancing the County road system. In an era of dwindling resources, and increasing demands and needs, the County needs to be open to the idea of either supplementing the road fund with needed revenue for improvements to the County's road network through the general fund, or developing other funding mechanisms to increase revenue for road improvements.

### Private Funding Sources

The Coos County development ordinance requires that developers provide right-of-way dedications for public roads that serve their development, and requires they meet County development standards. As the County continues to develop private concerns need to play a larger role in defraying their impacts to the system. This can be done directly through traffic impact analysis and corresponding improvements required of the developer or through System Development Charges (SDCs).

### System Development Charges (SDCs)

SDCs are fees paid by land developers to governmental entities in association with new development. SDC generated income is used to pay for capital improvements required to serve the new development, such as streets, water lines, and sewer service. The County does not currently collect SDCs for transportation. SDCs are based on the County's revenue needs for new projects, and then the impact that the new development has as a proportional share of those needs is assessed to the developer as a condition of permit approval. SDCs cannot be used for other project needs, but must be held in abeyance until one of the projects identified in the SDC ordinance is built.

### Other Funding Sources

Other funding sources include special purpose funding that may become available, such as grants from the school district or the Coos-Curry-Douglas Rural Development Initiative. School district funding may become available for sidewalks, crosswalks, or even public transportation. The rural development initiative may be able to arrange funding to take advantage of economic opportunities as they present themselves.

### Additional Revenue Sources for Transportation Plan Implementation

In summary, it is likely that Coos County will need to find additional revenue sources in order to implement this transportation plan. In general, the County should seek revenue that charges travelers based on their use of the transportation system. However, it is difficult, if not impossible, to determine appropriate charges and to implement them successfully. Consequently, the County will need to look at revenue sources collected from the general population (residents and visitors) that are less directly tied to transportation usage.

### **System Development Charges**

It is recommended that the County adopt a SDC program for transportation. These types of charges are widely used in Oregon and across the Country to help finance transportation improvements needed to support new development. Once established, a SDC could be indexed with inflation or some other measure to ensure it kept up with costs.

### **Local Street Utility**

There are, oftentimes, projects that need to be implemented that are not related to new development and cannot be funded through SDCs. Upgrading existing roads, improved maintenance, or establishing an emergency reserve are examples. One possible way to generate funds is to create a street utility. The utility could charge property owners a fee based upon transportation "consumed" by the residence or business. This is typically a flat fee for residential units, between \$1 and \$2 per month. Businesses are typically charged based upon trip generation rates for the land use. It may be possible to charge a "hook-up" fee for new developments. This type of fee could easily produce an

additional \$500,000 per year for transportation improvements and would increase as the county developed.

**Local Option Gas Tax**

Implementing a local option gas tax appears attractive because it charges travelers (presumably in some proportion to their use); it places some of the transportation financing burden on nonresidents; and at 1 to 2 cents per gallon, a gas tax would have little impact on profits for local gasoline dealers. This revenue source is relatively easy to administer, does not cost much to collect, and provides a long-term, stable funding source. It is impossible to predict the amount of revenue this would generate, as statistics of gas sales for Coos County are not tabulated. This information will need to be estimated, should the County decide to pursue this revenue source.

A local option tax would require voter approval, and voters have defeated almost every proposed local option tax in Oregon. Given the general anti-tax sentiment in Coos County a local option tax may be a hard sell at the polls; however, if the benefits are made clear, and the point can be made that this would assess travelers for their impacts, it may be feasible.

**Local Option Vehicle Registration**

Recent changes to the state gas tax law (HB 2082) provides for counties to levy local vehicle registration fees, up to \$10 each year. Although this law was passed by the Legislature it may be referred to the voters and defeated. In this case, a local registration fee will not be an option.

**Summary Of Transportation Funding Options**

Governments at all levels are under pressure to maintain services at current levels without raising taxes. If the County is to continue to provide current levels of service, or improve upon current levels, a strategy that combines several funding sources will need to be developed. This strategy should:

- Aggressively pursue federal and state funding for transportation improvements;
- Require that developers provide infrastructure improvements within new development and pay for improvements needed to the system surrounding their developments, based on their impacts to the system;
- Require that all new county subdivision roads be paved to a standard that minimizes maintenance costs for the County;
- Charge property owners for improvements that benefit their properties;
- Refuse to build projects which do not have sufficient funding from federal, state, private, and other sources;
- Consider implementation of additional funding sources to improve and maintain present levels of service in Coos County.

## SECTION XII STREET STANDARDS

Minimum standards for new roads, streets, and driveways are detailed in Section VII of the County's Subdivision Ordinance. The following table summarizes the relevant details.

As in the existing streets standards, the recommended street standards are based on the proposed functional classification of the roadway and the average amount of traffic that is expected. Three functional classes are recommended for rural roadways: local streets, collectors, and arterials. Recommended travel lane width for these types of roads ranges between 10 and 12 feet. The major difference between the existing standards and the proposed standards is the requirement for paved shoulders. These paved shoulders will assist bicycle and pedestrian movements, as well as providing a safe refuge on higher volume facilities for emergency parking. Recommended shoulder widths are summarized in Table 21.

### Local Residential Streets

Generally, the average weekday traffic volume on a rural local residential street is less than 500 vehicles per day, and design speeds are 25 MPH. The recommended standard for a rural local residential street is a 24-foot roadway within a 60-foot right-of-way, as shown in Figure 18. There is a 10-foot travel lane with 2-foot wide paved shoulders on each side of the road.

**Table 21: Recommended Shoulder Widths on Rural Roads**

Road Use	Rural Local Streets	Rural Collectors	Rural Arterials
ADT under 400	2 ft	2 ft	4 ft
ADT over 400			
DHV* over 100	2 ft	4 ft	6 ft
DHV 100-200	4 ft	6 ft	6 ft
DHV 200-400	6 ft	8 ft	8 ft
DHV over 400	8 ft	8 ft	8 ft

\* DHV (Design Hour volume) is the expected traffic volume in the peak design hour (usually at commuter times), usually 13 to 25% of ADT.

The narrower streets and travel lanes generally improve the neighborhood aesthetics, and discourage speeding. They also reduce construction costs, stormwater run-off, and vegetation clearance. It is expected that, on rural local streets, parking will be off-pavement.

For the most part, rural streets will not include sidewalks. Pedestrians and bicyclists generally travel on the shoulder of the road. However, in areas with high pedestrian or

bicycle use, a pathway should be considered, preferably located on both sides of the roadway, and separated from the roadway by at least five feet of greenbelt or drainage ditch.

### **Collector Streets**

Collector streets are primarily intended to serve abutting lands and local access needs of neighborhoods. They are intended to carry between 1,200 and 10,000 vehicles per day. Collectors can serve residential, commercial, industrial, and mixed land uses. Figure 18 shows a cross-section with a 60-foot right-of-way and a 32 to 40 foot paved width. This width allows two 12-foot travel lanes and 4- to 8-foot shoulders. The width of the shoulder is determined by anticipated traffic volumes, as shown in Table 21. It is expected that, on rural collector streets, parking will be off-pavement.

The recommended right-of-way allows for future expansion of the roadway to urban residential or collector street standards.

For the most part, rural collectors will not include sidewalks and are handled in the same way as residential streets.

If traffic volume forecasts exceed 5,000 vehicles per day, then driveways serving single-family houses, duplexes, or triplexes should not be permitted on that section.

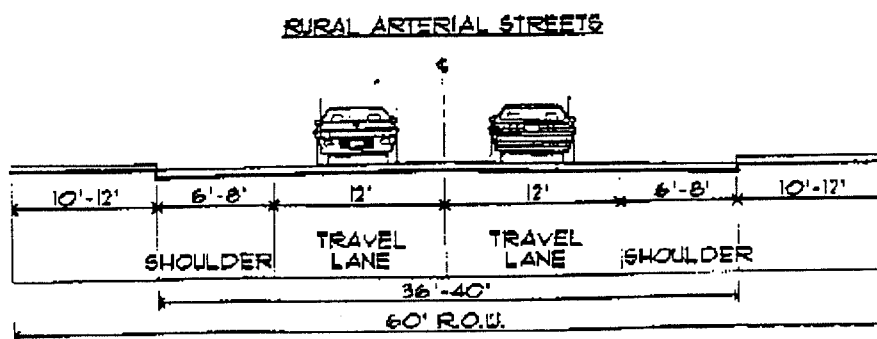
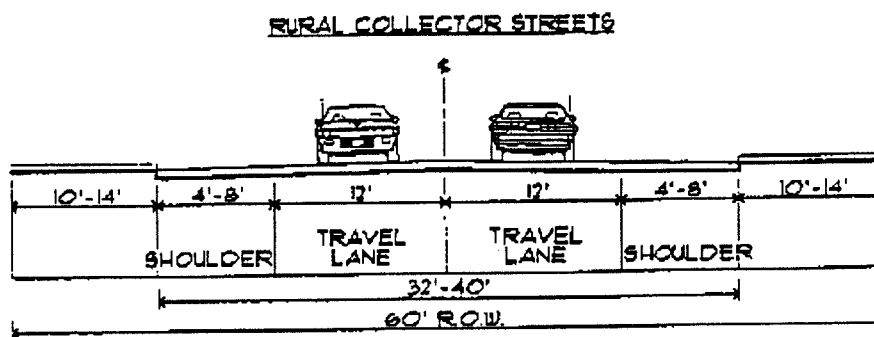
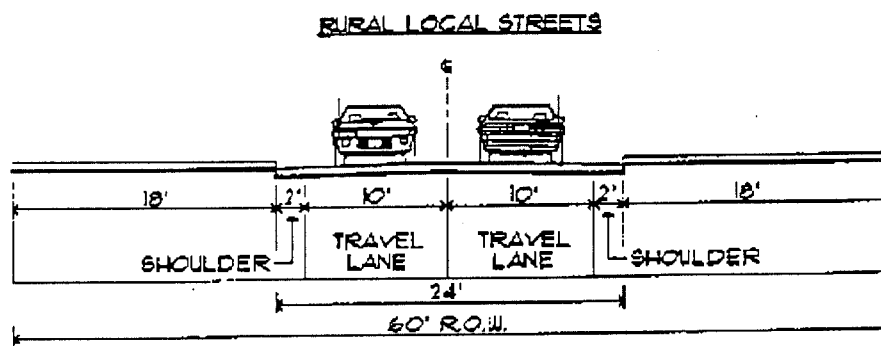
### **Arterial Streets**

Arterial streets form the primary roadway network within and through a region. They provide a continuous roadway system which distributes traffic between different neighborhoods and districts. Generally, arterial streets are high capacity roadways which carry high traffic volumes with minimal localized activity. Access should be provided along an intersecting rural, local, or collector street. Direct access to residential property along a rural arterial should be discouraged. Currently, all arterials in the County are State Highways and must be built and maintained to State standards. Should the County build local arterials, or take jurisdiction of existing state facilities, the following standards will apply.

