Executive Summary

Oregon's state highways are a critical component of the state's transportation network. Oregonians rely on highways to go between the state's widespread cities, towns, parks, forests, and businesses. Oregon's industries, including agriculture, timber, tourism, and technology, all depend on highways.

The Oregon Department of Transportation owns, operates, and maintains 7,483 miles (12,040 kilometers) of roads in every corner of Oregon. The state highway system is as diverse as Oregon itself–ranging from six-lane, limited access freeways with metered ramp entrances in the Portland area to the gravel road from Prineville to Brothers.

The challenge facing Oregon is to efficiently and effectively guide this diverse highway system into the next millennium. Oregon will continue to grow. Forecasts predict that the state will have 1.2 million new residents by 2020. About 72 percent of these new Oregonians will live in the Willamette Valley, placing additional stress on already overloaded highways, streets, and bridges. Oregon's population will get older as well, requiring creative solutions to ensure mobility for the older population. With limited funding, intelligent investment strategies must be devised to help Oregon meet its long-term goals.

The 1992 Oregon Transportation Plan created policies and investment strategies for Oregon's multimodal transportation system. The statewide plan called for a transportation system marked by modal balance, efficiency, accessibility, environmental responsibility, connectivity among places, connectivity among modes and carriers, safety, and financial stability.

The 1999 Oregon Highway Plan applies these general directives to the state highway system. The plan emphasizes:

- Efficient management of the system to increase safety, preserve the system and extend its capacity;
- Increased partnerships, particularly with regional and local governments;
- Links between land use and transportation;
- Access management;
- Links with other transportation modes; and
- Environmental and scenic resources.

The plan has three main elements: the Vision, the Policy Element, and the System Element.

The Vision

The Vision presents a vision of the state highway system in the future, summarizes the impacts of economic and demographic forecasts and technologies on highway transportation, and defines the policy and legal context. Oregon's population will grow during the next 20 years, and the total number of vehicle miles traveled will increase with population; however, the rise in vehicle miles traveled per capita which occurred in the 1980s has been moderating as employment growth has moderated and automobile ownership approaches saturation.

As more vehicles crowd the roads, new technologies will change how the transportation system operates. These technologies involve increased fuel efficiency, alternative fuels, "smart cars," and automated highways.

The Highway Plan operates in the context of the federal Transportation Equity Act for the 21st Century, the statewide land use planning goals, the Transportation Planning Rule and the State Agency Coordination Program. Its policies and investments support the Oregon Benchmarks and the Governor's Quality Development Objectives. The Highway Plan carries out the Oregon Transportation Plan and its policies and will be reflected in transportation corridor plans. Under the Transportation Planning Rule, regional and local transportation system plans must be consistent with the state transportation system plan, including the Highway Plan.

Policy Element

The Policy Element contains policies and actions under goals for System Definition, System Management, Access Management, Travel Alternatives, and Environmental and Scenic Resources.

- **Goal 1. System Definition: To maintain and improve the safe and efficient movement of people and goods, and contribute to the health of Oregon's local, regional, and statewide economies and livability of its communities.**

  The System Definition policies define a classification system for the state highways to guide management and investment decisions. The state highway classification system divides state highways into five categories based on function: Interstate, Statewide, Regional, District, and Local Interest Roads. Expressways are a subset of these. Supplementing this base are four special purpose classifications that address land use, the movement of trucks, the Scenic Byway designation, and significance as a lifeline or emergency response route.

Specifically, the Land Use and Transportation Policy addresses the relationship between the highway and patterns of development both on and off the highway. It emphasizes development patterns that maintain state highways for regional and intercity mobility outside communities and compact development patterns in communities. It recognizes that state highways are the main streets of many communities and strives to maintain a balance between serving these main streets and the through traveler. The policy enables ODOT and local governments to treat main streets, community centers and commercial centers with special highway standards.

The Highway Mobility Standards Policy sets standards for mobility based on volume to capacity ratios that vary according to highway classification and urban and rural land use types. The Major Improvements Policy calls for improving system efficiency and management before adding capacity through new lanes, new highways or bypasses.

