



LPRO: Legislative Policy and Research Office

ROADS AND HIGHWAYS

BACKGROUND BRIEF

HISTORY

Overland travel in Oregon progressed from private wagon roads and ferries during settlement days to a network of stage roads by 1890. The state began investing in roads in the early part of the 20th Century, instituting a \$3 vehicle registration fee in 1905. The State Highway Commission was created in 1913. Oregon imposed the nation's first gas tax (one cent per gallon) in 1919. By 1920, Oregon had 620 miles of paved roads, 297 miles of plank roads, 107,307 registered motor vehicles, and a population of 783,000.

Today's most traveled routes were designed and built in the 1960s and 1970s, a period known as the "Interstate Era." Today's most traveled routes were designed 30-50 years ago. Since then, a significant increase in travel, including substantially more truck travel, has led to more areas of congestion and a backlog of preservation and maintenance needs. An anticipated population increase of nearly one million people over the next 20 years means these trends are likely to continue.

EXISTING INFRASTRUCTURE

The Oregon Department of Transportation (ODOT) operates and maintains about 8,000 miles of road and 2,700 bridges. These numbers include interstates, U.S. highways and state highways. State-maintained highways make up about 10.9 percent of road mileage in the state, but carry about 57 percent of the estimated 34.6 billion vehicle miles traveled in the state each year. The rest of the traffic is carried on the local road system, including about 33,100 miles of county roads, 11,000 miles of city streets and 21,200 miles controlled by federal and state agencies. The combined system annually carried over 1.8 billion truck miles in 2015.

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PROJECT SELECTION

The Statewide Transportation Improvement Program (STIP) is Oregon's four-year capital improvement program for major highway and public transportation projects. The

STIP identifies the funding for, and scheduling of, transportation projects and programs. The STIP includes projects on the federal, state, city and county transportation systems, multimodal projects (highway,



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passenger rail, freight, public transit, bicycle and pedestrian), and projects in the National Parks, National Forests and Indian tribal lands.

The STIP is typically updated every two to three years. The Oregon Transportation Commission (OTC) begins the update process by setting funding levels and approving project selection and prioritization criteria. OTC ends the update cycle about two years later by adopting a STIP. The STIP is then approved by the U.S. Department of Transportation through both the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). This approval also includes the programs and projects in the Metropolitan Planning Organizations' (MPOs) transportation improvement programs.

Many agencies and groups participate in the STIP development process. These include: Area Commissions on Transportation (ACTs), cities, counties, transit districts, port districts, federal agencies, Indian tribal governments, the Freight Advisory Committee, the Oregon Bicycle and Pedestrian Advisory Committee, the Public Transportation Advisory Committee, MPOs and advisory committees for ODOT programs.

While previous editions of the STIP have been developed around funding dedicated to transportation modes and specialty programs, OTC directed ODOT to put the program into two broad categories for the approved 2015-2018 STIP as well as the 2018-2021 STIP which is under development: "Fix-It" for projects intended to preserve the existing transportation system and "Enhance" for projects intended to add capacity or new features to the transportation systems. The Fix-It and Enhance process prioritizes taking

care of existing critical transportation assets while providing a measure of funding to enhance the state and local transportation system in a multimodal way.

The Fix-It project selection process is similar to prior STIPs. Fix-It projects are developed mainly from ODOT's management systems that help identify needs based on technical information for things like pavement and bridges.

The Enhance process is a significant change for the future and reflects ODOT's goal to become a more multimodal agency and make investment decisions based on the system as a whole, not for each mode or project type separately. This new process has a variety of benefits:

- Local governments and ODOT Regions can submit one type of application for a variety of Enhance projects;
- ACTs and others can more fully participate in the STIP development process by helping to select all Enhance projects;
- The same information is available for all kinds of Enhance projects, including anticipated benefits;
- Different investments and modes can be compared and considered together; and
- ACTs can prioritize all Enhance projects important to the area.

ODOT began the process for the 2018-2021 STIP in May 2014 with a review of the materials and process used for the 2015-2018 STIP update. This included a review of project selection criteria by the STIP Stakeholder Committee. The committee advises OTC about project selection criteria as required by statute. ODOT anticipates the development of the 2018-2021 STIP will be completed in



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the fall of 2016 and then will be submitted to FHWA and FTA for approval.