Figure 18 shows a cross-section with a 60-foot right-of-way and a 36 to 40 foot paved width. This width allows two 12-foot travel lanes and 6- to 8-foot shoulders. The width of the shoulder is determined by anticipated traffic volumes, as shown in Table 21. No on-street parking should be allowed on arterial streets.

For the most part, rural arterial streets will not include sidewalks. Pedestrians are generally accommodated on the shoulder of the road, as are bicyclists. Pedestrian and bicycle usage is handled in the same manner as residential and collector streets.

Figure 18: Rural Street Standards



### **SECTION XIII OPERATIONS AND MAINTENANCE PROGRAM**

The objective of this element of the study is to develop a facilities operations and maintenance program which will ensure that the citizens of Coos County have safe roadways and bridges for their transportation needs.

Utilizing the pavement condition analysis, facility inventory maintenance needs were determined and prioritized to ensure that areas with the most pressing need are addressed first. Based on the resources available, a program was developed that maintains the road network within a desired condition.

Included in the Appendix are tables that indicate the proposed monthly breakdown in activities in terms of man-days and cost. These tables also provide a schedule of activities in any given month. For instance, shoulder blading is done during the fall after the vegetation has withered, and prior to the winter rains, while mowing is a summer time activity. Certain types of activities are done every month like road patrol and bridge work, and still others happen sporadically and are not included in the budget. Emergencies, slides during the winter, road slumps, and accidents require immediate attention, and a contingency fund should be developed for these types of emergencies.

### **SECTION XIV CRITERIA FOR GATING AND VACATING COUNTY ROADS**

Road maintenance budgets have not kept pace with the increasing cost of road maintenance and the increasing length of road to be maintained. This has forced the County to review mechanisms to reduce the number of facilities they have to maintain. Two techniques to accomplish this goal are gating or vacating of facilities. Criteria for both of these techniques are discussed below.

#### **Draft Criteria for Gating County Roads**

In some cases it may be desirable for the cost-effective management and maintenance of low volume County roads to install a gate in order to control travel on the roadway. The installation of a gate on a County road shall be done only after an order of the Board of County Commissioners. The Board may order a County road to be gated based on any of the following criteria:

1. A petition of adjoining property owners requests the gate be installed in order to reduce problems of trespassing and vandalism that have caused physical damage to property
2. Upon request of the Roadmaster to prevent damage to the roadway from heavy vehicles, or to otherwise reduce risks to the traveling public due to natural hazards or similar problems



An order of the Board shall direct any terms applying to the closure of the gate in regard to hours or season. The Board order shall also specify how adjoining owners may obtain a key to the gate.

### **Draft Criteria for Vacating County Roads**

In some cases, platted public and County roads have not been developed and may appropriately be vacated after an order of the Board of County Commissioners. The Board may order a County road to be vacated based on any of the following criteria:

1. A petition of adjoining property owners requests the road be vacated
2. Upon action by the County to replat the road to a location that will comply with standards.
3. By any party upon a showing that there has been no action to improve the road and that it has been more than ten years since the road's creation

An order of the Board shall specify how road right-of-way shall be assigned to adjoining owners upon vacation.

## SECTION XV ORDINANCE LEVEL DETAIL

The Transportation Planning Rule (TPR)(660-12) requires local planning agencies to adopt ordinance revisions based on the findings of the TSP and the requirements as stated in the TPR. Based on these requirements changes have been made to Coos County's Land Development Ordinance in Chapters 6, 7 & 10. The following is a listing of those ordinances with proposed language changes.

### Chapter 6

#### ARTICLE 6.2 DESIGN AND DEVELOPMENT STANDARDS

**SECTION 6.2.100.** Purpose. All land divisions shall conform to the design and development standards specified in the following sections. The standards so specified shall be considered as the minimum appropriate for land division, partition, PUD or subdivision development and are not intended to limit the developer from using higher standards of design and development.

**SECTION 6.2.150.** Road or Streets. The standards of Chapter VII shall apply.

**SECTION 6.2.200.** Control Strip. The County may require, or at the request of the developer, the creation of a 1 (one) foot wide strip of land contiguous to a road, whereby such strip of land would be deeded to the County for the purpose of restricting access to said road from an adjacent lot or parcel. Control strips shall not be regarded as a lot or parcel. Control strips may be permitted for any of the following reasons:

- (1) to prevent access to abutting land at the end of a road right-of-way in order to assure the proper extension of the road pattern and the orderly division of land lying beyond the road;
- (2) to prevent access to the side of a road where additional width or improvement is required or future partition or subdivision action is needed;
- (3) to prevent access to the side of a road from abutting property that is not part of the division until proportional road construction costs are conveyed to the appropriate developer.

**SECTION 6.2.250.** Access.

- (1) The development of land shall be such as to provide each lot or parcel with one of the following alternative means of access:
  - A. a lot or parcel shall abut upon a public street, other than an alley;  
or
  - B. a lot or parcel shall abut upon a private easement (restricted agricultural, mining and forestry easements may be used for land

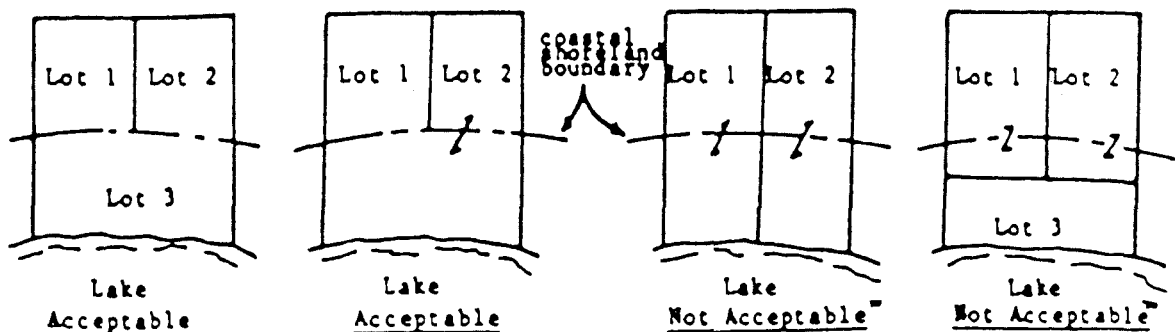
divisions, but not for siting dwellings and other development uses);  
or

C. a lot or parcel not affected by a coastal shoreland boundary shall abut on a waterway provided the following facts are found to exist:

- i. the waterway is navigable and has public access, and
- ii. the parent lot or parcel is not served by road access; or, provided the parent lot or parcel is served by road access, the Hearings Body finds that unusual circumstances make extension of the road system to the proposed lot or parcel impractical; and

D. A parent lot or parcel abutting Tenmile Lake, North Tenmile Lake or any of their associated arms not including Tenmile Creek or other tributaries, may be divided provided the Hearings Body finds:

- i. the land encompassed within the coastal shoreland boundary identified in the Coos County Comprehensive Plan remains as a single unit or combined with a proposed "upland" (see Subsection 5 below) lot or parcel (see following examples) and



\* may be acceptable provided compliance with Policy 5.10(8).

- ii. each "upland" lot or parcel not combined with that portion encompassed within the shoreland boundary, shall be served with "foot access" (see Subsection 5 below); and,
- iii. the parent lot or parcel is not served by road access; or, provided the parent lot or parcel is served by road access, the Hearings Body finds that unusual circumstances make extension of the road system impractical; and,

- (2) Any access approval request under this section shall be reviewed to assure that no development occurs in known natural hazard areas without appropriate safeguards. The Hearing Body may condition its approval of a request on the provision of such safeguards, or otherwise condition approval of such requests to insure compatibility with the objectives of this ordinance, and the Coos County Comprehensive Plan.
- (3) Any land division that involves the creation of a public or private road or street or "foot access" will require a partition, planned community or subdivision approval. [OR-92-07-012PL]
- (4) All private road right-of-way easements shall be part of a lot, parcel or designated common areas. The area within the private easement can only be considered as part of a required minimum lot size pursuant to Section 3.3.500.
- (5) As used in this section, the following definitions shall apply:
  - (A) "foot access" means a private way, other than a street or road, legally created to provide access across the entire parcel or lot of land lying within the shoreland boundary from a waterbody to an "upland" lot or parcel which shall abut the coastal shoreland boundary. Said access shall terminate at the shoreland boundary and shall have no required construction standards an improved permeable surface as deemed appropriate by the Coos County Roadmaster (i.e. sand, gravel, etc).
  - (B) "upland lot or parcel" means a lot or parcel not abutting a waterway and partially or totally outside a coastal shoreland boundary.

**SECTION 6.2.300. Easements.** Easements may include but are not limited to the following:

- (1) Private Road Access. Pursuant to Chapter VII (Roads or Streets).
- (2) Utility Easements. Easements including but not limited to sewers, water mains and electric lines shall be at least 15 feet wide, except for utility pole tieback easements which may be reduced to 6 feet in width.
- (3) Pedestrian and Bicycle Ways. When necessary for public convenience, safety or if designated on an adopted County or State recreation or transportation ~~master system~~ plan, the County Planning Director may will require a developer of a subdivision, and PUD, and office park complex to dedicate to the public, public access easements 10 feet in width. Said easements may be deemed necessary to provide access:
  - a. through unusually long or oddly shaped lots or parcels; or
  - b. to schools, parks or other public areas; or

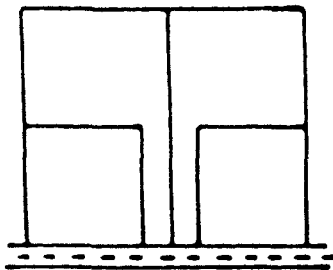
- b. to schools, parks or other public areas; or
- c. for pedestrian travel adjacent to streets; or
- d. to water bodies or other natural amenities; or
- e. between streets or cul-de-sacs; or
- f. between office structures and through parking facilities.