- **Goal 2. System Management: To work with local jurisdictions and federal agencies to create an increasingly seamless transportation system with respect to the development, operation, and maintenance of the highway and road system that:**

  - **Safeguards the state highway system by maintaining functionality and integrity;**

  - **Ensures that local mobility and accessibility needs are met; and**

  - **Enhances system efficiency and safety.**

  The focus of the System Management policies is on making the highway system operate more efficiently and safely through public and private partnerships, intelligent transportation systems, better traffic safety, and rail-highway compatibility. The policies recognize that state and local partnerships can save resources; that the most cost-effective way to achieve improvements to the state highway system may be by assisting with off-system improvements; and that state and local governments should make interjurisdictional transfers to reflect the appropriate functional classification of a particular roadway. The Traffic Safety Policy calls for the state to continually improve safety for all users of the highway system and to address safety problems with treatments involving engineering, education, enforcement, and emergency medical services.

- **Goal 3. Access Management: To employ access management strategies to ensure safe and efficient highways consistent with their determined function, ensure the statewide movement of goods and services, enhance community livability and support planned development patterns, while recognizing the needs of motor vehicles, transit, pedestrians and bicyclists.**

Access management balances access to developed land with ensuring movement of traffic in a safe and efficient manner. Implementation of access management is essential if the safety, efficiency and investment of existing and planned state highways are to be protected. Implementation of access management techniques produces a more constant traffic flow, which helps to reduce congestion, fuel consumption and air pollution. The Highway Plan policies manage access through freeway interchange placement and design, driveway and road spacing and design, traffic signal location, median design and spacing of openings, connectivity and the use of turn lanes. The Access Management Policies set standards for these elements and outline a process for deviations and appeals.

- **Goal 4. Travel Alternatives: To optimize the overall efficiency and utility of the state highway system through the use of alternative modes and travel demand management strategies.**

  Maintaining and improving the performance of the highway system requires that it function as part of a well-coordinated and integrated multimodal system. Intermodal connections for people and goods must be efficient, and appropriate alternative mode choices must be available to allow users to take advantage of the efficiencies inherent in each mode.

  Alternative passenger modes, transportation demand management, and other programs can help reduce the single-occupant vehicle demand on the highway system, thus maintaining performance while increasing the person-carrying capacity of the system. Alternative freight modes and related strategies that strive for more efficient commercial vehicle operation will help the overall reliability and performance of the goods movement networks.

  The Travel Alternatives Policies focus on reducing barriers to efficient freight movement, using alternative modes and High Occupancy Vehicle facilities to reduce congestion and expand capacity, and reducing demand through transportation demand management, including park-and-ride facilities.

- **Goal 5. Environmental and Scenic Resources: To protect and enhance the natural and built environment throughout the process of constructing, operating, and maintaining the state highway system.**

  The Oregon Transportation Plan mandated "a transportation system that is environmentally responsible and encourages conservation of natural resources" (Policy 1D). The Environmental and Scenic Resources Policies recognize ODOT's responsibilities for maintaining and enhancing environmental and scenic resources in highway planning, construction, operation, and maintenance.

System Element

The System Element begins with an analysis of 20-year state highway needs. It lays out investment strategies for taking care of highway needs and describes an implementation plan for the Highway Plan's goals, policies and actions.

Needs Analysis

Oregon's ability to implement highway programs in the future is grounded on the current condition of state highways, projected use of the system and projected transportation revenues.

Pavements and bridges form the basic infrastructure of the highway system. ODOT's goal is to maintain the infrastructure in good condition. To maintain the 7,483 miles (12,040 kilometers) of highways most cost-effectively, ODOT's goal is to have 90 percent of the highway pavements in "fair or better" condition. There are 2,551 bridges on the state highway system, with most built in the 1950s and 1960s. Over the 20-year planning period of the Highway Plan, the state must perform 1,553 major bridge replacement and rehabilitation projects to keep state-owned bridges at current conditions.