STUDDED TIRE DAMAGE

Use of studded tires is legal in Oregon between November 1 and April 1. Although improved winter tires are available, and some are certified by ODOT for use as traction tires, some drivers prefer to use studded tires. The ruts created by studded tires on high-use routes can become deep enough to adversely affect driving, and when the ruts fill with water, hydroplaning and splash/spray conditions worsen. The most recent Highway Cost Allocation Study estimated a cost of \$4.2 million a year to repair damage caused by studded tires without keeping up with the annual damage. An additional \$470,000 is estimated as the cost for cities and counties to repair studded tire damage.

In 2014, ODOT conducted a limited research effort to update previous work and identify new information on winter tire use and impacts in the state. The study found that statewide use of studded tires had decreased 51 percent between 1995 and 2014, with varying degrees of reduction in different parts of the state. The 2014 research was used to develop the Oregon Highway Cost Allocation Study cost estimates.

BONDING FOR TRANSPORTATION PROJECT CONSTRUCTION

Oregon was a “pay as you go” state prior to 2001, typically not bonding to finance its highway construction program. This policy was based on the reasoning that pledging future revenue to bond repayment would leave less money for future projects.

The legislature initiated bonding to finance projects with the Oregon Transportation Investment Act (OTIA) and the Jobs and Transportation Act (JTA) in order to capitalize on low-interest rates to address a backlog of critical projects. Bond financing has allowed small increases or commitments in revenue to leverage a large amount of money for capital transportation projects throughout the state.

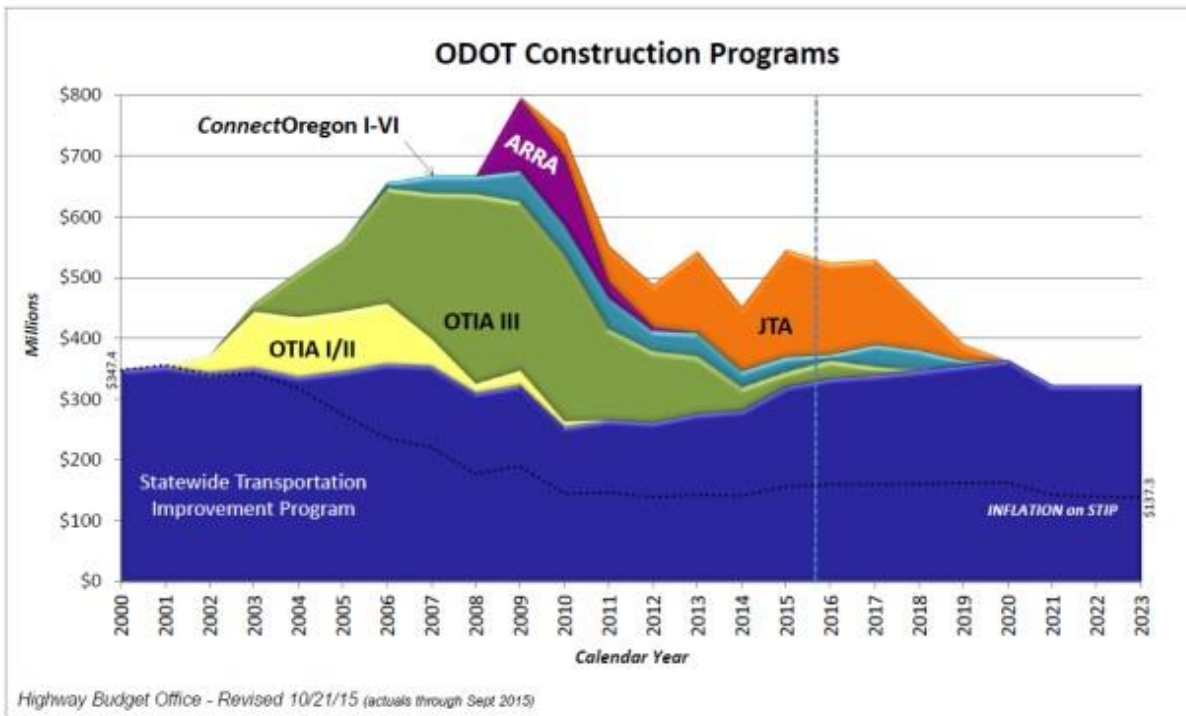
Between 2001 and 2009, the OTIA/JTA state highway bond program has totaled \$2.94 billion in project investments including:

- 2001: \$400 million for modernization, bridges and pavement preservation;
- 2002: \$100 million for modernization, bridges and pavement preservation;
- 2003: \$1.30 billion for state bridges;
- 2003: \$300 million for modernization; and
- 2009: \$840 million for modernization.

Combined with one-time funding from the federal American Recovery and Reinvestment Act (ARRA), these legislative actions have resulted in record levels of funding for transportation programs. The chart found on the next page illustrates the significant surge of investment in all transportation modes.