- (4) Slope Easements. Necessary when right-of-way slope construction extends outside of the normal right-of-way.

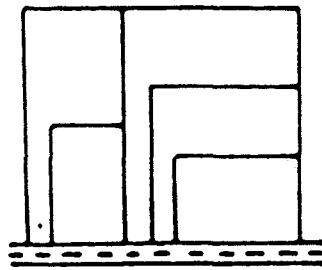
#### **SECTION 6.2.350. Lots and Parcels.**

- (1) Lot and parcel sizes shall meet the minimum lot sizes as established by the applicable zoning district. (Also see Section 3.3.500 maintenance of minimum requirements).
- (2) Panhandle lots or parcels shall be an acceptable method of land division. More than two contiguous panhandles (as opposed to the panhandle "lots" themselves) shall not be permitted. Where two panhandles are contiguous, the County may require easements and construction of an access road.

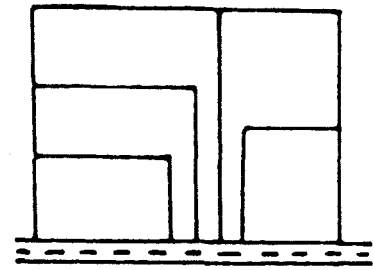
#### **EXAMPLE:**



May be acceptable



May be acceptable



Not acceptable

- (3) Dimensional Standards.
- a. Minimum access frontage for any lot or parcel shall be fifty feet (50').
  - b. Minimum panhandle width for any lot or parcel shall be ~~fifty~~ Twenty feet (50' 20').
- (4) Side lot and parcel lines shall be substantially at right angles or radial to street lines, except when the topography of the area limits or prohibits compliance.

- (6) Lot and parcel size, width, shape and orientation shall be appropriate for the location of the property being developed, the topography and the type of development and use proposed as determined by the County Surveyor.
- (7) Lot or parcels shall not be unreasonably shaped or laid out, or the lots or parcels shall not violate or destroy the lay of the land contrary to the provisions of this ordinance.
- (8) within UGB's only, lot, tract or parcel width shall be at least 25% of the depth, and not less than otherwise required by this ordinance.

**SECTION 6.2.400. Improvement Specifications** Improvements shall conform to the following standards:

- (1) Water supply systems, both public and private, shall conform to the requirements of state law.
- (2) Sewage disposal systems, both public and private, shall conform to the requirements of state law.
- (3) ~~such~~ grading shall be performed and drainage facilities installed (i.e. french drains, catch basins, etc.) as is necessary to provide proper drainage within the partitioned area.
- (4) The Hearings Body may require the installation of storm sewers where necessary to insure proper drainage, to conform with an established or proposed drainage system or to eliminate threat to the public health and safety.
- (5) Streets or roads shall conform to the improvement standards stated in Chapter VII of this Ordinance.  
  
(5.5) For developments affecting State road facilities by more than 300 trips per day, as estimated using the most recent edition of the ITE Trip Generation Manual, or where the development causes traffic impacts that bring a State road below acceptable levels of service standards, or impacts a state road that is already operating below acceptable levels of service, or impacts a State road that has a documented safety problem, the applicant shall be required to provide a traffic impact study that identifies traffic impacts attributable to the development and appropriate mitigation measures. Mitigation must be provided in order for the development to be approved. The determination of impact effect, scope of the impact study, scheduling, and funding of improvements shall be coordinated between the developer, the County, and the Oregon Department of Transportation.
- (6) Sidewalks of an all-weather material not less than 3 5 feet in width, nor more than 8 feet in width shall be constructed in as close to the center of

pedestrian and bicycle ways as practical, when required. Also see Section 6.2.300 (3).

- (7) Erosion prevention. When necessary to prevent erosion all cuts and fills and other graded areas shall be protected from erosion by appropriate seeding or planting of grass, shrubs, trees or other soil stabilizing vegetation.

**CHAPTER 7****CHAPTER VII        STREETS AND ROADS****ARTICLE 7.1 GENERAL PROVISIONS**

SECTION 7.1.100.    Rural and Urban Street and Road Provisions. Road and street development standards shall be divided into two categories:

- 1)        Rural standards (See Article 7.2).
- 2)        Urban road standards (See Article 7.3).

Policy matters regarding required road improvements are set forth and summarized in Table 7.1.

SECTION 7.1.200.    Required Dedication of Streets or Roads. When a land division is reviewed by the County, the Board of Commissioners, Hearings Body or TRC may require design and public dedication of streets or roads to ensure the development and continuance of a convenient ~~public transportation system.~~ roadway network.

SECTION 7.1.300.    Public and Private Roads. For the purpose of this ordinance, streets and road shall be divided into two major types:

- 1)        Private roads (ie., private access easements);
- 2)        Public roads (created by public dedication or easement, or by fee title transfer to the public);

*NOTE: New public roads created pursuant to this ordinance will not become part of the Coos County road maintenance system without specific action by the Board of Commissioners adopting such new roads into the maintenance system.*

SECTION 7.1.400.    New Private Roads in Conjunction with Land Divisions. New private roads may be created to provide access to proposed land divisions in urban or rural areas only when the Planning Director finds that the private road will not be needed for proper development of the surrounding sub-area. The Planning Director's decision shall be made only after receiving and reviewing a written recommendation from the Roadmaster.

The Planning Director's decision to allow or not allow creation of a private road to access proposed new lots or parcels is a land use action that shall be supported by written findings and subject to the notice provisions of Article 5.7. Notice of the decision shall be provided at the same time that notice is given for approval or denial of the tentative partition plat for the proposed land division related to the proposed private road.



SECTION 7.1.500. Special Provisions for New Private Roads. When new private roads may be created to provide access to proposed land divisions in urban or rural areas:

- 1) The proposed private road shall be clearly designated as a private road on any required map or plat as shall any reservations or restrictions relating to its use and, if named, the private road shall end with the designation "Lane" or "Way";
- 2) All new lots and parcels proposed to be served by any new private road shall have a non-exclusive easement covering the entire private road to be created, and this easement shall be made a part of the legal description for the new lots or parcels at the time of title transfer;
- 3) If an existing private road is to be used as access to the proposed land division, then the property to be divided must also enjoy a non-exclusive easement covering the entire existing private road being used to access the property being divided;
- 4) Road maintenance agreements are ~~strongly recommended~~ required for new private roads, ~~but not required~~;
- 5) The following notice shall appear in legible print on the face of any proposed final plat containing a lot or parcel to be served by a private road:

"Coos County hereby gives notice to all developers, purchasers, potential purchasers and all third parties whatsoever that the County disclaims any liability whatsoever for any damage which may occur as a result of the failure of the developer to construct, improve or maintain roads in this proposed land division."

In addition, and for all partitions approved after January 1, 1996, the following shall also appear on the face of any proposed final plat containing a lot or parcel to be served by a private road:

"Confirmation is required from the County Roadmaster that all road and driveway requirements of the Coos County Zoning and Land Development Ordinance have been met prior to the issuance of a Zoning Compliance Letter."

Finally, the developer is required to post and provide for the maintenance of signs on the road stating that the County does not maintain the facility. Such signs might say "This road is privately maintained by surrounding property owners. All costs for roadway maintenance and upkeep are assessed to each individual property owner".

SECTION 7.1.550 *Access Management.*

*Note: All of Section 7.1.550 is new. The text has been italicized instead of underlined to make this section more readable.*

### *Section 1. Intent and Purpose*

*The intent of this ordinance is to manage access to land development while preserving the flow of traffic in terms of safety, capacity, functional classification, and level of service. Major roadways, including arterials, and collectors, serve as the primary network for moving people and goods. These transportation corridors also provide access to businesses and homes and have served as the focus for commercial and residential development. If access points are not properly designed, these roadways will be unable to accommodate the needs of development and retain their primary transportation function. This ordinance balances the right of reasonable access to private property with the right of the citizens of the county and the State of Oregon to safe and efficient travel.*

*These regulations also further the orderly layout and use of land, protect community character, and conserve natural resources by promoting well-designed road and access systems and discouraging the unplanned subdivision of land.*

### *Section 2. Applicability*

*This ordinance shall apply to all arterials and collectors within the county and to all properties that abut these roadways.*

### *Section 3. Conformance with Plans, Regulations, and Statutes*

*This ordinance is adopted to implement the access management policies of the county as set forth in the Transportation System Plan.*

### *Section 4. Definitions*

- 1. Access. A way or means of approach to provide pedestrian, bicycle, or motor vehicular entrance or exit to a property.*
- 2. Access Classification. A ranking system for roadways used to determine the appropriate degree of access management. Factors considered include functional classification, the appropriate local government's adopted plan for the roadway, subdivision of abutting properties, and existing level of access control.*
- 3. Access Connection. Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public roadway system.*
- 4. Access Management. The process of providing and managing access to land development while preserving the regional flow of traffic in terms of safety, capacity, and speed.*
- 5. Accessway. A walkway that provides pedestrian and bicycle passage either between streets or from a street to a building or other destination 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 that provides convenient access for pedestrians.*

6. *Corner Clearance. The distance from an intersection of a public or private road to the nearest access connection, measured from the closest edge of the pavement of the intersecting road to the closest edge of the pavement of the connection along the traveled way.*

7. *Cross Access. A service drive providing vehicular access between two or more contiguous sites so the driver need not enter the public street system.*

8. *Easement. A grant of one or more property rights by a property owner to, or for use by, the public or another person or entity.*

9. *Frontage Road. A public or private drive which generally parallels a public street between the right-of-way and the front building setback line. The frontage road provides access to private properties while separating them from the arterial street. (see also Service Roads)*

10. *Functional Area (Intersection). That area beyond the physical intersection of two roads that comprises decision and maneuver distance, plus any required vehicle storage length.*

11. *Functional Classification. A system used to group public roadways into classes according to their purpose in moving vehicles and providing access.*

12. *Joint Access (or Shared Access). A driveway connecting two or more contiguous sites to the public street system.*

13. *Lot. A parcel, tract, or area of land whose boundaries have been established by some legal instrument, and which is recognized as a separate legal entity for purposes of transfer of title, has frontage upon a public or private street, and complies with the dimensional requirements of this code.*

