



September 2014

Inside this Brief

- **History**
- **Existing Infrastructure**
- **Project Selection**
- **Studded Tire Damage**
- **Bonding for Transportation Project Construction**
- **Project Contracting**
- **Preservation First**
- **Maintenance Agreements**
- **Continuing Issues and Challenges**
- **Staff and Agency Contacts**

Legislative Committee Services
State Capitol Building
Salem, Oregon 97301
(503) 986-1813

Background Brief on ...

Roads and Highways

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." A 50 percent increase in travel during the past 20 years, 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 10.8 percent of road mileage in the state, but carry about 55 percent of the estimated 35.6 billion vehicle miles traveled in the state each year. The rest of the traffic is carried on the local road system, including about 33,000 miles of county roads, 10,800 miles of city streets, and 22,000 miles controlled by federal and state agencies. The combined system annually carried over 1.74 billion truck miles in 2009.

Project Selection

The Statewide Transportation Improvement Program (STIP) is Oregon's four-year capital improvement

program for major highway and public transportation projects in Oregon. 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, 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 biennially. The Oregon Transportation Commission (OTC) begins the update process by setting funding levels and approving project selection and prioritization criteria. The Commission ends the update cycle about two years later by adopting a STIP. The STIP is also approved by the U.S. Department of Transportation.

Many agencies and groups participate in the STIP process. These include: Area Commissions on Transportation (ACTs), cities, counties, transit districts, port districts, federal agencies, Indian tribal governments, the Freight Advisory Committee, metropolitan planning organizations (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, the Commission directed ODOT to put the program into two broad categories for the 2015-2018 update: “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 ensures that the department can take care of existing 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.
- ACTs can prioritize all Enhance projects important to the area.

Final review and approval of the 2015-2018 STIP will be completed between October and December 2014. ODOT will submit the 2015-2018 STIP to the U.S. Department of Transportation for approval in December 2014, along with transportation improvement programs from Oregon’s metropolitan planning organizations.

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 the Oregon Transportation Commission about project selection criteria as required by statute.

Studded Tire Damage

Use of studded tires is currently 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, many 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. In an analysis completed in 2000, ODOT estimated spending \$7.8 million a year to repair damage

caused by studded tires without keeping up with the annual damage. An additional \$3 million was spent by cities and counties to repair studded tire damage.

The Department is conducting a limited research effort to update the previous work and identify new information on winter tire use and impacts in the state. This work will provide a current estimate of studded tire use in different parts of the state as well as an updated estimate of cost incurred to repair damage caused by studded tires on the state highway system. This work is anticipated to be complete in fall 2014.

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

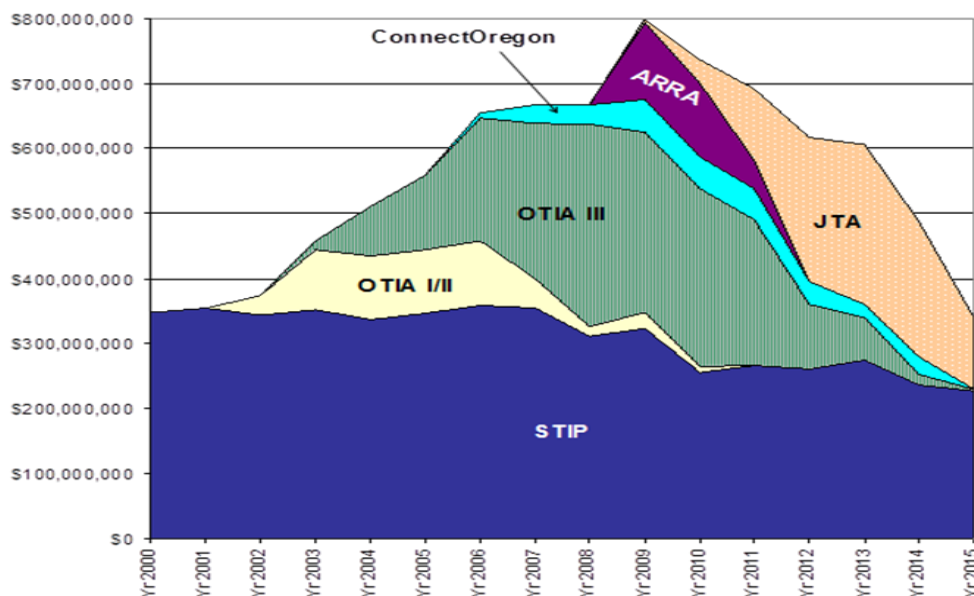
revenue to bond repayment would leave less money for future projects.

The Legislative Assembly initiated bonding to finance projects with the Oregon Transportation Investment Act (**OTIA**) 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 projects.