During the next 20 years, traffic volumes will increase with population increases, and more state highways will reach capacity during all or part of the day, affecting safety, livability and economic activity. Based on projected traffic volumes, ODOT has identified highway segments that need added lanes, new alignments, bypasses, and other major improvements. These capacity needs as well as needs for pavement preservation, bridges, operations, maintenance and other highway-related programs form the basis for the estimates of "feasible" needs. Feasible needs do not include improvements that are not possible for environmental, topographical, or financial reasons. Table A on page 6 summarizes the 20-year feasible needs analysis.

Revenue Projections

Although future revenues are difficult to project accurately, the Highway Plan makes general estimates so that investment strategies can be discussed. State highway funding comes from both state and federal taxes and fees.

State road user revenues provide approximately 65 percent of state transportation revenues. Oregon's State Highway Fund, which is constitutionally dedicated to highways, derives most of its revenue from three highway user taxes: vehicle registration fees, motor vehicle fuel taxes, and motor carrier fees (the weight-mile tax). If there are no rate increases, state highway revenues from these sources are expected to average approximately $424 million annually over the next 20 years, for a total of $8.1 billion.

Oregon also receives highway revenues from the federal highway program financed with proceeds from the federal fuel tax and other transportation-related user taxes and fees.

SUMMARY OF FEASIBLE NEEDS ANALYSIS				
PROGRAM	**Average annual investment assuming no inflation (millions)**	**20-year total investment assuming no inflation (millions)**	**Average annual investment assuming 3.3% inflation (millions)**	**20-year total investment assumi ng 3.3% inflation (millions)**
Modernization	$339	$6,785	$471	$9,428
Preservation	$172	$3,436	$239	$4,774
Maintenance	$159	$3,180	$221	$4,419
Bridge	$133	$2,664	$185	$3,702
Safety	$35	$694	$48	$964
Operations	$29	$576	$40	$801
Special Programs	$29	$58 1	$40	$807
Construction Support	$67	$1,339	$93	$1,861
Planning	$30	$590	$41	$820
Administration	$8	$160	$11	$222
Central Services Assessment	$48	$950	$66	$1,321
TOTAL	$1,048	$20,955	$1,456	$29,119

Table A: Summary of feasible needs analysis

The Transportation Equity Act for the 21st Century (1998) will provide over $246 million annually for Oregon state highways for fiscal years 1998-2003. After this point, the revenue analysis assumes a gradual rise in federal highway funds that reflects an upper limit of what may be achievable under fixed tax rates. Using this assumption, federal highway funds for Oregon are estimated at a total of $5.8 billion over the next 20 years.

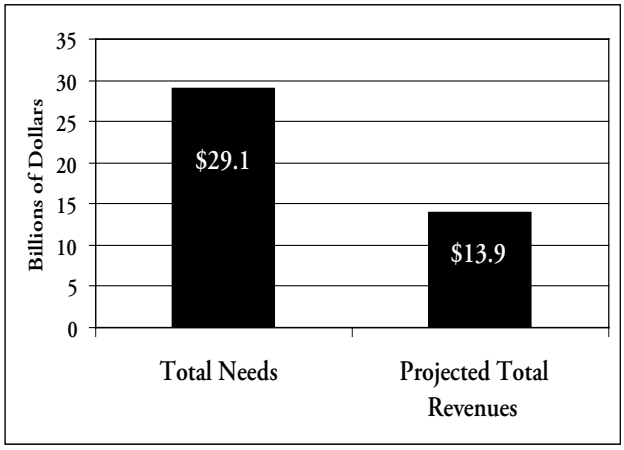

Figure A: Projection of 20-year highway needs and revenues

If revenues remain at current rates, there will be a shortfall of at least $15.2 billion over the 20-year planning period of the 1999 Highway Plan (Figure A, page 6). This means that all state highway needs will not be met unless highway funding rises.