14. *Lot, Corner. Any lot having at least two (2) contiguous sides abutting upon one or more streets, provided that the interior angle at the intersection of such two sides is less than one hundred thirty-five (135) degrees.*

15. *Lot Depth. The average distance measured from the front lot line to the rear lot line.*

16. *Lot, Flag.* A lot not meeting minimum frontage requirements and where access to the public road is by a narrow, private right-of-way line.
17. *Lot, Through.* (also called a double frontage lot). A lot that fronts upon two parallel streets or that fronts upon two streets that do not intersect at the boundaries of the lots.
18. *Lot Frontage.* That portion of a lot extending along a street right-of-way line.
19. *Non-conforming Access Features.* Features of the property access that existed prior to the date of ordinance adoption and do not conform with the requirements of this ordinance.
20. *Parcel.* A division of land comprised of one or more lots in contiguous ownership.
21. *Plat.* An exact and detailed map of the subdivision of land.
22. *Private Road.* Any roadway for vehicular travel which is privately owned and maintained and which provides the principal means of access to abutting properties.
23. *Public Road.* A road under the jurisdiction of a public body that provides the principal means of access to an abutting property.
24. *Reasonable Access.* The minimum number of access connections, direct or indirect, necessary to provide safe access to and from the roadway, as consistent with the purpose and intent of this ordinance and any applicable plans and policies of the county.
25. *Right-of-Way.* Land reserved, used, or to be used for a highway, street, alley, walkway, drainage facility, or other public purpose.
26. *Stub-out (Stub-street).* A portion of a street or cross access drive used as an extension to an abutting property that may be developed in the future.
27. *Substantial Enlargements or Improvements.* A 10 percent increase in existing square footage or 50 percent increase in assessed valuation of the structure.

#### **Section 5. Joint and Cross Access**

1. *Adjacent commercial or office properties classified as major traffic generators (i.e. shopping plazas, office parks) shall provide a cross access drive and pedestrian access to allow circulation between sites.*
2. *A system of joint use driveways and cross access easements shall be established wherever feasible and shall incorporate the following:*

- a. A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards;
  - b. A design speed of 10 mph and a maximum width of 20 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;
  - c. Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross-access via a service drive;
  - d. A unified access and circulation system plan for coordinated or shared parking areas is encouraged.
3. A reduction in required parking spaces in shared parking areas shall be permitted if peak demands do not occur at the same time periods.
  4. For County road facilities, Coos County may reduce required separation distance of access points where they prove impractical, provided all of the following requirements are met:
    - a. Joint access driveways and cross access easements are provided in accordance with this section;
    - b. The site plan incorporates a unified access and circulation system in accordance with this section;
    - c. The property owner enters into a written agreement with Coos County, recorded with the deed, that pre-existing connections on the site will be closed and eliminated after construction of each side of the joint use driveway.
  7. The County Road Department may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make a development of a unified or shared access and circulation system impractical.

#### **Section 6. Access Connection and Driveway Design**

*Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers shall be avoided due to the potential for vehicular weaving conflicts.*

#### **Section 7. Requirements for Phased Development Plans**

1. In the interest of promoting unified access and circulation systems, development sites under the same ownership or consolidated for the purposes of development and comprised of more than one building site shall be reviewed as single properties in relation to the access standards of this ordinance. The number of access points permitted provide reasonable access to these properties, not simply the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans.

2. All access must be internalized using the shared circulation system of the principal development or retail center. Driveways shall be designed to avoid queuing across surrounding parking and driving aisles.

#### Section 8. Non-conforming Access Features

Legal access connections in place as of the date of adoption of this ordinance that do not conform with the standards herein are considered non-conforming features and shall be brought into compliance with applicable standards under the following conditions:

- a. When new access connection permits are requested;
- b. Change in use or enlargements or improvements that will increase trip generation by 50% or more; or
- c. When trips increase or the character of traffic changes on ODOT facilities.

#### Section 9. Reverse Frontage

1. Lots that front on more than one street shall be required to locate motor vehicle accesses on the street with the lower average daily traffic. Where safety concerns exist, the County Roadmaster, and/or ODOT will have final authority to permit appropriate access.

2. When a residential subdivision is proposed that would abut an arterial, it shall be designed to provide through lots along the arterial with access from a frontage road or interior local road, unless otherwise constrained by topography. Access rights of these lots to the arterial shall be dedicated to the County and recorded with the deed.

#### Section 10. Shared Access

Subdivisions with frontage on the state highway system shall be designed into shared access points to and from the highway. A maximum of two accesses shall be allowed regardless of the number of lots or businesses served. If access off of a secondary street is possible, then access should not be allowed onto the state highway. If access off of a secondary street becomes available, then conversion to that access is encouraged, along with closing the state highway access.

### **Section 11. Connectivity**

1. *The street system of proposed subdivisions shall be designed to connect with existing, proposed, and planned streets outside of the subdivision as provided in this Section.*
2. *Wherever a proposed development abuts unplatted land or a future development phase of the same development, street stubs shall be provided to access abutting properties or to logically extend the street system into the surrounding area.*
3. *Minor collector and local residential access streets shall connect with surrounding streets to permit the convenient movement of traffic between residential neighborhoods or facilitate emergency access and evacuation. Connections shall be designed to avoid or minimize through traffic on local streets.*

### **Section 12. Subdivisions**

*A subdivision shall conform to the following standards:*

- a. *Each proposed lot must be buildable in conformance with the requirements of this ordinance and all other applicable regulations;*
- b. *Each lot shall abut a local public or private street for the required minimum lot frontage for the zoning district where the lots are located;*
- c. *If any lot abuts a street right-of-way that does not conform to the design specifications of this ordinance, the owner may be required to dedicate up to one-half of the total right-of-way width required by this ordinance.*

### **Section 13. Site Plan Review Procedures for Access Management**

1. *Applicants shall submit a preliminary site plan for review by the planning department. At a minimum, the site plan shall show:*
  - a. *Location of existing and proposed access point(s) on both sides of the road where applicable;*
  - b. *Distances to neighboring constructed access points, median openings (where applicable), traffic signals (where applicable), intersections, and other transportation features on both sides of the property;*
  - c. *Number and direction of lanes to be constructed on the driveway plus striping plans;*

- d. All planned transportation features (such as sidewalks, bikeways, auxiliary lanes, signals, etc.);
  - e. Parking and internal circulation plans including walkways and bikeways, in UGBs and unincorporated communities;
  - f. A detailed description of any requested variance and the reason the variance is requested.
2. Subdivision and site plan review shall address the following access criteria:
- a. All proposed roads shall follow the natural topography and preserve natural features of the site as much as possible. Alignments shall be planned to minimize grading;
  - b. Access shall be properly placed in relation to sight distance, driveway spacing, and other related considerations, including opportunities for joint and cross access;
  - c. The road system shall provide adequate access to buildings for residents, visitors, deliveries, emergency vehicles, and garbage collection;
  - d. Within UGBs and unincorporated communities an internal pedestrian system of sidewalks or paths shall provide connections to parking areas, entrances to the development, and open space, recreational, and other community facilities associated with the development;
  - e. For purposes of State-controlled facilities, driveway and roadway spacing standards shall be consistent with ODOT access management standards as contained in the Oregon Highway Plan.
3. Any application that involves access to the State Highway System shall be reviewed by the Oregon Department of Transportation for conformance with state access management standards, before the application is accepted by the County. All access measures ODOT deems necessary shall be made a condition of approval.

#### **Section 14. Variance Standards on County Facilities**

- 1. The granting of the variation shall be in harmony with the purpose and intent of these regulations and shall not be considered until every feasible option for meeting access standards is explored, as determined by the County.
- 2. Applicants for a variance from these standards must provide proof of unique or special conditions that make strict application of the provisions impractical. Applicants shall include proof that:



- a. Indirect access cannot be obtained;
  - b. No financially reasonable engineering or construction solutions can be applied to mitigate the condition; and
  - c. No alternative access is available from a street with a lower functional classification than the primary roadway.
3. No variance shall be granted where such hardship is self-created.

**SECTION 7.1.555** Plan amendments affecting the transportation system. 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 use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or
- d. Would reduce the performance of the facility below the minimum acceptable standards identified in the Transportation System Plan.

Amendments to the comprehensive plan and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity, and performance standard of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:

- (a) Limiting allowed land uses to be consistent with the planned function of the transportation facility; or
- \*\*\* (b) Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,
- (c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes; or
- (d) Amending the TSP to modify the planned function, capacity and performance standards, as needed, to accept greater motor vehicle congestion to promote mixed use, pedestrian friendly development where multimodal travel choices are provided.

**\*\*Note: The Coos County Planning Commission opposes this requirement as stated in the Transportation Planning Rule.**

**SECTION 7.1.560**      *Bicycle and Pedestrian Circulation. The Transportation Planning Rule specifies that, at a minimum, sidewalks and bikeways be provided along arterials and collectors within urban growth boundaries and unincorporated communities with pedestrian facilities being appropriate in most residential areas as well.*

**Definitions:**

1.      **Accessway.** *A walkway that provides pedestrian and bicycle passage either between streets or from a street to a building or other destination such as a school, park, or transit stop.*
2.      **Bikeway.** *Any road, path, or way that is in some manner specifically open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes. The five types of bikeways are:*
  - a.      **Multi-use Path.** *A paved way that is physically separated from motorized vehicular traffic; typically shared with pedestrians, skaters, and other non-motorized users.*
  - b.      **Bike Lane.** *A 4 to 6-foot wide portion of the roadway that has been designated by permanent striping and pavement markings for the exclusive use of bicycles.*
  - c.      **Shoulder Bikeway.** *The paved shoulder of a roadway that is 4 feet or wider; typically shared with pedestrians in rural areas.*
  - d.      **Shared Roadway.** *A travel lane that is shared by bicyclists and motor vehicles.*
  - e.      **Multi-use Trail.** *An unpaved path that accommodates all-terrain bicycles; typically shared with pedestrians.*
3.      **Pedestrian Facilities.** *A general term denoting improvements and provisions made to accommodate or encourage walking, including sidewalks, accessways, crosswalks, ramps, paths, and trails.*
4.      **Neighborhood Activity Center.** *An attractor or destination for residents of surrounding residential areas. Includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops, employment areas.*
5.      **Reasonably direct.** *A route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.*

6. *Safe and convenient. Bicycle and pedestrian routes that are:*
  - a. *Reasonably free from hazards, and*
  - b. *Provide a reasonably direct route of travel between destinations, considering that the optimum travel distance is one-half mile for pedestrians and three miles for bicyclists.*
7. *Walkway. A hard-surfaced (i.e. rock, concrete, etc.) area intended and suitable for pedestrians, including sidewalks and the surfaced portions of accessways.*

*Site Plan Elements:*

1. *The location and design of bicycle and pedestrian facilities shall be indicated on the site plan.*
2. *Pedestrian Access and Circulation. Internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings, construction of walkways, landscaping, accessways, or similar techniques.*
3. *All site plans (industrial and commercial) shall clearly show how the internal pedestrian and bicycle facilities of the site connect with external existing or planned facilities or systems.*

**END OF NEW TEXT FOR SECTION 7.1.500**

SECTION 7.1.600. Forestry, Mining or Agricultural Access. ~~A public or private way~~ which is created to provide ingress or egress in conjunction with the use of land for forestry, mining or agricultural purposes shall not be required to meet minimum road, bridge or driveway standards set forth in this ordinance, nor are such resource-related roads, bridges or driveways reviewable by the County. The categorical exemption provided by this section does not apply to ingress and egress to land for forestry, mining or agricultural purposes when that ingress and egress also provides access to one or more dwellings.