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PROJECT CONTRACTING

All state highway construction and preservation projects are contracted to the private sector. The traditional state contracting model is known as *design-bid-build*. Under this model, state engineers or engineering consultants design a project. ODOT then solicits bids to meet their specifications and selects the lowest responsible bidder to construct the project. State and/or consultant staff oversees and manages the project.

ODOT also uses the *design-build* contracting process. In this process, a request for proposals solicitation is issued for both design and construction of a project. Proposals may be submitted by a single entity, a consortium, a joint venture or other organization assembled for a particular project. Design-build contracting is widely used throughout the U.S. and can reduce delivery time and related delays, simplify relationships, more

quickly develop solutions and establish project costs and decrease the number of construction contract changes.

Customary practice with design-build contracting is to rely on best value that takes into account both the technical capabilities and qualifications of the design-build team and the cost of the bid. There is no universally accepted approach for determining best value. The request for proposals usually specifies the relationship between cost and technical factors.

With the OTIA III bridge program's Interstate 5 Willamette River Bridge project in Eugene-Springfield, ODOT chose for the first time to use the construction manager/general contractor (CM/GC) procurement method. Using CM/GC, ODOT partners with a design firm and contractor early in the process, which allows critical input from the contractor regarding construction alternatives and pricing options. CM/GC helps ODOT to control costs, schedule issues and design



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options, and adjust outcomes as the project proceeds. It also can accelerate the schedule, because preconstruction consulting by the contractor leads to early work packages that allow portions of the peripheral work on the project to start before final design is complete.

PRESERVATION FIRST

Through policies and budget decisions, OTC, the Governor, and recent legislatures have made preservation of the existing system their highest priority for use of available funds. As a result of tight funding, they also stress strategies of demand management and operational efficiency to extend the useful life of transportation facilities.

MAINTENANCE AGREEMENTS

Agreements between governments for road maintenance and operation offer substantial savings in labor, equipment and facilities. Existing agreements are widespread and varied, from joint purchasing and training to sharing equipment, co-locating facilities and contracting with one another for activities such as ditching, lane striping, mowing, snow removal and vehicle maintenance. Current agreements involve city, county and state maintenance operations.

CONTINUING ISSUES AND CHALLENGES

CONGESTION

More than half of urban freeways in Oregon are considered congested. The Texas Transportation Institute (TTI) maintains travel delay statistics on metropolitan areas around the country. According to TTI's 2015 Urban Mobility Scorecard, per capita travel delay in the Portland metro area is about 12 percent higher than the average delay for large

urban areas. In Salem and Eugene, per capita delay is higher than the average for small urban areas.

Traffic congestion contributes substantially to fuel consumption and air pollution. Motorists and trucks incur millions of dollars of lost value because of delay. For instance, TTI calculates that congestion costs per auto commuter in the Portland metro area are \$1,273 annually because of travel delay and additional fuel consumption.

The Port of Portland and its partners released "*Economic Impacts of Congestion on the Portland-metro and Oregon economy*" in 2014.

FREIGHT

All modes of freight transportation have seen tremendous growth in the past 20 years, straining the capacity of port, highway, rail and airport facilities. The 2011 Oregon Freight Plan projects that an 88 percent increase in freight tonnage moving into, out of and within Oregon will place additional demands on the Oregon freight system. This projection does not take into account the impact of "through" tonnage, which is also growing. As a comparison, the U.S. freight system is expecting a 93 percent increase in total tonnage between 2002 and 2035.

TRAFFIC SAFETY

Oregon traffic safety laws are relatively strict, including special restrictions on teen drivers. Several years ago when many states raised speed limits and relaxed motorcycle helmet requirements, Oregon retained them. A combination of laws, safer cars, better engineered roads, education, enforcement, and driver behavior helped reduce annual traffic fatalities from highs between 700 (late 1960s) and 500 (early 1990s) to a low of 313 fatalities in 2013.



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Unfortunately, since that time, the death toll has been on the increase, with preliminary data from 2015 totaling 447 deaths on Oregon roads. And while increased vehicle miles traveled (VMT) usually is associated with increased deaths, the level of VMT increase over the last few years does not completely explain the death toll. The reasons for the increase are as yet unclear.

The death toll is tragic and preventable. The top three factors in fatal crashes historically have been and continue to be speeding, impairment from alcohol and/or drugs and failure to wear a safety belt. However, distracted driving – in all its forms – is increasingly suspected as being a significant factor both in Oregon and nationally. The estimated economic impact of traffic fatalities in Oregon during 2014 was \$540 million; the estimated impact was \$1.53 billion for all traffic crashes (fatalities, injuries and property damage).