Investment Policies and Scenarios

ODOT has developed policies and scenarios to use in planning and prioritizing programs at a range of potential funding levels–from no increases in current state fees supporting the highway system up to a level of funding that can support those highway needs which are feasible to implement.

At the lowest funding levels, the emphasis is on doing as much as possible to operate the highway system safely and efficiently and to preserve what already is in place, although conditions are likely to continue to deteriorate under such a strategy. With higher than minimum funding, infrastructure conditions could be stabilized or improved, and attention and resources could begin to be devoted to a wider range of goals. All analyses have shown that conditions and system performance improve rapidly as more resources above the current levels are added for any of the program categories.

To operate the highway system as efficiently as possible with limited abilities to expand the infrastructure, the Plan's investment policies emphasize capacity-adding programs that are not as costly as traditional modernization projects. These include interconnected traffic signal systems and other operational changes, Intelligent Transportation System technologies, access management, off-system improvements, and HOV lanes.

Safety is an element in all the major programs. For example, new extended freeway ramps in the modernization program ensure that traffic does not extend from an off-ramp of an interchange onto the freeway. The preservation program overlays rutted pavement that may cause drivers to lose control. The operations program installs traffic signals at dangerous intersections. The maintenance program fills potholes and replaces signs and illumination devices. The safety program addresses problems in priority hazardous locations and corridors.

The Highway Plan recognizes that it is critical to maintain alternate modes in order to limit or reduce demand on the highway system in congested areas. At the lowest funding levels, if highway conditions can only be maintained at status quo, it is in the State's interest to maintain at least status quo conditions for alternate modes.

Investment Policy and Priorities

It is the policy of the State of Oregon to place the highest priority for making investments in the state highway system on safety and managing and preserving the physical infrastructure.

ODOT's funding priorities will change according to changes in available revenues. The following scenarios establish funding priorities for highway-related plans and programs at four general funding levels; the first applies at the 1998 funding level. With increases in funding, ODOT will progress toward the fourth funding scenario.

1. With funding that does not increase with inflation and subject to statutory requirements and regional equity, address critical safety issues and manage and preserve existing infrastructure at 77 percent fair or better before adding capacity, as explained below:

    - Focus safety expenditures where the greatest number of people are being killed or seriously injured.

    - Fund modernization only to meet statutory requirements.

    - Preserve pavement conditions at 77 percent fair or better on all roads except for certain Regional and District Highways.

    - Do critical bridge rehabilitation and replace bridges only when rehabilitation is not feasible.

    - Fund operations to maintain existing facilities and services and extend the capacity of the system.

2. Invest to improve infrastructure conditions and to add new facilities or capacity to address critical safety problems, critical levels of congestion, and/or desirable economic development.

    - Address the highest priority modernization projects.

    - Move toward pavement conditions of an average 78 percent fair or better on all state highways.

    - Maintain Bridge Value Index (percentage of total replacement value) at 86 percent.

3. When critical infrastructure preservation, safety and congestion needs are met, pursue a balanced program of additional high priority modernization projects and preservation of infrastructure.

    - Move toward modernization funding to meet 55 percent of feasible needs.

    - Bring pavement conditions up to an average 84 percent fair or better level on all state highways.

- Maintain bridge conditions at 87 percent of total replacement value and address the critical 1/3 of seismic retrofit needs.

4. With significant funding increases, develop feasible modernization projects, address long-term bridge needs and upgrade pavements to a more cost-effective condition.

    - Move toward modernization funding to meet 100 percent of feasible needs.

    - Bring pavement conditions up to an average 90 percent fair or better level on all state highways.

    - Begin to replace 850 aging bridges and increase the Bridge Value Index (percentage of total replacement value) to 91 percent.

Funding for specific programs will follow these priorities:

Modernization

- Give priority to modernization projects that improve livability and/or address critical safety problems and high levels of congestion.

Preservation

- Give priority to Interstate pavement condition.

- Maintain Statewide Highways at a higher condition than Regional and District Highways, and invest in thicker pavement on designated freight routes.