SECTION 7.1.700. Bridge Standards for Roads. Bridges in conjunction with required road improvements shall conform to the following design standards and requirements:

- 1) The travel surface width of the bridge deck shall not be less than the required travel surface width of the roadway.
- 2) The bridge and its support components shall be designed to meet or exceed H-20 AASHTO loading requirements.
- 3) A registered professional engineer shall certify that the bridge is safe and that it meets or exceeds H-20 AASHTO loading requirements. The

engineer's stamp shall be placed on all designs. Design specifications for prefabricated bridges shall be presented with an engineer's stamp attached.

- 4) Notwithstanding the above, other bridge designs, including railroad flatcars, may be approved by the Coos County Roadmaster when such alternative designs are found to be safe and adequate to accomplish their purpose.

**SECTION 7.1.800. Standards for Driveways and Driveway Bridges.** When driveway improvements, including driveway bridges, are required by this ordinance, such improvements shall conform to the following design standards:

- 1) The provisions of Table 7.2 concerning rural driveways shall apply to both rural and urban driveways; and
- 2) When driveway bridges are necessary, then:
  - a. The provisions of Section 7.1.700 shall apply when the subject driveway exceeds 450 feet in length; or
  - b. When the subject driveway does not exceed 450 feet in length, designs shall be approved when certified by the Roadmaster to safely carry a 10-ton load.

**SECTION 7.1.900 Circumstances Requiring Road Improvements; Extent of Required Road Improvements.**

Public and private road and street improvements are required by this ordinance when the circumstances set forth in Table 7.1 exist.

If and when public or private road improvements are required, then such improvements shall be back to the intersection with an opened public road. this may include road improvements to a series of public roads or streets and private access easements.

When road improvements are required within city urban growth boundaries, including the Coos Bay Area Urban Growth Boundary, road construction shall be required to the extreme point of physical access (ie., driveway), and not to the furthestmost property line.

"Opened road," as used in this ~~chapter ordinance~~, means a rocked or paved road which has an all-weather year-round maintained travel surface. The determination of whether a road is "opened" shall be made by the Roadmaster.

**SECTION 7.1.1000. Responsibility for Determining compliance with this Chapter.** The Coos county Roadmaster shall be responsible for determining compliance with the provisions of this chapter. When road and driveway improvements are required by this ordinance, the Roadmaster shall provide the Planning Director with written notice when the provisions of this chapter have been satisfied with respect to an application or other matter under review.

**TABLE 7.1 ROAD STANDARD POLICY MATRIX**

	When a new road is created or an unopened road is opened. . .			When a legally created road already exists . . .		
	Rural	City – UGBs	CBA - UGB	Rural	City – UGBs	CBA - UGB
1. Must a road be improved in conjunction with a partition?	no	no	no	no	no	no
A. Before a dwelling may be authorized in a partition created after 1/1/96, to what extent shall roads be improved?	Section 7.1.900	Section 7.1.900	Section 7.1.900	none	Section 7.1.900	Section 7.1.900
B. Before a dwelling may be authorized in a partition created after 1/1/96, what road standards are required?	Table 7.2	Table 7.3	Table 7.4	none	Table 7.3	Table 7.4
2. Must a road be improved in conjunction with a subdivision at the time of final plat?	yes	yes	yes	yes	yes	yes
A. To what extent shall roads be improved?	Section 7.1.900	Section 7.1.900	Section 7.1.900	Section 7.1.900	Section 7.1.900	Section 7.1.900
B. What road improvement standards are required?	Table 7.2	Table 7.3	Table 7.4	Table 7.2	Table 7.3	Table 7.4
3. Must unopened roads in existing platted subdivisions be improved before a dwelling may be authorized?	yes	yes	yes	N/A	N/A	N/A

A. To what extent shall roads be improved?	Section 7.1.900	Section 7.1.900	<del>Section 7.1.900</del>	N/A	N/A	N/A
B. What road improvement standards are required?	Table 7.2	Table 7.3	<del>Table 7.4</del>	N/A	N/A	N/A

**ARTICLE 7.2 RURAL ROAD STANDARDS**

**SECTION 7.2.100. Requirements for New Private Roads to be Created in Conjunction with a Partition, Subdivision or Planned Unit Development.** The following standards shall apply to any proposed private road that is to be created in conjunction with a rural land division:

- 1) The provisions of Table 7.2.
- 2) Intersection angles.

**New** roads and streets shall be designed to intersect with existing roads and streets at angles as near to right angles (90 degrees) as practicable. lesser angles shall be permitted where topography limitations do not allow a right angle intersection but in no case may an intersection angle less than 60 degrees be approved without a variance, and in no case may an intersection angle be approved where the intersection has less than a 50-foot tangent intersecting the centerline of the existing road unless the Roadmaster approves a special intersection design needed to provide safety.

- 3) Control strip.

A "control strip" may be required or authorized, pursuant to Section 6.2.200.

- 4) Alignment.

Whenever practicable, all new roads and streets shall be in alignment with existing roads and streets by continuation of the centerlines thereof. Staggered road or street alignments resulting in "T" intersections shall leave a minimum distance of 150 feet between the centerlines of roads or streets oriented in approximately the same direction.

**SECTION 7.2.200 Requirements for New Public Roads to be Created in Conjunction with a partition, Subdivision or Planned Unit Development.** The following standards shall apply to any proposed public road that is to be created in conjunction with a rural land division:

- 1) The provisions of Table 7.2.
- 2) compaction.

All base and finish rock shall be compacted to 95% as per "Method A", AASHTO regulations, or APWA specifications. If requested by the Roadmaster, the developer shall submit compaction test results.

- 3) Horizontal Curves.

- a. Centerline radii of curves, as constructed, shall be not less than the standards prescribed in the following table:

TYPE OF PUBLIC STREET	CENTERLINE MAXIMUM DEGREE CURVATURE (Arc definition)	CENTERLINE MINIMUM RADIUS IN FEET
ARTERIALS	24 degrees	238.73
COLLECTOR STREETS, AND ALL BUSINESS STREETS OTHER THAN ARTERIALS	40 degrees	143.24
MINOR STREETS AND CUL-DE-SACS	56 degrees	102.31

- b. Conversion formulas for arc definition of curvature are:

$$\text{Degree of curvature} = \frac{5729.58}{\text{radius}}$$

$$\text{Radius} = \frac{5729.58}{\text{degree of curvature}}$$

- c. Each curve shall have a minimum length of 75 feet.
- d. Whenever the centerline of a road or street changes direction, the tangents of such centerline shall be connected with curves meeting the specifications of this section.

4) Vertical curves.

- a. All tangent grades shall be connected by means of vertical curves.
- b. Vertical curves shall be at least 100 feet long except as provided in this section.
- c. Vertical curves at intersections shall be at least 25 feet long and may have unequal tangents; the shortest tangent shall be at least 10 feet long.
- d. Except under special conditions, vertical curves shall begin at or outside the extended right-of-way lines of intersections.

5) Intersection Angles

New roads and streets shall be designed to intersect with existing roads and streets at angles as near to right angles (90 degrees) as practicable. Lesser angles shall be permitted where topography limitations do not allow a right angle intersection but in no case may an intersection angle less than 60 degrees be approved without a variance.



The intersection of arterial or collector roads or streets with other arterial or collector roads or streets shall have a least 50 feet of tangent adjacent to the intersection of centerlines unless topography requires a lesser distance.

Intersections which are not at right angles shall have a minimum corner radius of 20 feet along the right-of-way lines at the acute angle. Right-of-way at intersections with arterial roads or streets shall have a corner radius of not less than 20 feet.

insert diagram

6) Dead End Roads or Streets.

Dead end roads or streets, other than cul-de-sacs, shall not be approved except when such dead end roads or streets are necessary for the effective development of the area. Any approved dead end road or street shall be provided with a turnaround conforming to the provisions of this ordinance.

7) Alignment.

Whenever practicable, all new roads and streets shall be in alignment with existing roads and streets by continuation of the centerlines thereof. Staggered road or street alignments resulting in "T" intersections shall leave a minimum distance of 150 feet between the centerlines of roads or street oriented in approximately the same direction.

8) Future Extension of Street or Road.

Roads and streets shall be extended across property being divided when necessary to facilitate development or provide future access to adjoining property. When extensions are deemed necessary, roads and streets shall be extended to the boundary of the property being divided. The resulting dead end road or street may be approved without a turnaround, notwithstanding subsection "6", above.

9) Road and Street Names

Except for extensions of existing roads or streets, no new road or street name shall be used which will duplicate or be confused with the name of existing roads or streets in the County. Road or street names, or numbers, shall conform to established patterns in the surrounding area (whether the area is incorporated or not) and must comply with road naming requirements set forth in the Coos County Code.

10) Slope Easements.

In addition to the minimum right-of-way standards set forth in this ordinance, slope easements may be required for cuts or fills that must necessarily extend beyond right-of-way lines.

11) Grading.