The state highway bond programs include:

- 2001 OTIA \$ 400 million – modernization, bridges, pavement preservation
- 2002 OTIA \$ 100 million – modernization, bridges, pavement preservation
- 2003 OTIA \$1.300 billion – state bridges
- 2003 OTIA \$ 300 million – modernization
- 2009 JTA \$ 840 million – modernization
- \$2.940 billion – Total

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 following chart illustrates the significant surge of investment in all transportation modes.



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. The agency 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 United States 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, or **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 the agency to control costs, schedule issues and design 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, the Oregon Transportation Commission, the Governor, and recent legislatures have made preservation of the existing system their highest priority for use of available funds. Because 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 of the country. According to TTI's 2012 Urban Mobility Report, travel delay in the Portland metro area is about 10 percent higher than the average delay for urban areas its size. In Salem, per capita delay is higher than the average for small urban areas; in Eugene, per capita delay is lower than the average.

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 the average commuter in the Portland metro area \$987 annually because of travel delay and additional fuel consumption.

The Port of Portland is leading an effort to update a 2005 report, *“Cost of Congestion to the Economy of the Portland Region.”*

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 United States 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. 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 336 fatalities in 2012.

Though this progress is notable, the death toll is tragic and preventable. The top three factors in fatal crashes are speeding, impairment from alcohol and/or drugs, and failure to wear a safety belt. The estimated economic impact of traffic fatalities in Oregon during 2012 was \$475 million; the estimated impact was \$1.37 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 are examining current practices and looking for new ways to keep workers and travelers safe. The message to Oregonians has always been: when you drive dangerously through a work zone, you’re not just putting highway workers at risk –

you’re putting yourself and your loved ones at risk. Continued diligence on the part of drivers, the construction and transportation industry, and law enforcement contributed to increased safety in the work zones over the last decade.

Nevertheless, the transportation community is looking for new ways to increase safety through education, engineering, enforcement, and emergency medical services.

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 reduction in numbers of State Police highway troopers due to increasing demands on the state General Fund. In addition, county sheriffs’ offices have reduced traffic patrol services due to reductions in federal timber payments.

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.

The 2009 Jobs and Transportation Act (**JTA**) (House Bill 2001) included a number of planning and environmental initiatives. This paper has touched on the STIP stakeholder review of project selection criteria. Other initiatives include:

- Least-Cost Planning - a process of comparing the direct and indirect costs of transportation demand and supply options to meet transportation goals, policies, or both where the intent of the process is to identify the most cost-effective mix of options. ODOT worked with stakeholders to develop a least-cost planning model, called Mosaic, to support the decision-making process. The

Mosaic tool is now being tested and evaluated.

- 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, the department will continue to improve the environmental permitting process.

Access Management

Controlling the number of points of access (driveways) to a highway is a proven way to move high volumes of traffic safely and efficiently. Interstate highways are examples of access-controlled facilities. Many state highways, however, function simultaneously as principal through-ways and as streets handling local traffic for local trips. In many cases, efforts to increase flow through a city have reduced 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.

Legislative measures in 2010, 2011, and 2013 have improved the balance between the economic development needs for properties adjacent to state highways and safe highway operations. Measures adopted since 2010 include:

- Objective criteria to determine when a new approach permit is required when a property changes use.
- Less stringent standards for lower-volume state highways.
- Objective standards for spacing between driveways.
- Recognizing driveways that were built as part of a highway project but for which no permit was issued.
- Placing the burden of proof on the Department of Transportation in disputes about access.

- Making the department's facility planning process more open and transparent.

The 11-member Access Management Oversight Task Force was established in 2011 to monitor and oversee the Department's continuing efforts to codify, clarify, and bring consistency to its access management process and to implement the measure.

Deferred Maintenance

ODOT periodically surveys pavement conditions on state-controlled highways. The 2012 survey results are shown below. Pavement conditions improved slightly overall to 87 percent "fair" or better, a one-percent improvement since the last rating was conducted in 2010:

16%	Very Good
50%	Good
21%	Fair
11.5%	Poor
1.5%	Very Poor

Pavement conditions are expected to deteriorate in the future. 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.

Deferring 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 layers 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" rating than to bring pavement in "fair" condition to a "good" rating.

The condition of Oregon's state highway bridges, while improved because of the Oregon Transportation Investment Act's \$1.3 billion investment, is also expected to decline. See the separate Background Brief on *Bridges*.

Staff and Agency Contacts

Patrick Brennan
Legislative Committee Services
patrick.h.brennan@state.or.us
503-986-1674

Vacant
[Oregon Department of Transportation](#)
503-986-3444

Emily Ackland
[Association of Oregon Counties](#)
503-585-8351

Craig Honeyman
[League of Oregon Cities](#)
503-588-6550

Committee Services provides centralized, non-partisan research and issue analysis for the Legislative Branch. Committee Services does not provide legal advice. Background Briefs are intended to give the reader a general understanding of a subject, and are based on information which is current as of the date of publication. Legislative, executive, and judicial actions subsequent to publication may affect the timeliness of the information.