WORK ZONE SAFETY

The transportation community is taking a fresh look at work zone safety. The construction industry, freight community, law enforcement, public works agencies, ODOT and others continue to examine current practices and have implemented new expectations to keep workers and travelers safe. The use of innovative and mobile physical barriers to separate workers from live traffic are used to provide an extra layer of protection for them. The message to Oregonians has always been: when driving through a work zone, you are in the environment of highway workers – but if you are driving dangerously through a work zone you are also putting yourself and your loved ones at risk. Focused attention on the part of drivers, the construction and transportation industry and law enforcement contributed to

increased safety in work zones over the last decade.

HIGHWAY PATROL

Law enforcement is one of the keys to reducing loss of life and preventing delays and costs attributed to traffic crashes. Patrol officers serve multiple roles such as sanctioning violators, responding to crash and crime scenes and deterring law breakers by raising the perceived chance of being ticketed. Of continuing concern is the relatively low number of Oregon State Police troopers compared to other states, considering our state highway miles and population. In addition, many county sheriff offices have reduced traffic patrol, and even core law enforcement services, due to reductions in federal timber payments. This further impacts State Police's enforcement efforts on Oregon's highways as they fill gaps for priority emergency calls.

PLANNING, ENVIRONMENT, PUBLIC INVOLVEMENT

Passage of environmental and land use laws in the 1970s and growth pressures over two decades have added new dimensions to highway planning. Additional time and resources are directed to environmental safeguards and decision-making, including planning, public involvement and interagency coordination. Transportation agencies are required to balance numerous opposing interests and priorities.

- *Planning:* Both state and federal rules require comprehensive and coordinated transportation planning. Establishing clear transportation vision and policy for the state is critical in helping inform community efforts to align growth objectives with needed transportation



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infrastructure investments. These local community transportation plans must be consistent with statewide vision and policy. Additionally, these plans help provide a framework for prioritizing potential transportation projects to help them compete for funding.

- *Environmental Stewardship:* ODOT is incorporating environmental performance standards into the design and construction of all state highway construction projects, including local government projects funded by the department. In addition, ODOT continues to improve the environmental permitting process.
- *Public Involvement:* Engaging citizens is a goal for the state of Oregon and critical part of the planning process. Transportation planning provides opportunities for the public to help shape the direction of their community. The public involvement process helps decision makers balance the often competing goals and objectives of communities, including: economic development, safety, mobility, accessibility, equity of system users, land use, health and livability among others.

ACCESS MANAGEMENT

Managing the number of permitted accesses (driveways) to a highway is a proven way to move high volumes of traffic safely and efficiently. Access-controlled facilities limit the number of permitted approaches to a highway. Interstate highways are examples of access-controlled facilities.

Many state highways, however, function simultaneously as principal through-ways and as streets handling local traffic. In many cases, efforts to limit highway access through a city

have negatively impacted local livability. In other cases, local development approvals have attracted traffic that overwhelms an existing state highway or interchange and seriously impairs its function. Access management includes a range of activities aimed at balancing the need for access to properties adjacent to a highway with efficient and safe traffic movement on the highway.

DEFERRED MAINTENANCE

ODOT surveys pavement conditions on state-controlled highways every two years. The 2014 survey results are shown below. Pavement conditions are currently at 87 percent “fair” or better, having remained flat since the last rating was conducted in 2012:

- | | |
|--------------|-----------|
| • 18 percent | Very Good |
| • 46 percent | Good |
| • 23 percent | Fair |
| • 12 percent | Poor |
| • 1 percent | Very Poor |

Pavement conditions are expected to deteriorate in the future, due to a shortfall in funding versus needs. Pavement program funding levels are about 30 percent less than they were a decade ago. Further, the purchasing power of funding will not keep pace with inflation and aging of the system. Current pavement funding levels only allow for resurfacing every 30 years or longer while resurfacing treatments typically last 10 to 20 years.

Deferred maintenance on any type of facility creates higher costs in the long run. This is especially true for road pavements because the surface layer protects underlying foundation and soil from water and freeze damage, aging effects and traffic loads. ODOT estimates that it costs three to five times more to bring a section of pavement rated “poor” to a “good”



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rating than to bring pavement in “fair” condition to a “good” rating.

The condition of Oregon’s state highway bridges, while improved because of OTIA’s \$1.3 billion investment, is also expected to decline. (see *Bridges Background Brief* for more information).

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