- a. Cut slopes shall be not steeper than one (1) foot vertical rise to one (1) foot horizontal run, except that if the material is blow sand, the cut slope shall be not steeper than one (1) foot vertical rise to two (2) feet horizontal run.
- b. Fill slopes shall be not steeper than one (1) foot vertical rise to one and one-half (1.5) feet horizontal run, except that if the material is blow sand, the fill slope shall be not steeper than (1) foot vertical rise to two (2) feet horizontal run.

**TABLE 7.2**  
**MINIMUM STANDARDS FOR NEW ROADS, STREETS AND DRIVEWAYS**

	Typical Cross-Section Figure	Average Daily Traffic <sup>1</sup>	Subgrade Width <sup>2</sup>	All-Weather Travel Surface <sup>3</sup>	Right-of-Way Width <sup>4</sup>	Compacted Rock Depth		Maximum Grade <sup>7</sup>	Centerline Maximum Degree of Curvature	Vertical Unobstructed Clearance
						Base Rock <sup>5</sup>	Finish Rock <sup>6</sup>			
Private roadways in conjunction with a residential partition <sup>8</sup>	--	0-12 ADT	16'	12'	50'	5"	3"	18%	56 degrees	13.5'
Other minor roads and streets	Figure 1	0-80 600 ADT	24'	20'	60'	6"	4"	12%	56 degrees	13.5'
Collector roads and streets	Figure 2	81+ ADT	30'-36'	24'-32' paved with two 4' bike lanes	60'	6"	4"	12%	56 degrees	13.5'
Arterials	--	--	36'	See footnote <sup>9</sup> 36' paved with two 6' bike lanes	80'	6"	4"	12%	56 degrees	13.5'
Driveways <sup>10</sup>	--	--	--	12'	--	--	--	12%	--	13.5'

<b>Turnarounds</b>									
-Circular	--	--	53'	45'radius <sup>1</sup>	60'radiu	Same	12%	--	13.5'
-			radius <sup>11</sup>	<sup>2</sup>	s	as			
Hammerhead	--	--				type	12%	--	13.5'
-Temporary			66' x 44'	60' x 40'	70' x 50'	of road			
	--	--				served	12%	--	13.5'
hammerheads			46' x 36'	42' x 32'	50' x 40'				
at plat lines									

## FOOTNOTES FOR TABLE 7.2

1. ~~Average Daily Traffic (ADT) is computed by multiplying the number of dwelling units abutting or using the road by 4, except: (a) each new lot or parcel creation shall count as a dwelling unit; and (b) lots or parcels shall be used for the determination when an owner is dividing off of an existing driveway, easement or driveway extension. In the case of commercial/industrial use, ADT is computed by multiplying the number of commercial/industrial uses existing and proposed by 24.~~ by using trip generation rates as defined in the most recent version of the Institute of Transportation Engineers Trip Generation Manual.
2. Subgrade width is that grade upon which surfacing materials will be placed. Sloped roadside ditches will be required in cuts outside of slated subgrade widths.
3. All accesses shall have an unobstructed horizontal clearance not less than the width of the all-weather travel surface. in addition, to the maximum extent practicable, vegetation shall be trimmed along the edge of the all-weather travel surface. gates on roads, streets and driveways leading to a structure shall have a minimum clearance of 12 feet for the safe passage of emergency vehicles.
4. Additional slope easements are required where slopes are constructed outside the normal right-of-way.
5. Base rock shall consist of 1-1/2" minus crushed rock, except that other base rock specifications may be accepted where the Roadmaster finds that 1-1/2" minus base rock is not practical. Additional rock depth may be required if rock other than 1-1/2" minus crushed rock is proposed.
6. Finish rock shall consist of 3/4" minus crushed rock, except that other base rock specifications may be accepted where the Roadmaster finds that 3/4" minus finish rock is not practicable. Additional rock depth may be required if finish rock other than 3/4" minus crushed rock is proposed.
7. Road grades shall not exceed an average of 12%, with a maximum of 18% on short pitches. Variances may be granted when topographical conditions make these standards impractical. For "minor" roads or streets serving more than ten dwellings, any grade exceeding 16% shall have the following conditions imposed: (a) no intersections, driveways or other access shall be permitted, (b) no horizontal curves greater than 16 degrees shall be permitted and (c) no super-elevations of curves greater than 0.02-foot rise per 1.0-foot run shall be permitted. Roads intersecting a State Highway must not exceed a 3% uphill or a 6% downhill grade, at the intersection and must meet County standards for having the road at the same level as the intersection for at least 20 feet.
8. Notwithstanding requirements for "other minor roads and streets", as set forth in this table, the standards of this category of new roadways shall apply; (a) to private roadway easements not offered for public dedication, and (b) where the new private access roadway is to serve not more than three parcels intended for residential use, except that the new private roadway may serve more than three parcels if it is brought into full compliance with the applicable standards set forth

in this table and elsewhere in this ordinance. Where new private roadways approved under this provision exceed 1000 feet in length, turnouts 100 feet in length shall be provided every 600 feet.

- ~~9. Travel surface to consist of 32' rock and 24' paved surface.~~
10. "Driveway", pursuant to Section 2.1.200, means "a private vehicular travel surface accessing a single residence."
11. Roads or streets within a partition shall have a subgrade width not less than 44' and an all-weather travel surface of 36'.
12. Roads or streets within a partition shall have subgrade width not less than 44' and an all-weather surface of 36'.

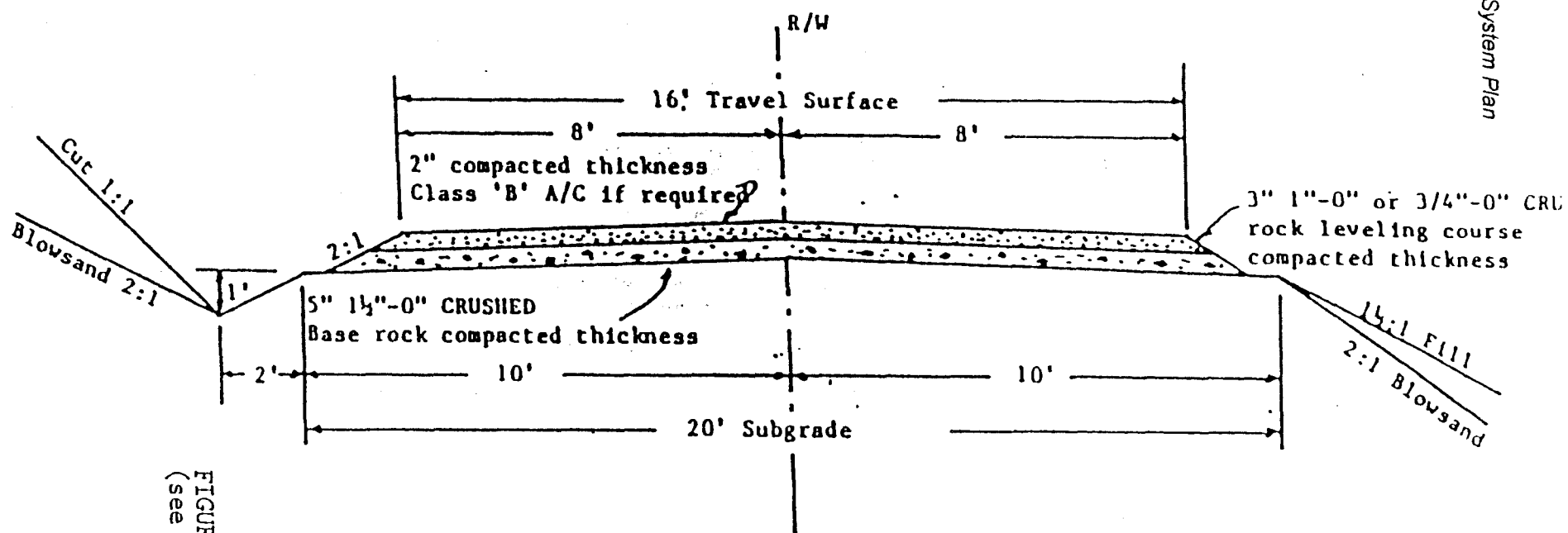


FIGURE 1  
(see next page also)