- Preserve other highways at lower pavement conditions according to their classification. Preserve District Highways at 60 percent fair or better or higher.

- With no increase in state funding, consider the option of a maintain only policy for certain Regional/District Highways.

- With increased funding, increase pavement condition level toward an optimal level.

- With significantly increased funding, maintain pavement conditions to an optimal level of fair or better (90 percent fair or better).

Bridge

- At declining funding due to inflation, do critical bridge rehabilitation and replace critical bridges when rehabilitation is not feasible. Do seismic retrofit projects

only to maintain the functionality of major river crossings on Interstate 5 and Interstate 84.

- At increased funding, preserve bridge value at the present state, but ignore most seismic retrofit needs.

- With more funding, maintain the Bridge Value Index (percentage of total replacement value) and address the most critical one-third of the seismic retrofit needs.

- With significant funding increases, address the long-term problems of replacing the 850 bridges built in the 1950s and 1960s.

Safety

- Focus expenditures where the greatest number of people are being killed or seriously injured.[1]

- Allow for a reduced number of safety upgrades in preservation projects on highway segments with little or no crash history to increase dollars available for highway preservation.

- Make safety investments based on benefit/cost analysis. The first priority is on preservation projects with a high risk segment. The second priority is stand-alone projects on priority safety segments or spot locations.

Operations

- Maintain the existing facilities and services.

- Increase funding for Intelligent Transportation Systems and other operations to increase safety, increase travel time reliability, and relieve congestion, especially in congested metropolitan areas.

- With increased funding, take advantage of technological devices to increase safety, decrease travel time, and relieve congestion throughout the state.

Maintenance

- With existing funding, focus on maintenance of features critical to keeping roads open and safe for travel.

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[1] These priorities are reflected in the Safety Investment Program used to select safety projects for the Statewide Transportation Improvement Program. The Program identifies where the most people are being killed and seriously injured on the state highway system and applies the most cost-effective measures to reduce the number of crashes.

- With increased funding, begin to move toward desired levels of service for those features critical to keeping roads open and safe for travel.

- With significantly increased funding, invest in high initial cost solutions that improve service to travelers and minimize long-term spending. Examples range from upgrading substandard guardrails to major culvert and ditch upgrades and include improvements such as durable pavement marking.

Special Programs

- **Scenic Byways:** Position the state and local entities to be able to fund national and state Scenic Byway improvements and facilities mainly through federal funding.

- **Salmon Recovery:** Implement the Oregon Plan for Salmon and Watersheds as directed under the Governor's Executive Order. Fund at appropriate levels.

- **Transportation/Growth Management:** Fund transportation plans and projects in local jurisdictions to support livability and economic opportunity.

- **Bicycle/Pedestrian Program:** Focus the program on identifying simple, low-cost projects on urban highways to improve pedestrian and bicyclist access.

- **Immediate Opportunity Fund:** Fund street, road or other transportation-related improvements needed to respond quickly to economic development opportunities and/or revitalize commercial and industrial centers.

Planning

- Maintain basic planning program needs, including region and central work on Transportation Planning Rule implementation, periodic reviews, plan amendments, development review, access management, corridor plans, and transportation system plan assistance. Adhere to funding priorities when developing corridor plans, facility plans and local transportation system plans.

- Maintain basic ODOT long-range planning to comply with statutory requirements for the Oregon Transportation Plan and related modal plans.

- Continue to assist in funding local transportation system planning.

- If not able to maintain the basic planning program, decrease or eliminate ODOT funding assistance for local planning.

Implementation Strategies

The Highway Plan's implementation strategies include:

- Developing an Action Plan to define implementation responsibilities and actions;
- Conducting a process for examining highway classifications, classifying Expressways and Special Transportation Areas;
- Developing a freight study;
- Developing an administrative rule for access management procedures; and
- Working with regional and local governments to carry out the Highway Plan policies.

The 1999 Highway Plan goes into effect upon adoption. (See page 30.) The 1999 Oregon Highway Plan replaces the 1991 Plan.