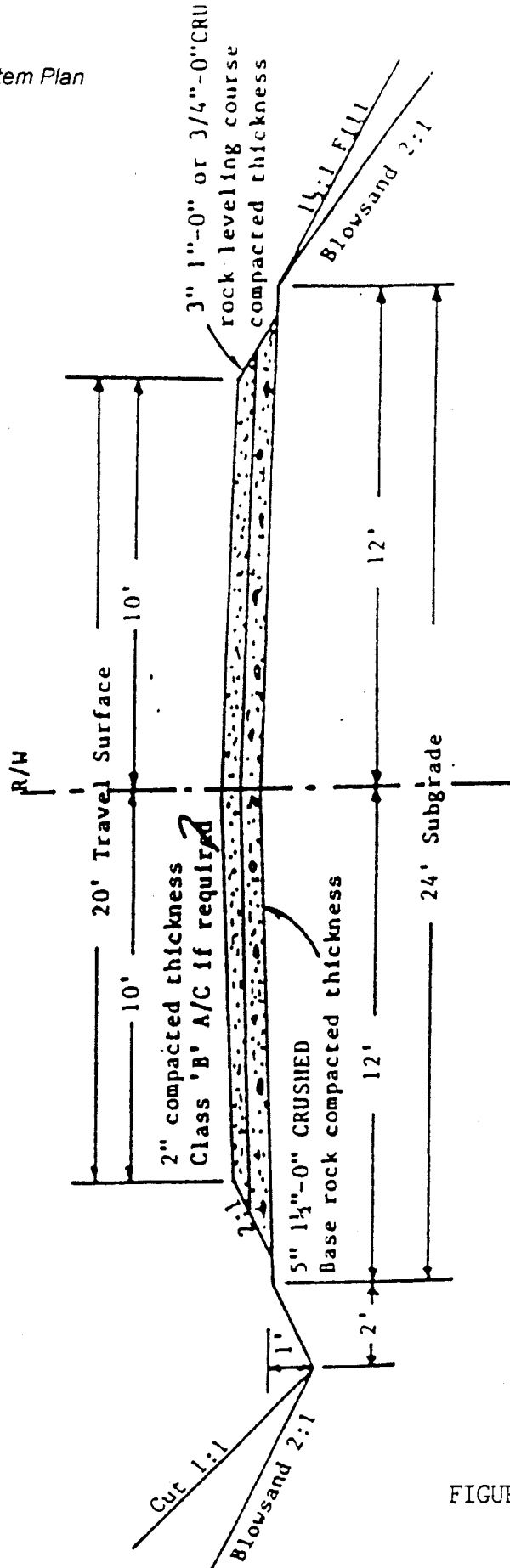


FIGURE 1



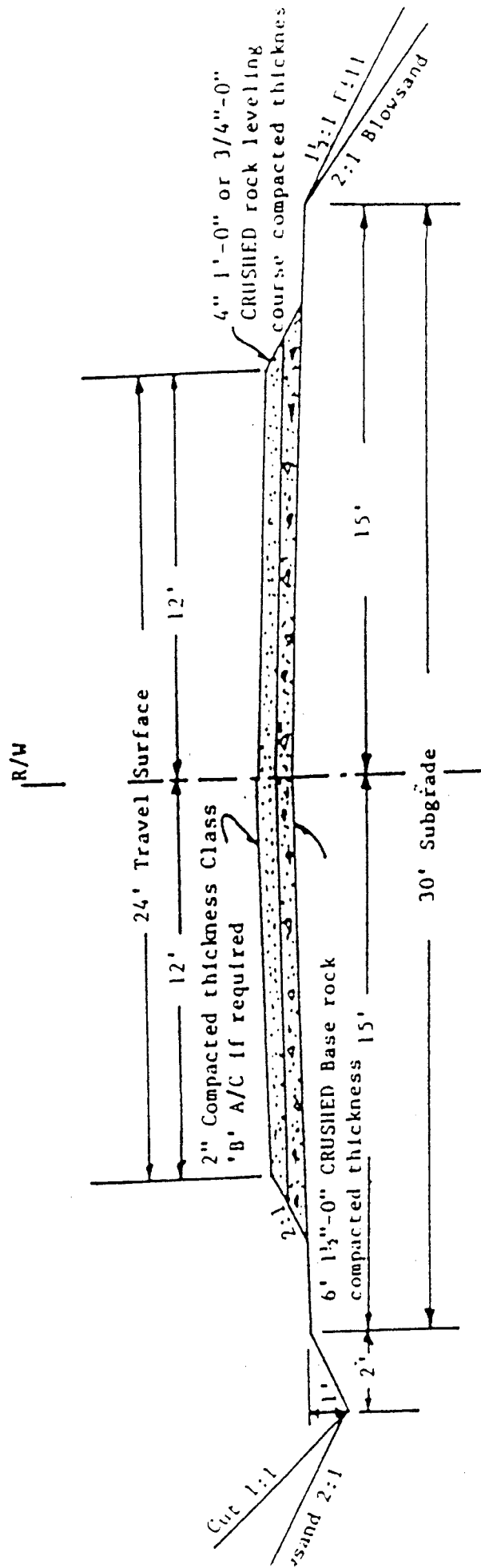


FIGURE 2

**ARTICLE 7.3            URBAN ROAD STANDARDS (CITY-UGB'S) AND URBAN  
ROAD STANDARDS FOR THE AREA WITHIN THE COOS BAY  
AREA URBAN GROWTH BOUNDARY (CBA-UGB)**

**SECTION 7.3.1            Requirements for New Roads to be Created in Conjunction with a  
partition, subdivision or Planned Unit Development. The following standards shall  
apply to any proposed road that is to be created in conjunction with a land  
division within a City-UGB ~~or the CBA-UGB~~:**

1.        The provisions of Table 7.3 are applicable within the City-UGB ~~and the  
provisions of Table 7.4 are applicable within the CBA-UGB.~~

**TABLE 7.3  
MINIMUM ROAD AND STREET DEVELOPMENT STANDARDS  
WITHIN CITY URBAN GROWTH BOUNDARIES**

Public or Private Road Type/ Driveways	Minimum Right-of- Way Width <sup>1</sup>	Minimum Travel Surface Width	Minimum Sub-Grade Width	Intersections			Maximum Grade
				Minimum Acute Angle	Minimum Tangent Adjacent	Minimum Centerline Offset	
Arterial (Four-lane)	80'	62'	66'	60 degrees	50'	150'	7%
Arterial (2 one-way lanes)	60'	36'	40'	60 degrees	50'	150'	7%
Collector	60'	36'	40'	60 degrees	50'	150'	10%
Residential	50'	28'	32'	60 degrees	50'	150'	16%
Cul-de-Sac (Not to exceed 400' in length)	40' with 50' radius turn- around	28'	32'	60 degrees	50'	150'	16%
Commercial/ Industrial	60'	36'	40'	60 degrees	50'	150'	12%

<sup>1</sup> In addition to right-of-way, slope easements may be required.

TABLE 7.3 (CONTINUED)

R R Public or Private Road Type/ Driveways	Sidewalks Minimum Width <sup>1</sup>	Curb Width <sup>1</sup>	Construction		
			Base Rock	Finish Rock	Paving
Arterial (Four-lane)	5' both sides	6"	6"	4"	Yes <sup>2</sup>
Arterial (2 one-way lanes)	5' both sides	6"	6"	4"	Yes <sup>2</sup>
Collector	<u>5'</u> both sides	not required	6"	4"	Yes <sup>2</sup>
Residential	<del>not required</del>	not required	6"	4"	Yes <sup>2</sup>
Cul-de-Sac (Not to exceed 400 ft. in length)	<u>5' both sides</u> <del>not required</del> <u>5' both sides</u>	not required	6"	4"	Yes <sup>2</sup>
Commercial/ Industrial	not required	not required	6"	4"	

<sup>1</sup> Required only if paving is required.

<sup>2</sup> Paving is required only if the land division is served by public water and public sewer. (Public includes municipal, district, or community system.) Paving shall consist of 2" compacted depth the total width of the required travel surface.

TABLE 7.4  
MINIMUM ROAD AND STREET DEVELOPMENT STANDARDS  
WITHIN COOS BAY AREA URBAN GROWTH BOUNDARY

Public or Private Road Type/ Driveways	Minimum Right-of- Way Width <sup>†</sup>	Minimum Travel Surface Width	Minimum Sub-Grade Width	Intersections			Maximum Grade
				Minimum Acute Angle	Minimum Tangent Adjacent	Minimum Centerline Offset	
Arterial (Four-lane)	80'	62'	66'	60-degrees	50'	150'	7%
Arterial (2 one-way lanes)	60'	36'	40'	60-degrees	50'	150'	7%
Collector	60'	36'	40'	60-degrees	50'	150'	10%
Residential	50'	24'	32'	60-degrees	50'	150'	16%
Cul-de-Sac (Not to exceed 400' in length)	40' with 50' radius turn- around	24'	32'	60-degrees	50'	150'	16%
Commercial/ Industrial	60'	36'	40'	60-degrees	50'	150'	12%

<sup>†</sup> In addition to right-of-way, slope easements may be required.

**TABLE 7.4 (CONTINUED)**

<del>Public or Private</del> <b>Road Type/ Driveways</b>	<del>Sidewalks</del> <b>Minimum Width<sup>1</sup></b>	<del>Curb Width<sup>1</sup></del>	<b>Construction</b>		
			<b>Base Rock</b>	<b>Finish Rock</b>	<b>Paving</b>
Arterial (Four-lane)	5'	6"	6"	4"	Yes <sup>2</sup>
Arterial (2 one-way lanes)	one side	6"	6"	4"	Yes <sup>2</sup>
Collector	not required	not required	6"	4"	not required
Residential	not required	not required	6"	4"	not required
Cul-de-Sac (Not to exceed 400 ft. in length)	not required	not required	6"	4"	not required
Commercial/ Industrial	not required	not required	6"	4"	not required

~~\_\_\_\_\_~~<sup>1</sup> Required only if paving is required.

~~\_\_\_\_\_~~<sup>2</sup> Paving is required only if the land division is served by public water and public sewer. (Public includes municipal, district, or community system.) Paving shall consist of 2" compacted depth the total width of the required travel surface.

## 2. Compaction.

All base and finish rock shall be compacted to 95% as per "Method A", AASHTO regulations, or APWA specifications. If requested by the Roadmaster, the developer shall submit compaction test results.

## 3. Horizontal Curves.

- a. Centerline radii of curves, as constructed, shall not be less than the standards prescribed in the following table:

TYPE OF PUBLIC STREET	CENTERLINE MAXIMUM DEGREE CURVATURE (Arc Definition)	CENTERLINE MINIMUM RADIUS IN FEET
ARTERIALS	24 degrees	238.73
COLLECTOR STREETS, AND ALL BUSINESS STREETS OTHER THAN ARTERIALS	40 degrees	143.24
MINOR STREETS AND CUL-DE- SACS	56 degrees	102.31

- b. Conversion formulas for arc definition of curvature are:

$$\text{Degree of curvature} = \frac{5729.58}{\text{radius}}$$

$$\text{Radius} = \frac{5729.58}{\text{degree of curvature}}$$

- c. Each curve shall have a minimum length of 75 feet.
- d. Whenever the centerline of a road or street changes direction, the tangents of such centerline shall be connected with curves meeting the specifications of this section.

## 4. Vertical Curves.

- a. All tangent grades shall be connected by means of vertical curves.
- b. Vertical curves shall be at least 100 feet long except as provided in this section.
- c. Vertical curves at intersections shall be at least 25 feet long and may have unequal tangents; the shortest tangent shall be at least 10 feet long.



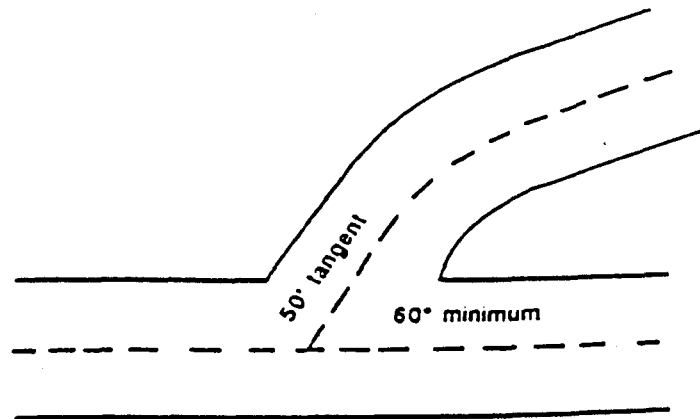
- d. Except under special conditions, vertical curves shall begin at or outside the extended right-of-way lines of intersections.

5. Intersection Angles.

New roads and streets shall be designed to intersect with existing roads and streets at angles as near to right angles (90 degrees) as practicable. Lesser angles shall be permitted where topography limitations do not allow a right angle intersection but in no case may an intersection angle less than 60 degrees be approved without a variance.

The intersection of arterial or collector roads or streets shall have at least 50 feet of tangent adjacent to the intersection of centerlines unless topography requires a lesser distance.

Intersections which are not at right angles shall have a minimum corner radius of 20 feet along the right-of-way lines at the acute angle. right-of-way at intersections with arterial roads or streets shall have a corner radius of not less than 20 feet.



6. Dead end Roads or Street.

Dead end roads or streets, other than cul-de-sacs, shall not be approved except when such dead end roads or streets are necessary for the effective development of the area. Any approved dead end road or street shall be provided with a turnaround conforming to the provisions of this ordinance.

7. Alignment.

Whenever practicable, all new roads and streets shall be in alignment with existing roads and streets by continuation of the centerlines thereof. Staggered road or street alignments resulting in "T" intersections shall leave a minimum distance of 150 feet between the centerlines of roads or streets oriented in approximately the same direction.

8. Future Extension of Street or Road.





Roads and streets shall be extended across property being divided when necessary to facilitate development or provide future access to adjoining property. When extensions are deemed necessary, roads and streets shall be extended to the boundary of the property being divided. The resulting dead end road or street may be approved without a turnaround, notwithstanding subsection '6", above.

9. Road and Street Names.

Except for extensions of existing roads or streets, no new road or street name shall be used which will duplicate or be confused with the name of existing roads or streets in the County. Road or street names, or numbers, shall conform to established patterns in the surrounding area (whether the area is incorporated or not) and must comply with road naming requirements set forth in the Coos County Code.

10. Slope Easements.

In addition to the minimum right-of-way standards set forth in this ordinance, slope easements may be required for cuts or fills that must necessarily extend beyond right-of-way lines.

11. Grading.

- a. Cut slopes shall be not steeper than one (1) foot vertical rise to one (1) foot horizontal run, except that if the material is blow sand, the cut slope shall be not steeper than one (1) foot vertical rise to two (2) feet horizontal run.
- b. Fill slopes shall be not steeper than one (1) foot vertical rise to one and one-half (1.5) feet horizontal run, except that if the material is blow sand, the fill slope shall be not steeper than one (1) foot vertical rise to two (2) feet horizontal run.

SECTION 7.3.2 Street Hierarchy

Arterial: These roads are intended to provide for high speed travel between or within communities or to and from collectors. Arterials may be four (4) or more lanes in width or two (2) one-way lanes.

Collector: Collector roads connect residential streets to the highway systems major and high speed arterial roads or provide access to non-residential uses and arterial streets. collector roads are designed for higher speeds and traffic volumes than are residential streets. Because uncongested traffic flow is necessary for their effective functioning, residential uses are discouraged access to collector roads. Collector roads accommodate traffic from two (2) or more residential streets.

Residential Streets: Residential streets primarily function to provide access to residential uses. all residential streets are intended to accommodate relatively



low traffic volumes at slow speeds in order to minimize the basic incompatibility of vehicles and the pedestrians and children who characterize residential neighborhoods.

Cul-de-sac: Cul-de-sacs are limited to residential use, and as local streets have only one outlet, without possibility of extension, and a maximum length of 400 feet measured from the center of the turnaround to the right-of-way line of the street or road being intersected.

Commercial/Industrial: Commercial/industrial streets primarily function to provide access to commercial or industrial zones.

## **CHAPTER 10**

### **CHAPTER X. OFFSTREET PARKING.**

#### **ARTICLE 10.1. PARKING STANDARDS**

SECTION 10.1.100. General Provisions. Offstreet parking and loading facilities as defined shall be subject to the general regulations and requirements of this Ordinance as well as the following provisions:

- (1) Increase. An increase in parking spaces ~~shall~~ may be required to correspond to any enlargement or addition to any building or use.
- (2) Change in Use. When a building or open land use changes in use, the parking requirements shall be changed to reflect the requirements of the new building or use if a greater number of spaces are required.
- (3) Use. Parking facilities shall be used for automotive and bicycle parking only. No sales, dead storage, repair work, dismantling, or servicing of any kind shall be permitted.
- (4) Fractional Requirements. Fractional requirements ~~up to one-half or over~~ shall require one additional space.
- (5) Staff Determination. Parking space requirements for a use not specifically mentioned shall be the same as for a use which has similar traffic-generating characteristics as determined by the Planning Director.

SECTION 10.1.200. Common Facilities for Mixed Uses.

- (A) Mixed Uses. In the case of mixed uses, the total requirements for off-street parking shall be the total of the individual uses except as provided in "B" below.
- (B) Joint Use. The Planning Director may, upon application, authorize the joint use of parking facilities required by said uses and any other parking facility, provided that:



- i. the applicant shows that there is no substantial conflict in the principal operating hours of the building or use for which the joint use of parking facilities is proposed, or for uses with similar hours of operation that the uses are complementary and supportive leading to lower rates of vehicle usage, and/or increasing the parking turnover rate;
- ii. the parking facility for which joint use is proposed is not further than ~~400~~ 600 feet from the building or use required to have provided parking; and
- iii. the parties concerned in the joint use of off street parking facilities show evidence of an agreement for such joint use by a legal instrument.

SECTION 10.1.300. Parking Area Design.

- (1) Ingress and Egress. In any zoning district, driveways or access ways providing ingress and egress for private parking areas or garages, public parking areas or garages and parking spaces shall be permitted, together with any appropriate traffic control devices in any required yard or setback area.
- (2) Minimum Standards for Parking. All public or private parking areas and parking spaces shall be designed and laid out to conform to the minimum standards as specified in the Parking Table and Diagram. All parking lot designs shall be reviewed and approved by the County Roadmaster.
- (3) Service Drive. Groups of three or more parking spaces, except those in conjunction with single-family or two-family dwelling structures on a single lot, shall be served by a service drive so that no backward movement, or other maneuvering of a vehicle within a public right-of-way, other than an alley, will be required. Service drives shall be designed and constructed to facilitate the flow of traffic, provide maximum safety for ingress and egress and maximum safety of pedestrians.
- (4) Lighting. Any lights provided to illuminate any public or private parking area shall be so arranged as to reflect the light away from any abutting or adjacent residential district or use.
- (5) Landscaping. For every 10 required parking spaces, 16 square feet of landscaping will be required. Each 16 square foot area should include, one tree and three one-gallon shrubs or living ground cover.



SECTION 10.1.400. Required Number of Parking Spaces for Type of Use.

<u>USE</u>	<u>STANDARD</u>
(1) Commercial	
(a) Retail store and general commercial except as provided in subsection (b) of this section.	1 space per 200 square feet of floor area, plus 1 space per employee. <u>1 Bicycle space</u>
(b) Retail store handling bulky merchandise (furniture, appliances, automobiles, machinery, etc.)	1 space per 600 square feet of floor area, plus 1 space per employee. <u>1 Bicycle space</u>
(c) Bank, general office, (except medical and dental).	1 space per 600 square feet of floor area, plus 1 space per employee. <u>1 Bicycle space</u>
(d) Medical or dental clinic or office.	1-1/2 space per examination room plus 1 space per employee. <u>1 Bicycle space</u>
(e) Eating or drinking establishment.	1 space per 200 square feet of floor area, plus 1 space for every 4 seats. <u>1 Bicycle space</u>
(2) Commercial Amusement	
(a) Bowling Alley	5 spaces per alley plus 1 space per 2 employees. <u>1 Bicycle space</u>
(b) Dance hall, skating rink, lodge hall.	1 space per 100 square feet of floor area plus 1 space per 2 employees. <u>1 Bicycle space</u>
(c) Stadium, arena, theater, race track	1 space per 4 seats or every 8 feet of bench length or equivalent capacity if no seating is provided. <u>1 Bicycle space</u>



- (3) Industrial
- (a) Storage warehouse, Manufacturing establishment, or trucking freight terminal. 1 space per employee.  
1 Bicycle space
  - (b) Wholesale establishment. 1 space per employee plus 1 space per 700 square feet of patron serving area.  
1 Bicycle space
- (4) Institutional
- (a) Welfare or correctional institution 1 space per 5 beds for patients or inmates, plus 1 space per employee.  
1 Bicycle space
  - (b) Convalescent hospital, nursing home, sanitarium, rest home, home for the aged. 1 space per 5 beds for patients or residents, plus 1 space per employee.  
1 Bicycle space
- (5) Place of Public Assembly
- (a) Church, mortuary, sports arena, theater. 1 space for 4 seats or every 8 feet of bench length in the main auditorium.  
1 Bicycle space
  - (b) Library, reading room. 1 space per 400 square feet of floor area plus 1 space per employee.  
1 Bicycle space
  - (c) Preschool nursery, kindergarten. 2 spaces per teacher; plus off-street loading and unloading facility.  
1 Bicycle space per 20 students
  - (d) Elementary or junior high school. 1 space per classroom plus 1 space per administrative employee or 1 space per seats or every 8 feet of bench length in the auditorium or assembly room, whichever is greater.  
1 Bicycle space per 10 students



- (e) High school.
  - 1 space per classroom
  - plus 1 space per administrative employee
  - plus 1 space for each 6 students
  - or 1 space per 4 seats or 8 feet of bench length in the main auditorium, whichever is greater.
  - 1 Bicycle space per 20 students
  
- (f) Other auditorium, meeting room.
  - 1 space per 4 seats or every 8 feet of bench length.
  - 1 Bicycle space
  
- (6) Residential
  - (a) single-family dwelling.
    - 2 spaces per dwelling unit.
  - (b) two-family or multi-family dwellings.
    - 1 ½ spaces per dwelling unit.
    - 1 bicycle space per unit for buildings with 4 or more units.
  - (c) motel, hotel, rooming or boarding house.
    - 1 space per guest accommodation plus 1 space per employee.
  - (d) mobile home or RV park.
    - 1 ½ spaces per mobile home or RV site.

